

Muskrat Falls Project

CT0327-001 Agreement for
Construction of 350kV HVdc
Transmission Line
Between
Labrador – Island Link Limited
Partnership
And
Valard Construction LP

08 August 2014



LABRADOR-ISLAND LINK LIMITED PARTNERSHIP

and

VALARD CONSTRUCTION LP

CIVIL WORKS AGREEMENT

CONSTRUCTION OF 350kV HVdc TRANSMISSION LINE

Agreement No. CT0327

DATED AS OF 08 AUGUST 2014

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THIS AGREEMENT MADE as of August 8, 2014

BETWEEN:

LABRADOR-ISLAND LINK LIMITED PARTNERSHIP, a limited partnership formed pursuant to the laws of the Province of Newfoundland and Labrador, Canada, represented by its general partner, Labrador-Island Link General Partner Corporation, (hereinafter referred to as "**Company**")

- and -

VALARD CONSTRUCTION LP, a limited partnership formed pursuant to the laws of the Province of Alberta, Canada, represented by its general partner, Valard Construction 2008 Ltd. (hereinafter called "**Contractor**").

WHEREAS Company desires the performance of certain Work described in this Agreement;

WHEREAS Contractor is engaged in the business of performing such Work and will provide all expertise, equipment, material and personnel to perform the Work;

WHEREAS Company and Contractor wish to set out the terms and conditions on which Contractor shall carry out the Work;

NOW THEREFORE, the Parties, each in consideration of the promises and agreements of the other, hereby agree as follows:

ARTICLE 1 INTERPRETATION

- 1.1 The intent of this Agreement is to include all equipment, material, labour, products and services necessary for Contractor to perform the Work in accordance with this Agreement and any equipment, material, labour, products and services properly inferable therefrom. Contractor will not supply products or perform work inconsistent with or in contravention of this Agreement.
- 1.2 Capitalized words and phrases used herein shall, for all purposes of this Agreement and the Schedules hereto (unless there is something in the subject matter or context inconsistent therewith or unless otherwise defined herein), have the meaning set out below:
- (a) "**Acceptance**" means express acceptance, concurrence or consent in writing by Engineer and "**Accepted**", "**Acceptable**" and "**Accept**" shall be construed accordingly.

- (b) "**Aconex**" means a cloud based computer software program for communication that can be accessed via an internet connection and a web browser.
- (c) "**Affiliate**" or "**Affiliate(s)**" has the meaning given to affiliate in the *Canada Business Corporations Act*, R.S.C. 1985, c. C-44 and includes any limited partnership whose general partner is an affiliate of Company under that statute.
- (d) "**Affiliate Assignee**" has the meaning ascribed thereto in **Article 34.1**.
- (e) "**Agent Party**" means initially the Security Trustee, and from time to time any agent or other person designated by the Security Trustee to enforce the Security Interests, or any receiver of the Affiliate Assignee or any person appointed as a receiver by the Security Trustee for the assets of the Affiliate Assignee. At any point in time there shall only be one Agent Party and the Security Trustee shall inform the Contractor each time there is a change in the designation of the Agent Party.
- (f) "**Agreement**" means this document, including the Exhibits as referenced in **Article 1.16**, originally executed or as they may from time to time be supplemented, amended, revised or otherwise modified in accordance with the applicable provisions of this document and the Exhibits.
- (g) "**Applicable Laws**" means all laws, statutes, regulations, standards, codes, orders, by-laws, ordinances, directives or other rules enacted or issued from time to time by any duly constituted Authority having jurisdiction over Contractor or Company or the activities carried out under this Agreement, including safety, occupational health, customs and excise, taxation, workers compensation, labour and environmental protection laws, statutes, regulations, standards, codes, orders, directives and other rules.
- (h) "**Approval**" means express acceptance, concurrence or consent in writing and "**Approve**" and "**Approved**" shall be construed accordingly.
- (i) "**Authority**" means any:
 - (i) government or government department or agency;
 - (ii) municipality, local government authority or council;
 - (iii) other statutory authority;
 - (iv) fiscal or judicial body, commission, board, tribunal or agency; or
 - (v) other regulatory person or body;

(excluding the Company) having jurisdiction or authority in any way over Contractor or Company or the subject matter of the Agreement, including a right to impose a requirement or whose Approval is required with respect to the LCP or the Work.

- (j) **"Billing Information"** has the meaning ascribed thereto in **Article 12.6**.
- (k) **"Breach"** has the meaning ascribed thereto in **Article 34.2**.
- (l) **"Business Day"** means a day that is not a Saturday, Sunday or any other day which is a statutory holiday in the Province of Newfoundland and Labrador.
- (m) **"Change"** means any of the following:
 - (i) An addition to the Work;
 - (ii) A deletion of any part of the Work;
 - (iii) A revision or modification to any part of the Work already completed;
 - (iv) A variation to the schedule for the completion of a Milestone;
 - (v) A modification in, variation to or deviation from the requirements set out in Exhibit 1 – Scope of Work;

but for greater certainty, a Change shall not include:

- (A) modifications, revisions or deviations to the requirements of the Agreement that are necessary to make the Work satisfy the performance requirements set out in Exhibit 1 – Scope of Work;
- (B) any items that can reasonably be inferred as being included in the Work, including the advancement and development of the design of any element of the Work within the Contactor's responsibility under the Agreement;
- (C) modifications, revisions or deviations to the requirements of Exhibit 1 – Scope of Work or any additional services that are requested by Company that are necessary because of delays attributable to the Contractor Group;
- (D) corrections or additional services that are required because of Contractor's breach of any of its representations, covenants, warranties, guarantees or other obligations under this Agreement, including corrections or additional services made necessary due to noncompliance with the Agreement, Applicable laws or the requirements of Authorities;
- (E) the supply of any services, materials or equipment required to rectify any omissions, defects or deficiencies in the Work; or

- (F) matters that might otherwise be grounds for alteration of a date for a completion of a Milestone but which coincide with any concurrent delay or other matter within Contractor's responsibility under this Agreement.
- (n) "**Change Order**" means an order or directive for a Change issued in the form set out in Exhibit 3 – Coordination Procedures and signed by Company.
- (o) "**Change Request**" means a request for a Change issued in the form set out in Exhibit 3 – Coordination Procedures.
- (p) "**Claim**" means damages (including punitive and exemplary damages), expenses, costs, losses, injuries, liabilities, claims, liens, judgments, settlements, awards, remedies, debts, expenses, causes of action, demands, court costs, legal fees or disbursements.
- (q) "**Company**" means Labrador-Island Link Limited Partnership, represented by its general partner Labrador-Island Link General Partner Corporation, and its successors and assigns.
- (r) "**Company Group**" means collectively Company and Company's Other Contractors (including Engineer), and the respective Affiliates and Personnel of each of the foregoing.
- (s) "**Company's Other Contractors**" means all contractors and subcontractors of Company or its Affiliates, including all of their contractors and consultants (including any inspector) except Contractor and Subcontractors.
- (t) "**Company Representative**" means the person designated in accordance with **Article 10.4**.
- (u) "**Company Supplied Data**" means those documents listed in Exhibit 11 – Company Supplied Documents, together with such other documents to be provided by Company as shall be designated by Company in writing from time to time.
- (v) "**Confidential Information**" has the meaning ascribed thereto in **Article 32.1**.
- (w) "**Construction Schedule**" means the schedule for the Contractor's performance of the Work referenced in **Article 8.1** and described in Exhibit 3 – Coordination Procedures.
- (x) "**Contract Price**" means the sum of money specified in the Agreement, as the same may be adjusted from time to time by agreement between the Parties or in accordance with the terms of the Agreement, being the consideration for the satisfactory performance of the Work by Contractor in accordance with the Agreement and as specified in Exhibit 2 - Compensation.

- (y) "**Contractor**" means the Person identified as Contractor on the first page of this Agreement, and its successors and permitted assigns.
- (z) "**Contractor Group**" means Contractor and Subcontractors (including Subcontractor's subcontractors of every tier) and their vendors and suppliers and the respective Affiliates and respective Personnel of each of the foregoing.
- (aa) "**Contractor's Items**" means all machinery, systems, fittings, parts, spare parts, apparatus, tools, materials, supplies and any other equipment, material or items which are necessary to be supplied by Contractor Group at their cost to perform the Work but which are not incorporated into and form part of the completed Work.
- (bb) "**Contractor's Personnel**" means the Personnel to be provided by Contractor Group from time to time to perform the Work.
- (cc) "**Contractor's Representative**" is the person nominated as such in accordance with **Article 5.5**.
- (dd) "**Court**" means a court of competent jurisdiction and includes the Supreme Court of Canada.
- (ee) "**Cure Period**" has the meaning ascribed thereto in **Article 34.2**.
- (ff) "**Defect**" means any error, omission, deficiency, defect and/or failure in design, materials, engineering, workmanship, manufacture and/or installation.
- (gg) "**Dispute**" has the meaning ascribed thereto in **Article 30.1**.
- (hh) "**Drawings**" means the drawings set out in Exhibit 1 - Scope of Work.
- (ii) "**Effective Date**" means 08 August 2014.
- (jj) "**Engineer**" means Lower Churchill Management Corporation, or such other Person designated by Company in writing from time to time by giving Notice to Contractor, and any successors or assigns.
- (kk) "**Exhibits**" means the Exhibits forming part of this Agreement and identified in **Article 1.16**.
- (ll) "**Final Completion**" means that point in time when the conditions set out in **Article 25.6** have been satisfied.
- (mm) "**Final Completion Certificate**" means the certificate issued in accordance with **Article 25.7**.
- (nn) "**Force Majeure**" has the meaning ascribed thereto in **Article 29.1**.

- (oo) "**HST**" means all amounts exigible pursuant to Part IX of the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15, including, for greater certainty, the taxes commonly referred to as the goods and services tax (GST) and the harmonized sales tax (HST).
- (pp) "**Intellectual Property**" has the meaning ascribed thereto in **Article 36.3**.
- (qq) "**LCP**" means lower Churchill Projects which include hydroelectric power developments on the lower Churchill River located in the Labrador portion of the Province of Newfoundland and Labrador and associated power transmission facilities.
- (rr) "**LEG2/96**" means the 1996 "Model 'Consequences' Defects Wording" published by the London Engineering Group.
- (ss) "**Lender**" means any financial institution providing financing to Company or any of Company's Affiliates for the Work or for the LCP.
- (tt) "**Lower Churchill Construction Projects Benefits Strategy**" means the policy, strategy, obligations and procedures set out in the document located at www.NR.Gov.NL.CA/NR/Energy/LCP_Benefits_Strategy.pdf.
- (uu) "**Milestone**" means the start or completion of an activity in the performance of the Work and which is identified as such in Exhibit 9 – Schedule.
- (vv) "**Notice**" means a written communication that is required to be delivered in accordance with **Article 39**.
- (ww) "**Parent Guarantee**" means the guarantee referenced in **Article 7.2**.
- (xx) "**Party**" means Company or Contractor, as the context requires, and "**Parties**" means Company and Contractor collectively, and reference to any Party includes that Party's executors, administrators, substitutes (including persons taking by novation), successors and permitted assigns.
- (yy) "**Payment Certificate**" means the certificate described in **Article 12.8**.
- (zz) "**Payment Milestone**" means a Milestone identified in Exhibit 2 – Compensation for which payment of a portion of the Contract Price is to be made by Company to Contractor.
- (aaa) "**Person**" means an individual, a partnership, a corporation, a trust, an unincorporated organization, a union, a government or any department or agency thereof and the heirs, executors, administrators, successors, assigns or other legal representatives of an individual, and words importing persons have a similar meaning.

- (bbb) "**Personnel**" means the directors, officers, employees, consultants, non-employed representatives and agents of a Person.
- (ccc) "**Privacy Law**" means the *Access to Information and Protection of Privacy Act*, S.N.L. 2002 c. A 1.1, and all other applicable federal or provincial laws relating to the privacy, confidentiality or use of any information about individuals.
- (ddd) "**Project Manager**" means the person designated to represent Contractor in accordance with **Article 9.4** and **Article 9.5**.
- (eee) "**Punch List**" means a list of Defects or items of the Work that are not complete.
- (fff) "**Quality Plan**" means the plan described in Exhibit 7 – Quality Requirements.
- (ggg) "**Rights**" has the meaning ascribed thereto in **Article 36.3**.
- (hhh) "**Security Interests**" means the following rights granted by Affiliate Assignee to the Security Trustee: (a) any right of set-off or combination of accounts intended to secure the payment or performance of an obligation; (b) any interest in property securing an obligation owed to, or a claim by, a Person other than the owner (which for the purposes hereof shall include a possessor under a title retention agreement and a lessee under a capital lease or in a sale and leaseback transaction), including by way of mortgage, pledge, charge, lien, assignment by way of security, hypothecation, security interest, hire purchase agreement, conditional sale agreement, deposit arrangement, deemed trust, title retention, capital lease, discount, factoring or securitization arrangement deemed trust, on recourse terms; (c) any preference, priority, adverse claim, levy, execution, seizure, attachment, garnishment or other encumbrance which binds property; and (d) any agreement to grant any of the foregoing rights or interests.
- (iii) "**Security Trustee**" means the collateral trustee under a deed of trust and mortgage relating to senior secured bonds of the Affiliate Assignee, for and on behalf of the holders of such bonds from time to time, and any successor or assignee thereof.
- (jjj) "**Shop Drawings**" has the meaning ascribed thereto in **Article 37.1**.
- (kkk) "**Site**" means the location for the performance of Work as may be further described in Exhibit 1 – Scope of Work, which may include:
- (i) at the power plant, dam and/or immediate vicinity at Muskrat Falls (Labrador);
 - (ii) at any substations, converter stations, condenser stations and transition compounds at Churchill Falls (Labrador), Forteau Point (Labrador), Soldiers Pond (Newfoundland), Shoal Cove (Newfoundland); and/or

- (iii) at power transmission line routes, including all roads and access routes to Muskrat Falls (Labrador), Churchill Falls (Labrador), Forteau Point (Labrador), Soldiers Pond (Newfoundland), Shoal Cove (Newfoundland) and associated transmission lines.
- (lll) **"Standard of a Prudent Contractor"** means good faith performance of contractual obligations and exercising that degree of care, skill, diligence, prudence, workmanship and foresight expected from a skilled and experienced contractor engaged in the same type of undertaking, in similar circumstances or conditions and in compliance with all Applicable Laws and to the satisfaction of Authorities.
- (mmm) **"Subcontract"** means an agreement (including any written supplement or amendment) entered into between Contractor and any Person in the manner and to the extent permitted under the terms of the Agreement by which Contractor engages such Person to perform any part of the Work.
- (nnn) **"Subcontractor"** means any Person engaged by Contractor, other than employees of Contractor, to perform any part of the Work pursuant to a Subcontract, and shall include the successors and permitted assigns of any such Person.
- (ooo) **"Substantial Completion"** means that the Work has been completed to the extent specified in **Article 25.1**.
- (ppp) **"Substantial Completion Certificate"** means the certificate issued in accordance with **Article 25.2**.
- (qqq) **"Suspension Expenses"** has the meaning ascribed thereto in **Article 28.2**.
- (rrr) **"Suspension Period"** has the meaning ascribed thereto in **Article 28.1**.
- (sss) **"Tax"** or **"Taxes"** means any tax, fee, levy, rental, duty (including, for greater certainty, all customs duties, anti-dumping duties and countervailing duties), charge, royalty or similar charge including, for greater certainty, any federal, state, provincial, municipal, local, aboriginal, foreign or any other assessment, governmental charge, imposition or tariff wherever imposed, assessed or collected, and whether based on or measured by gross receipts, income, profits, sales, use and occupation or otherwise, and including, without limitation, any income tax, capital gains tax, fuel tax, capital tax, goods and services tax, harmonized sales tax, value added tax, sales tax, withholding tax, property tax, business tax, ad valorem tax, transfer tax, franchise tax, payroll tax or excise tax, together with all interest, penalties, fines or additions imposed, assessed or collected with respect to any such amounts.

- (ttt) "**Technical Requirements**" means specifications, drawings, plans or other documentation of a technical or scientific nature, and tests, set out or referenced in the Exhibits.
- (uuu) "**Technical Specifications**" or "**Specifications**" means the document contained in Exhibit 1 – Scope of Work.
- (vvv) "**Term**" has the meaning ascribed thereto in **Article 1.17**.
- (www) "**Warranty**" means the Contractor's obligations set out in **Article 17**.
- (xxx) "**WHSCC**" means the Workplace Health, Safety and Compensation Commission of the Province of Newfoundland and Labrador.
- (yyy) "**Work**" means all labour, supervision, engineering, design services and obligations to be performed and materials, equipment and products to be supplied by Contractor under the terms of this Agreement, as more particularly described in but not limited to **Article 3** and Exhibit 1 – Scope of Work, including Changes and the provision of all Personnel, plant, equipment, tools, supplies, facilities, documentation, records and other items necessary to the performance of such services and obligations.
- (zzz) "**Worksite**" means any lands, waters and any other places on, under, over, in or through which the Work is to be performed, including design offices, workshops, onshore facilities, factories, fabrication facilities and places where Contractor Items are obtained, stored or used for the purposes of this Agreement.
- 1.3 The titles, headings, captions, recitals and the provision of a table of contents are inserted for convenience of reference only and shall not affect the construction or interpretation of this Agreement.
- 1.4 Unless otherwise expressly stated, reference herein to an Exhibit or to an Article, clause, subclause or other subdivision is a reference to such Exhibit to this Agreement or to such Article, clause, subclause or other subdivision within this Agreement. A reference to a Section is a reference to a paragraph, clause, subclause or other subdivision in an Exhibit.
- 1.5 Words importing the singular only shall include the plural and vice versa, words importing any gender shall include other genders and words importing persons shall include individuals, partnerships, associations, trusts, unincorporated organizations and corporations and vice versa. Where a word is defined in this Agreement, a derivative of that word shall have a corresponding meaning.
- 1.6 Any reference in this Agreement to all or any part of any statute, regulation, by-law or other legislative enactment shall, unless otherwise expressly stated, be a reference to that statute, regulation, by-law or legislative enactment or relevant part thereof as amended, substituted, replaced or re-enacted from time to time.

- 1.7 Whenever an amount of money is referred to in this Agreement, such amount shall, unless otherwise expressly stated, be deemed to be Canadian dollars.
- 1.8 Time shall be of the essence with respect to the Milestones in Exhibit 9 – Schedule.
- 1.9 If the last day of any period of days set out in this Agreement falls on a day which is not a Business Day, such period of days shall be extended to the first Business Day immediately following the last day of such period of days. If anything in this Agreement falls to be done or held on a day which is not a Business Day, the same shall be done or held on the next succeeding Business Day.
- 1.10 Where reference is made to a direction, response, act, decision, determination, consent, waiver, approval, notice, request or other communication of Company or to matters which must be satisfactory to Company, then, unless otherwise expressly stated, that matter is to be conducted or carried out at the sole discretion of Company.
- 1.11 No waiver of any provision of this Agreement shall be of any force unless such waiver is in writing, is expressly stated to be a waiver of a specified provision of this Agreement and is signed by the Party to be bound thereby. A Party's waiver of any breach of, or failure to enforce, any of the covenants, conditions or other provisions of this Agreement, at any time, shall not in any way affect or limit that Party's right thereafter to enforce or compel strict compliance with every covenant, condition or other provision hereof.
- 1.12 The illegality or unenforceability of any provision of this Agreement shall in no way affect the legality or enforceability of any other provision hereof. Any illegal or unenforceable provision shall be deemed severed from this Agreement and the remainder of this Agreement shall be construed and enforced as if this Agreement did not contain such illegal or unenforceable provision.
- 1.13 Except as otherwise defined in this Agreement, words and abbreviations which have well known technical or trade meanings are used in the Agreement in accordance with such recognized meanings.
- 1.14 If any provision in the Exhibits conflicts with a provision in the Articles of this Agreement, the provision in the Articles of this Agreement shall prevail. In the event that any provision in any of the Exhibits conflict with any other provision in the Exhibits, priority shall be given in the order listed as follows:
- (a) Exhibit 1 - Scope of Work
 - (b) Exhibit 9 – Schedule
 - (c) Exhibit 2 – Compensation
 - (d) Exhibit 7 - Quality Requirements
 - (e) Exhibit 3 - Coordination Procedures
 - (f) Exhibit 11 - Company Supplied Documents
 - (g) the remaining Exhibits in their numerical order by Exhibit number

except in respect of Technical Requirements, in which case the more stringent provision will prevail.

- 1.15 The rights and recourse of Company and Contractor contained in the Agreement are cumulative and not in the alternative unless otherwise provided. The exercise of any such rights or recourse shall not constitute a waiver or renunciation of any other rights or recourse. Except as expressly provided in the Agreement, the obligations imposed by the Agreement and the rights and remedies available thereunder are in addition to and not a limitation of any obligations, rights and remedies otherwise imposed or available by law.
- 1.16 The following Exhibits are attached hereto and shall form and be read and construed as an integral part of this Agreement:

Exhibit	Description
1	Scope of Work
2	Compensation
3	Coordination Procedures
4	Supplier Document Requirement List
5	Health and Safety Requirements
6	Environmental and Regulatory Compliance Requirements
7	Quality Requirements
8	Subcontractors, Manufacturers and Material Sources
9	Schedule
10	Declaration of Residency
11	Company Supplied Documents
12	Not Used
13	Provincial Benefits
14	Performance Security

- 1.17 This Agreement shall be effective from the Effective Date and shall remain in full force and effect until the Work is complete, a Final Completion Certificate has been issued pursuant to **Article 25.7** and all Warranty obligations have been satisfied (the "**Term**"), unless earlier terminated in accordance with the provisions of this Agreement.
- 1.18 The words "includes" and "including", whether or not used with the words "without limitation" or "but not limited to", shall not be construed to be limited by the specific enumeration of items but shall in all cases be without limitation and construed and interpreted to mean "includes without limitation" and "including without limitation".
- 1.19 This Agreement shall be construed and the relations between the Parties determined in accordance with the Applicable Laws of Newfoundland and Labrador and Canada, including any limitation periods, and reference to such Applicable Laws shall not, by application of conflict of laws rules or otherwise, require the application of the Applicable Laws in force in

any jurisdiction other than Newfoundland and Labrador. The Parties hereby irrevocably attorn to the exclusive jurisdiction of the Courts of the Province of Newfoundland and Labrador and Canada for the resolution of any dispute arising hereunder.

- 1.20 If the Standard of a Prudent Contractor conflicts with any other provision in this Agreement, the other provision in the Agreement shall prevail. Contractor shall give Notice to Company of any standard or requirement in this Agreement that Contractor considers is less stringent than the Standard of a Prudent Contractor.
- 1.21 The language of this Agreement shall be English and all communications and dealings under and the resolution of any disputes concerning this Agreement shall be conducted in the English language. All information, data or documentation of any nature that Contractor prepares in the performance of the Work, is required to submit to Company or is requested by Company to submit, shall be prepared in English.
- 1.22 The doctrine of *contra proferentem* shall not apply in the interpretation of this Agreement, meaning that if there is any ambiguous language in this Agreement it shall not be interpreted more strongly against the Party who prepared or drafted the ambiguous language.
- 1.23 Any Approval by Company or Acceptance by Engineer shall not waive Contractor's obligations under Applicable Laws or as outlined in this Agreement.
- 1.24 Company is entering into this Agreement, and Contractor acknowledges that Company is entering into this Agreement, solely in its own right and not on behalf of Nalcor Energy.
- 1.25 If Contractor is a joint venture or partnership of two or more Persons, all such Persons shall be jointly and severally liable to Company for all liabilities, indemnities and obligations of Contractor under, and relating to, this Agreement. Such Persons shall designate in writing one of them to act as a partner in charge with authority to bind the joint venture or partnership, as the case may be. The composition or the constitution of the joint venture or partnership, as the case may be, shall not be altered without the prior consent of Company. If requested by Company, Contractor shall provide to Company a copy of the joint venture agreement or partnership agreement, as applicable, excluding its financial terms, and such agreement shall be subject to the provisions of **Article 32**.

ARTICLE 2 GENERAL COVENANTS OF CONTRACTOR

- 2.1 Contractor shall maintain in good standing its corporate existence and shall remain duly qualified to own its assets. Contractor acknowledges that it shall be carrying on business in the Province of Newfoundland and Labrador during the performance of the Work and agrees to comply with the registration and other relevant provisions of the *Corporations Act*, RSNL 1990, c. C-36.

- 2.2 Without limitation, Contractor shall undertake the Work in accordance with Applicable Laws, this Agreement and as required by any Authority. Contractor shall be subject to Company's environmental assessment obligations. For clarification, if any environmental effects or compliance monitoring or other measures are required by any Authority, the costs of such required measures shall be the responsibility of Contractor.
- 2.3 Contractor shall take such action as Company may specify to enable Company to comply with all Applicable Laws and in particular, Applicable Laws governing the use of local personnel, goods and services, which are in effect or which may come into effect during the Term.
- 2.4 Contractor shall promptly pay and discharge all amounts due and payable by Contractor to any and all creditors of Contractor (including all fees payable to obtain or maintain the Approvals and any fines, penalties or judgments resulting from any violation of the terms and conditions of the Approvals or breach of Applicable Laws relating to the LCP) except that Contractor shall not be required to pay any amounts due and payable to such creditors in respect of any amounts the validity of which is being contested in mediation, arbitration or litigation, provided an amount sufficient to satisfy the amount of the Claim, including interest and penalties, or security satisfactory to the Court has been paid into or delivered to the Court or to a trustee, or alternate provision therefor has been made on terms satisfactory to Company.
- 2.5 Contractor shall maintain the Work free and clear of all security interests other than security interests Approved by Company for financing of Contractor's performance of the Work. If a security interest is filed or registered against the Work that has not been Approved by Company, Contractor shall forthwith pay and discharge such security interest and an amount sufficient to satisfy the amount secured by the security interest, including interest and penalties, or security satisfactory to the Court has been paid into or delivered to the Court or alternate provision therefore has been made on terms satisfactory to Company.
- 2.6 Contractor shall give Notice to Company of any action, suit or proceeding pending or, to the knowledge of Contractor, threatened before any Authority, or before any arbitrator, mediator or referee that materially adversely affects or would reasonably be expected to materially adversely affect the Work.
- 2.7 Contractor shall preserve, protect and defend the Work from and against any action, suit or proceeding that materially adversely affects or, if successful, would reasonably be expected to materially adversely affect the Work. Contractor acknowledges that Company shall have the right, in its sole discretion, to defend its interests in the Work from and against any such action, suit or proceeding and, should Company elect to separately defend, Contractor shall pay all of Company's Costs of such defence and Contractor shall instruct its counsel to make full disclosure to Company.
- 2.8 Contractor represents and warrants that during the Term:

- (a) it has the required skills, experience, facilities, equipment, Personnel and capacity to perform the Work in a timely manner and in accordance with the terms of this Agreement, Applicable Laws, the Standard of a Prudent Contractor and sound industry accepted practices;
- (b) each of Contractor's Items is of good quality, in good working condition, is in compliance with all Applicable Laws and is fit for its intended use as contemplated in this Agreement; and
- (c) the making and performance of this Agreement are within its powers, have been duly authorized by all necessary action and do not and will not violate any Applicable Law or any provision of its governing documents.

2.9 Contractor covenants that during the Term it:

- (a) shall perform the Work in a diligent, safe, efficient and timely manner and in accordance with the Standard of a Prudent Contractor;
- (b) shall perform the Work continuously and in accordance with this Agreement, using only Contractor's Personnel and Subcontractors Approved by Company;
- (c) shall use quality assurance programs in performing the Work which comply with the requirements of Exhibit 7 – Quality Requirements, all Applicable Laws and industry accepted practices;
- (d) shall schedule all long lead time equipment or products for manufacture at the earliest possible date;
- (e) shall maintain, at its sole risk, cost and expense, all Contractor's Items throughout the Term;
- (f) shall comply with, and ensure Contractor's Personnel and Subcontractors comply with, all health and safety requirements set out in Exhibit 5 – Health and Safety Requirements and Applicable Laws;
- (g) shall comply with, and ensure Contractor's Personnel and Subcontractors comply with, all environment and regulatory requirements set out in Exhibit 6 – Environmental and Regulatory Compliance Requirements and Applicable Laws;
- (h) shall take all steps necessary to maintain good labour relations with Contractor's Personnel to the extent that such requirement is consistent with sound business practice;
- (i) shall, to enable Company to satisfy itself that Contractor is complying with the terms of this Agreement, provide such reports, records, and other information relating to the performance of the Work as Company may request from time to time, including

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copies of the qualifications and credentials of Contractor's Personnel and Subcontractors and information relating to quality assurance programs, and permit Company to inspect Contractor's Items and Worksites; and

- (j) shall implement and maintain a cost effectiveness program ensuring all techniques proposed for the performance of the Work are or have been reviewed to ensure that they are cost effective.
- 2.10 Contractor shall maintain, at its sole risk, cost and expense, all Contractor's Items throughout the Term in the manner necessary to ensure that the representations and warranties in **Article 2.8** shall be true and accurate at all times during the Term. If any of Contractor's Items do not at any time conform to the representations and warranties given in **Article 2.8**, Contractor shall, at Contractor's sole expense, repair such Contractor's Items or replace with items which conform in all respects to such representations and warranties.
- 2.11 Contractor shall be responsible, at its cost, for maintaining such inventories of Contractor's Items as necessary so as to avoid interruptions in the performance of the Work.
- 2.12 Contractor acknowledges and agrees that, except as otherwise expressly provided in this Agreement:
- (a) the success of the construction of the Work is dependent upon the timely performance by Contractor of all of its obligations under this Agreement and upon Company's ability to enforce its rights and remedies under this Agreement;
 - (b) the financial obligations of Company to Contractor in respect of the Work are limited to the payment of the Contract Price in accordance with the terms of this Agreement;
 - (c) Company makes no representations and warranties and gives no undertakings concerning the Tax consequences of or other effects of Applicable Laws on the Work or any corporate structure utilized by Contractor with respect to the Work;
 - (d) Contractor is solely responsible for obtaining its own independent financial, legal, Tax, accounting and technical advice with respect to all aspects of the Work;
 - (e) except as otherwise expressly provided for in this Agreement, Contractor is solely responsible for:
 - (i) the examination and review of all documents and information submitted by Contractor;
 - (ii) the geotechnical and hydrological conditions of the Sites;
 - (iii) obtaining any required Tax rulings; and

- (iv) all other matters which in any way relate to or affect the Work, the Contract Price or the time for completion of Milestones; and
 - (f) Contractor shall carry out its obligations hereunder independently and without reliance on Company in any manner whatsoever.
- 2.13 Contractor, in performing its obligations under this Agreement, shall establish and maintain appropriate business standards, procedures and controls including those necessary to avoid any real or apparent impropriety or adverse impact on the interests of Company and its Affiliates. Company reserves the right to review such standards and procedures at any time during the Term.
- 2.14 Contractor agrees to perform the Work and to conduct its operations in a manner which is consistent with the highest of ethical standards, including the Code of Business Conduct and Ethics set out in Exhibit 11 – Company Supplied Documents, and to avoid any unlawful or unethical intervention in the political affairs of any country. Contractor agrees to cause all Subcontractors to adopt and enforce the foregoing policy.
- 2.15 Contractor shall not pay any commission or fee, or grant any rebate or make any loan to any Personnel of Company Group or government official, or favour any Personnel of Company Group or government official with any gift or entertainment of significant value or enter into any business arrangement with any Personnel of Company Group or government official. Contractor agrees to cause all Subcontractors engaged in the performance of the Work to adopt and enforce the foregoing policy.
- 2.16 Whenever in this Agreement reference is made to Company or Engineer providing assistance, services, reviews, Approvals, Acceptances or consents or to Company inspecting the Work or the books or records of Contractor or conducting tests, observations and inspections, such undertaking by Company and Engineer shall not relieve, insulate or exempt Contractor from or represent a waiver of any requirement, liability, covenant or obligation under this Agreement or at law or in equity and shall not create or impose any requirement, liability, covenant, agreement or obligation on Company not otherwise created or imposed pursuant to the express provisions of this Agreement. In no event shall such undertaking by Company be a representation that there has been or will be compliance by Contractor with this Agreement.
- 2.17 All transactions, including those contemplated pursuant to this Agreement, with any Person which is not at arm's length (as that term is defined for purposes of the *Income Tax Act* (Canada) R.S.C. 1985, c.1 (5th Supp.)) from Contractor shall be on terms not less favourable to Contractor than competitive terms available to Contractor in comparable transactions with Persons that are at arm's length from Contractor.
- 2.18 Contractor warrants and acknowledges that it has reviewed and understands the Applicable Laws and Lower Churchill Construction Projects Benefits Strategy governing the use of personnel, goods and services in the Work. Contractor shall, throughout the Term, take



such action as Company may specify to enable Company to comply with all Applicable Laws regarding the use of Canadian and Newfoundland and Labrador personnel, goods and services, including any Newfoundland and Labrador Benefits requirements and those requirements set forth in Exhibit 13 - Provincial Benefits of this Agreement. Where Contractor is permitted to subcontract, Contractor shall ensure that Subcontractors comply with such requirements. In addition, Contractor shall provide reports in the manner and format described in Exhibit 13 - Provincial Benefits of this Agreement throughout the Term.

ARTICLE 3

CONTRACTOR'S WORK OBLIGATIONS

- 3.1 Contractor shall carry out all of its obligations under this Agreement and shall perform the Work, including:
- (a) all procurement, fabrication, construction, testing, transport, delivery, maintenance, storage, documentation, preservation, installation, testing, commissioning, repair and remediation of the Work;
 - (b) provision of all supervision, services, labour, trades, drafting, accounting, purchasing, expediting, inspection, testing, Personnel, Contractor's Items, transportation, mobilization and demobilization required for the compliance with and fulfillment of all Contractor's obligations under this Agreement;
 - (c) provision and installation of all equipment, products and materials required by this Agreement at a Site;
 - (d) ensuring the Work conforms strictly as to quality and description with the particulars stated in Exhibit 1 – Scope of Work and Company Supplied Data and complies with all Applicable Laws;
 - (e) any design or engineering which is the responsibility of Contractor under this Agreement;
 - (f) satisfaction of the performance requirements set out in Exhibit 1 – Scope of Work;
 - (g) provision of all documents as required under, and in accordance with, the terms of this Agreement;
 - (h) provision of any work not expressly detailed in this Agreement but which is necessary for the performance of the Work in accordance with this Agreement;
 - (i) rectification of any and all Defects in the Work as noted by Company, Engineer or any Authority; and



- (j) completing the Work, and portions thereof, in accordance with Exhibit 9 – Schedule.
- 3.2 Contractor shall review and verify the details contained in Exhibit 1 - Scope of Work and Exhibit 11 - Company Supplied Documents, and represents that it has a full knowledge and understanding of the nature and the scope of the Work, and including weather and all other conditions at Worksites. Contractor shall :
- (a) advise Engineer of any errors, omissions and inconsistencies in this Agreement and shall not proceed with any part of the Work affected by such until resolved by Engineer; and
 - (b) promptly report to Engineer any error, inconsistency or omission or any non-compliance with Applicable Laws which Contractor may discover and not proceed with the affected work until Engineer has received corrected or missing information from Contractor.
- 3.3 Contractor shall ensure the work it performs is sufficient to encompass all matters necessary for the proper and efficient fulfillment of Contractor's obligations under this Agreement.
- 3.4 Products and materials provided by Contractor shall be new. Products or materials which are not specified shall be of a quality consistent with those specified, fit for their intended use and Acceptable to Engineer.
- 3.5 All equipment, material, products, services, labour and other items required for completion of the Work are to be provided by Contractor and included in this Agreement, regardless of whether they are included in or differ from the quantities of equipment, material, labour and other items shown or described in Exhibit 1 – Scope of Work.
- 3.6 Contractor shall perform the Work to the Standard of a Prudent Contractor and shall ensure that Contractor Group shall perform to the same standard. Any material failure or any refusal or inability of Contractor to comply with the foregoing requirements shall constitute a breach of this Agreement. Contractor shall be solely responsible for any operations comprising the Work performed by Contractor Group.
- 3.7 Subject to **Article 10.3**, Contractor shall obtain and maintain all directions, guidelines, permits, certificates, authorizations, dispensations and licences of any type whatsoever necessary for the performance of the Work and shall comply with all Applicable Laws and requirements of Authorities. Contractor shall assist Company and provide necessary information and documents to support Company fulfilling Company's obligations set out in **Article 10.3**. Contractor shall promptly notify Company in writing upon any discovery of a failure to adhere to the foregoing requirements in connection with the performance of the Work and shall defend, indemnify and hold Company Group harmless from and against all fines and penalties, as well as costs, expenses, rates and charges of Contractor Group and

third parties, resulting from the failure of Contractor Group to comply with the foregoing requirements.

- 3.8 Contractor shall comply with all lawful instructions of Company pertaining to the performance of the Work, as communicated through the Company Representative, Engineer or otherwise in accordance with this Agreement. The absence of instructions from Company shall not permit Contractor to avoid its duty to perform its obligations under this Agreement. If Contractor fails to comply with a lawful instruction, then Company may at Contractor's sole risk and cost take whatever measures Company considers necessary to implement the instruction.
- 3.9 When work is performed by Company's Other Contractors at a Site at which Contractor is performing Work, Contractor shall:
- (a) afford Company and Company's Other Contractors reasonable opportunity to introduce and store their products and use their construction machinery and equipment to execute their work;
 - (b) co-ordinate and schedule the Work with the work of Company's Other Contractors;
 - (c) participate with Company's Other Contractors and Engineer in reviewing their construction schedules when directed to do so;
 - (d) where part of the Work is affected by or depends upon for its proper execution the work of Company's Other Contractors, promptly report to Engineer in writing and prior to proceeding with that part of the Work, any apparent deficiencies in such work (failure by Contractor to so report will constitute a waiver of claims against Company by reason of the deficiencies in the work of Company's Other Contractors except for those deficiencies not then reasonably discoverable); and
 - (e) comply with the requirements of **Article 31**.
- 3.10 At Company's option, Contractor shall transfer all unused excess materials, if any, to Company at the completion of the Work or sell such excess materials and any amounts realized from such sales shall be credited to Company as a deduction from the Contract Price.
- 3.11 Contractor shall direct and supervise the Work effectively to ensure conformity with the Agreement. Contractor will have sole responsibility for construction and installation means, methods, techniques, sequences and procedures and for coordinating the various parts of the Work under this Agreement.
- 3.12 Contractor will have the sole responsibility for the design, erection, operation, maintenance and removal of temporary supports, structures and facilities and the design and execution of construction methods required in their use.

- 3.13 Contractor will engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform those functions referred to in **Articles 3.1(e)** and **3.12** where required by Applicable Laws or by the Agreement and in all cases where such temporary supports, structures and facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.
- 3.14 Contractor Group will confine construction machinery and equipment, storage of products and operations of Contractor Group Personnel to limits indicated by Applicable Laws, permits or the Agreement and will not unreasonably encumber the Work with products, materials, or equipment.
- 3.15 Contractor will not load or permit to be loaded any part of the Work with a weight or force that will endanger the safety of Persons or the Work. Contractor shall be responsible for all aspects of lifting activities for the performance of the Work unless otherwise stated in Exhibit 1 – Scope of Work.
- 3.16 Where the Work and work of Company's Other Contractors is to be joined, connected, incorporated or merged, Contractor will do the cutting and remedial work required to make the several parts of the Work and the work performed by Company's Other Contractors come together properly. Contractor is responsible for:
- (a) the integration of the Work with existing work or on-going work being carried out by Company's Other Contractors;
 - (b) coordinating the Work to ensure that this requirement is kept to a minimum;
 - (c) performing any cutting and remedial work in a manner to neither damage nor endanger the Work.
- 3.17 Contractor will maintain the Work in a tidy condition and free from accumulation of waste products and debris, other than that caused by Company, Company's Other Contractors or their Personnel.
- 3.18 Contractor will remove waste products and debris, other than that resulting from the work of Company, Company's Other Contractors or their Personnel, and will leave the Work clean and suitable for use by Company before attainment of Substantial Completion. Contractor will remove products, tools, construction machinery and equipment not required for the performance of the remaining Work.
- 3.19 Prior to application for a Final Completion Certificate for payment, Contractor will remove all products, tools, construction machinery and equipment and waste products and debris, other than that resulting from the work of Company, Company's Other Contractors or their Personnel.



- 3.20 Contractor shall provide and pay for labour, products, tools, construction machinery and equipment, water, heat, light, power, transportation and other facilities and services necessary for the performance of the Work unless expressly stated in Exhibit 1 – Scope of Work that one or more of such items is to be provided by Company.
- 3.21 Subject to a Change to the Milestone Schedule made pursuant to **Article 14**, Contractor agrees to:
- (a) commence on or before the start date for each Milestone in Exhibit 9 – Schedule;
 - (b) complete the Work for each Milestone by the date specified for each Milestone in Exhibit 9 - Schedule;
 - (c) complete the Work on or before the date for Final Completion for the Work set out in Exhibit 9 – Schedule; and
 - (d) take all measures and act diligently in order that Contractor Group may timely comply with the duties and obligations imposed on Contractor under this Agreement.
- 3.22 Except as expressly provided in this Agreement, Contractor shall bear all costs, risk and liability in relation to the planning, procuring, construction, commissioning and completion of the Work including risk in delay, cost overruns and third party claims.
- 3.23 Contractor shall cause to be documented any archaeological finds located in or under the Worksites. Any artefacts exposed and/or recovered as a result of the excavation of a Site shall, as between Contractor and Company, become the property of Company.

ARTICLE 4 REPORTING AND MEETINGS

- 4.1 Contractor shall attend and participate in the meetings described in Exhibit 3 – Coordination Procedures and shall ensure, unless otherwise required by Engineer, that all relevant Subcontractors shall also attend when the subject matter of the meeting involves, relates to or impacts Subcontract work of that Subcontractor.
- 4.2 Contractor shall prepare and deliver to Engineer the progress and other reports set out in Exhibit 3 – Coordination Procedures.
- 4.3 Contractor agrees that Contractor's submission of a progress or other report is for Company's information only, and Company's receipt of such reports shall not bind Company in any manner. Company's receipt of a progress or other report shall not imply that Company:
- (a) approves Contractor 's Construction Schedule;

- (b) agrees that Contractor has the capacity or ability to complete the Work in accordance with the Construction Schedule;
 - (c) agrees that the Work can or will be completed in accordance with Exhibit 9 – Schedule;
 - (d) consents to any changes in scheduling or agrees to any extension of time;
 - (e) has been given Notice of any thing for which Notice is required under this Agreement; or
 - (f) waives any of the terms or conditions of this Agreement.
- 4.4 Contractor shall also attend any meeting which may be required by Company, acting reasonably, from time to time in connection with the Work, provided that Contractor has had at least twenty-four (24) hours notice of such meeting. Company and Engineer shall have the right of direct access to Contractor Personnel responsible for the functions of planning, constructing, commissioning, and environmental management.
- 4.5 Contractor shall inform Engineer in a timely manner of:
- (a) all emergencies;
 - (b) the status of the Approval processes;
 - (c) the occurrence of all uncontrollable material events; and
 - (d) any other significant information as would be expected under customary and prudent business practices given the nature of the Work.

ARTICLE 5 CONTRACTOR'S PERSONNEL

- 5.1 Contractor shall furnish and procure the numbers and classifications of Contractor's Personnel required to perform the Work. In the event Contractor fails to provide the numbers or classifications of Contractor's Personnel required in respect of the Work, Company may, at Contractor's sole expense, retain other contractors and deduct the costs associated with retaining such other contractors from the applicable compensation payable by Company to Contractor for the period such positions remain unfilled by Contractor. In such circumstances, Contractor shall assume, indemnify and save Company harmless for all liabilities associated with the retention of such other contractors.
- 5.2 Contractor shall ensure that throughout the Term each of Contractor's Personnel has the qualifications, training and experience, and holds valid licenses and certifications necessary to carry out assigned duties in the performance of the Work (including visas and work

permits). Contractor shall furnish records of competence for all of Contractor's Personnel when requested to do so by Company.

- 5.3 Contractor shall immediately remove and/or replace, at Contractor's own expense, any of Contractor's Personnel if, in the sole judgment of Company, any of Contractor's Personnel:
- (a) ceases to carry out his or her duties in a manner satisfactory to Company or engages in misconduct, unsafe activities, or is incompetent or negligent;
 - (b) is certified by a medical practitioner as being medically unfit for the duties required of him or her; or
 - (c) risks impairing his or her usefulness in the performance of his or her duties through the use of alcohol or drugs.
- 5.4 Unless otherwise Approved by Company, Contractor shall replace, or cause to be replaced, at Contractor's own expense, any of Contractor's Personnel who is transferred or dismissed by Contractor or any Subcontractor, or leaves Contractor's or Subcontractor's employ.
- 5.5 Contractor shall nominate in writing one of Contractor's Personnel as Contractor's Representative. Contractor's Representative shall:
- (a) be in charge of Contractor's Personnel and shall supervise Contractor's Personnel and maintain strict discipline in order to ensure the timely and efficient performance of the Work;
 - (b) shall notify Company in writing of the occurrence of or threat of any labour dispute involving Contractor's Personnel;
 - (c) have full authority to act on behalf of and bind Contractor on all labour and Contractor's Personnel issues which arise between Company and Contractor;
 - (d) supervise the performance of the Work;
 - (e) have the authority to commit Contractor to any course of action consistent with Contractor's rights and obligations under this Agreement; and
 - (f) be authorized to receive on behalf of Contractor any Notices, information or decisions of Company made pursuant to this Agreement.
- 5.6 If positions of Contractor's Personnel of key importance to the performance of the Work are listed in Exhibit 3 – Coordination Procedures, Contractor shall not change any Personnel in such positions without the prior Approval of Company. In the event any such key Personnel leave the service of Contractor, Contractor shall promptly use all commercially reasonable efforts to retain suitably trained and experienced replacement key Personnel. Contractor

shall not retain such replacement key Personnel on a permanent basis without first obtaining Company's Approval, which shall not be unreasonably withheld or delayed.

- 5.7 Contractor shall be responsible for, and shall defend, protect, release, indemnify and hold Company Group harmless from and against all Claims of any nature incurred by Company Group in connection with the payment of Contractor's Personnel, including all compensation, medical costs, Taxes (including all Canadian and foreign payroll and withholding Taxes and remittances), unemployment insurance premiums, Canada pension plan contributions and other benefits of whatever nature or as may be applicable in any jurisdiction (including any jurisdiction where the Work is performed or where the Personnel reside or are employed).
- 5.8 Contractor shall be responsible for, and shall defend, protect, release, indemnify and hold Company Group harmless from and against all Claims of any nature incurred by Company Group, including Claims by third parties and Company's Other Contractors, and against any damage to Company Group property arising from any act or omission by Contractor's Personnel.

ARTICLE 6 SUBCONTRACTS

- 6.1 Subject to **Articles 6.2** and **6.3**, Contractor may enter into Subcontracts for the performance of its obligations as set out in this Agreement provided, however, that Contractor shall not be relieved of any of its obligations to Company as set forth in this Agreement.
- 6.2 Contractor shall not Subcontract the whole of the Work and shall not Subcontract the performance of any portion of the Work, or its obligations under this Agreement, without Company's prior Approval.
- 6.3 For all Subcontractors that are identified in Exhibit 8 – Subcontractors, Manufacturers and Material Sources, Contractor shall not be entitled to replace or add one or more Subcontractors without the prior Approval of Company, which Approval shall not be unreasonably withheld.
- 6.4 Contractor agrees that:
- (a) each Subcontract shall be in writing, in form and substance satisfactory to Engineer;
 - (b) upon written request by Engineer, Contractor shall deliver to Engineer a copy of the executed Subcontract (which may omit pricing details only);
 - (c) no Subcontract shall be amended, varied or terminated without the prior Acceptance of Engineer provided, however, Engineer's Acceptance is not required for amendments or variations which impact on the Work but which do not cause the Work to vary from the Technical Requirements;

- (d) for any Subcontract delivered to Engineer, Contractor shall deliver to Engineer a copy of all amendments or variations to the Subcontract forthwith upon execution thereof;
 - (e) Contractor shall obtain or cause to be obtained from each Subcontractor a consent by such Subcontractor permitting the assignment to Company of the Subcontract; and
 - (f) Contractor shall retain from each payment to a Subcontractor a ten percent (10%) holdback pursuant to the *Mechanics' Lien Act*, R.S.N.L 1990, c.M-3, and shall release the holdback funds to each such Subcontractor no later than as provided under such statute.
- 6.5 Contractor will preserve and protect the rights of the Company under this Agreement with respect to work to be performed under Subcontract and will:
- (a) incorporate the terms and conditions of the Agreement into all contracts or written agreements with Subcontractors; and
 - (b) be as fully responsible to Company for acts and omissions of Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by Contractor.
- 6.6 Company may, in Company's sole discretion, at any time object to the use of a Subcontractor and require Contractor to employ another Subcontractor.
- 6.7 Company may provide to a Subcontractor information as to the percentage of such Subcontractor's work which has been certified for payment.
- 6.8 Contractor shall be responsible for all acts, defaults, and neglects whether occurring in relation to workmanship under contract, tort or statute of any Subcontractor, agent, servant, supplier, manufacturer and/or workman employed, retained or used by Contractor as fully as if they were acts, defaults or neglects of Contractor directly.
- 6.9 Contractor will maintain good order and discipline among Contractor Group and their respective Personnel or agents engaged on the Work and will not employ on the Work anyone not skilled in the tasks assigned.
- 6.10 Nothing contained in this Agreement will create any contractual relationship between or among:
- (a) Company and any Subcontractor, and any agent, employee and consultant thereof, or any other Person performing any of the Work;
 - (b) Company and any design or engineering consultant retained or hired by Contractor Group or their agent, employee or other person performing any of the Work.

- 6.11 Contractor shall immediately upon receipt of notice of any claim by any member of Contractor Group for a lien under the *Mechanics' Lien Act*, R.S.N.L. 1990, c.M-3, or otherwise, affecting or purporting to affect the Work, the LCP or the Site:
- (a) give Notice to Company; and
 - (b) take or cause to be taken on behalf of Company such measures as shall be necessary to procure the discharge thereof, including legal proceedings, if required.

However, in the event of a bona fide dispute with the lien claimant as to the validity of any claim for such lien, Contractor, subject to the Approval of Company, shall defend on behalf of Company, after first taking such steps on behalf of Company as may be necessary to remove all registrations in connection with such lien from title to the Work, the LCP and the Worksites, and shall indemnify Company pursuant to the provisions of **Article 21**. To the extent necessary to implement the foregoing, Company hereby authorizes Contractor to make such applications and to commence or participate in any legal or other proceedings in the name of Company as may be considered by Contractor to be necessary to perform the aforesaid obligations.

ARTICLE 7 PERFORMANCE SECURITY

- 7.1 Contractor shall deliver to Company on or before the Effective Date, a letter of credit issued by a bank listed in Schedule 1 to the *Bank Act*, S.C. 1991, c.46 as security for the proper performance of Contractor's obligations under this Agreement in the form and with the content specified in Exhibit 14 – Performance Security, the value and duration of which shall be:
- (a) equal to eight percent (8%) of the total Contract Price of Part A of Appendix A - Schedule of Price Breakdown of Exhibit 2 - Compensation, until a Final Completion Certificate has been issued pursuant to **Article 25.7**; and thereafter
 - (b) equal to four percent (4%) of the total Contract Price of Part A of Appendix A - Schedule of Price Breakdown of Exhibit 2 - Compensation, during the warranty period set out in **Article 17**.
- 7.2 Contractor shall deliver on or before the Effective Date, a guarantee duly executed by Quanta Services Inc. in the form and with the content specified in Exhibit 14 – Performance Security ("**Parent Guarantee**").
- 7.3 The Parent Guarantee shall provide that Quanta Services Inc. undertakes and guarantees that, if for any reason Contractor becomes unable or otherwise fails to carry out its obligations under this Agreement, Quanta Services Inc. shall provide such financial or other support as may be required by Company to ensure that all Contractor's obligations under this Agreement continue to be fulfilled.

- 7.4 All costs and expenses incurred in relation to the establishment and maintenance of the Parent Guarantee and the letter of credit described in this **Article 7** shall be included in the Contract Price.
- 7.5 Company may claim and have recourse to the Parent Guarantee or to the letter of credit, or in any combination, if Contractor has not performed its obligations in accordance with the Agreement or if Company otherwise has a Claim against Contractor.

ARTICLE 8

CONSTRUCTION SCHEDULE

- 8.1 Contractor shall prepare and maintain the schedules for the performance of the Work set out in Exhibit 3 – Coordination Procedures ("**Construction Schedule**").
- 8.2 Contractor represents and warrants to and in favour of Company that the Construction Schedule:
- (a) includes all elements of the Work;
 - (b) is consistent with this Agreement;
 - (c) provides that each Milestone shall be achieved on or before the applicable date in Exhibit 9 – Schedule;
 - (d) includes critical start and finish dates, critical milestones and commissioning periods for each element of the Work; and
 - (e) includes an appropriate allocation of time for completion of each item of Work.
- 8.3 The Construction Schedule shall be updated as necessary and in any event shall be updated by Contractor at least monthly and delivered to Engineer not more than seven (7) days after the end of the preceding month. Updates to the Construction Schedule shall comply with the requirements of this **Article 8** and the other terms of this Agreement.
- 8.4 Contractor shall use computer-based critical path methodology in maintaining and updating the Construction Schedule which shall estimate and schedule the time required to complete each element of the Work. The Construction Schedule shall, at all times, show all significant construction and related activities in support of all start dates and Milestone completion dates established under this Agreement, sufficiently detailed so that each of the following will be included and will be readily apparent:
- (a) the construction activities necessary to complete the Work;

- (b) the dates for delivery of all material, machinery, equipment and fixtures forming part of the Work;
- (c) Subcontractor interfaces and requirements; and
- (d) Milestone completion dates, which shall include allowances for normal delays and difficulties that may be encountered in work of this nature, including weather and holidays.

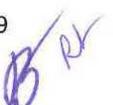
ARTICLE 9 CONSTRUCTION SUPERVISION

- 9.1 Contractor will be solely responsible for construction safety at the Worksites and for compliance with the rules, regulations and practices required by the applicable construction health and safety legislation and will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work.
- 9.2 Unless otherwise agreed in writing by Company, Contractor shall carry out or arrange for security for the Worksites and establish sufficient lighting and sign posting sufficient to ensure protection against damage or injury to persons or to the Work.
- 9.3 Contractor shall be responsible for all costs related to safety measures necessary for the prevention of accidents, the occupation of land, traffic, access to adjacent properties and the observation of all health and safety requirements under the Applicable Law.
- 9.4 Contractor will employ a competent Project Manager, site supervisor and necessary assistants. The site supervisor and necessary assistants will be in attendance at the Worksites while Work is being performed. The Project Manager or site supervisor will not be changed except for valid reason and only then with the prior Approval of Company. Company will be entitled by Notice to Contractor to object to any representative or person employed by Contractor (including persons other than Contractor's supervisor) in the execution of the Work who, in the opinion of Company, misconducts himself or herself is incompetent or negligent, and Contractor shall remove such person from the Work.
- 9.5 The Project Manager will represent Contractor generally and the site supervisor will represent Contractor at the Site. Instructions and notices given by Company to the Project Manager or to the site supervisor at the Site will be deemed received by Contractor.
- 9.6 For the purposes of the Applicable Laws, Contractor will be deemed to have control and management of the Worksites.

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ARTICLE 10 COMPANY'S OBLIGATIONS AND RIGHTS

- 10.1 Subject to the provisions of this Agreement, Company agrees to engage Contractor to perform the Work in accordance with the terms of this Agreement.
- 10.2 Company, through the Company Representative or Engineer, shall provide to Contractor such instructions and information which can only be provided by Company. The provision of any such instructions or information shall not in any way relieve Contractor of any of its obligations under this Agreement. Contractor acknowledges and agrees that Company makes no representations or warranties in relation to the fullness or accuracy of such instructions or information.
- 10.3 Company shall obtain all authorizations, permits and licenses required by Applicable Laws for the performance of the Work and which are required to be and can only be obtained in Company's name.
- 10.4 Company shall designate a Company Representative who shall have authority to act on behalf of Company regarding matters under the Agreement, receive and issue Notices and perform such other duties and acts reserved to the Company Representative under this Agreement.
- 10.5 The Company Representative shall at all times during the Term have access to the Contractor's Items and Worksites and may without limitation monitor the performance of the Work.
- 10.6 The Company Representative, by Notice to Contractor, may delegate any of his or her authority to any nominated deputy. Such Notice shall specify the precise authority of such deputy.
- 10.7 Company may change the Company Representative at any time at its sole discretion by Notice to Contractor.
- 10.8 Company is not obligated to supply any equipment, products or materials unless expressly stated in the Exhibits that Company will supply specific equipment, products or materials. If any such equipment, products or materials are supplied by Company to Contractor, the equipment, products and materials shall be in the care and custody of Contractor but shall remain the property of Company. Contractor shall not use any such equipment, products and materials supplied by Company except for the purpose for which they were intended under this Agreement, and Contractor shall be responsible for the proper care, handling and maintenance of all such equipment and materials and shall indemnify Company against any loss or damage.
- 10.9 Company has the right to award contracts in connection with the LCP to Company's Other Contractors.



ARTICLE 11

ROLE AND RESPONSIBILITIES OF ENGINEER

- 11.1 Engineer has been retained by Company to provide procurement, construction management and contract administration services. Engineer shall have such powers, discretions, functions and authorities as are specified in or as may be implied from this Agreement and shall carry out such duties (including issuing instructions, decisions, orders and Acceptance). Wherever Engineer is required to exercise its discretion by the giving of a decision, opinion or Acceptance, or to determine the cost or value of any matter which may affect the rights or obligations of a Party, Engineer shall exercise such discretion impartially within the terms of this Agreement, having regard to all circumstances.
- 11.2 Contractor shall comply with the decisions, orders and instructions given by Engineer in accordance with this Agreement.
- 11.3 Engineer shall confirm any decision, order or instruction in writing and any decision, order or instruction shall not be effective until such written confirmation has been received by Contractor.
- 11.4 Engineer shall be the interpreter of first instance of the Technical Requirements.
- 11.5 Contractor agrees that all Contractor's Items may be subject to inspection and Acceptance from time to time by Engineer or any Authority. Any Contractor Item which is rejected for not performing to standards set out in this Agreement or by Applicable Laws shall be immediately removed from the Worksite by Contractor and replaced with Contractor's Items Acceptable to Engineer at Contractor's cost.
- 11.6 Contractor shall not commence any Work involving permanent installation of any equipment, materials or products until the Contractor has submitted to Engineer and Engineer has Accepted the health, safety and environmental plans required by **Article 15** and Engineer has issued drawings marked "issued for construction" for the part of the Work to be performed.
- 11.7 Engineer shall notify Contractor when the Site is available for permanent installation of any equipment, materials or products as part of the Work, and Contractor shall not commence any Work at the Site until such notification has been given.
- 11.8 Where the Agreement calls for the Acceptance by Engineer or Approval by Company with respect to design, manufacture, installation, testing and commissioning of the Work, any such Acceptance or Approval is for general compliance with the Technical Requirements and does not relieve Contractor from satisfying all Technical Requirements. No inspection, review or Acceptance by Engineer or Approval by Company shall release Contractor from compliance with Contractor's obligations under this Agreement or Applicable Law.



ARTICLE 12 COMPENSATION AND TERMS OF PAYMENT

- 12.1 As full compensation for the performance by Contractor of all its obligations under this Agreement, Company shall pay Contractor the Contract Price in accordance with the terms of this Agreement including **Article 12**, Exhibit 2 – Compensation and Exhibit 3 – Coordination Procedures. Only those rates and prices specifically identified in Exhibit 2 – Compensation shall be paid by Company and any costs not specifically identified in Exhibit 2 – Compensation shall be deemed to be included in such rates and prices. Company shall have no obligation to pay Contractor for the purchase of any goods or performance of any services which have not been Approved by Company prior to delivery of such goods or prior to performance of such services.
- 12.2 Within thirty (30) days of the Effective Date, Engineer, on behalf of Company, shall provide Contractor with a pro forma invoice that sets out all relevant Company cost codes and required information. Contractor shall utilize said pro forma invoice and cost codes when billing Company.
- 12.3 Compensation to Contractor shall be paid:
- (a) monthly based on progress, and/or
 - (b) upon achieving a Payment Milestone,
- as further specified in Exhibit 2 – Compensation. Contractor shall be paid the portion of the Contract Price applicable to monthly progress or to a Payment Milestone following Approval by Company of a Payment Certificate and in accordance with the provisions of this **Article 12**.
- 12.4 Contractor shall provide, maintain and issue to Engineer, a detailed listing of the invoiced amounts of the Work and cash flow requirements regarding unbilled portions of the Work in accordance with the requirements set out in Exhibit 3 – Coordination Procedures. Contractor shall develop and present a format for the listing for Company Approval.
- 12.5 Contractor's invoices shall comply in all respects with Company's invoicing instructions as provided for in this Agreement, including Exhibit 2 – Compensation, Exhibit 3 – Coordination Procedures and Exhibit 13 - Provincial Benefits.
- 12.6 Invoices shall be accompanied by:
- (a) all relevant supporting documentation as Company or Engineer may require to verify completion of the Work, the accuracy of the fees, charges and third party charges invoiced including copies of any relevant third party invoices, receipts and purchase orders;

- (b) timesheets Accepted by Engineer for any Work performed on a time and materials basis;
- (c) receiving reports and a summary page of all third party invoices, complete with summary sheet cross referring to all backup information;
- (d) a sworn declaration, in the form set out in Exhibit 2 - Compensation, that Contractor has paid Subcontractors, vendors and suppliers all amounts properly due for work, services, materials and equipment supplied or performed and billed by the Subcontractors, vendors and suppliers and included in Contractor's prior invoices for which Payment Certificates have been Approved by Company; and
- (e) any other documentation Company may reasonably require.

(All invoicing requirements, information and documentation described in this **Article 12** shall hereinafter be referred to as the "**Billing Information**". Billing Information should always comprise a summary sheet with cross referencing to all backup information which demonstrates a clear audit trail substantiating all charges presented on the invoice.)

12.7 Company shall not be responsible for delays in payment due to Contractor not providing complete Billing Information.

12.8 Contractor shall submit an application for payment as follows:

- (a) For compensation based on monthly progress, Contractor shall issue to Engineer on the 25th day of each month during the performance of the Work, for Company's Approval, a Payment Certificate in the form set forth in Exhibit 3 – Coordination Procedures, that sets out:
 - (i) for Work items paid on a unit price basis, the number of units completed in that month together with the unit price and total claimed for each unit price item;
 - (ii) for Work items paid on a lump sum basis, the percentage completed as of the 25th of the month together with the amount claimed for each lump sum item based on the percentage completed less any amounts previously paid by Company for each such item;
 - (iii) for Work items paid on a reimbursable basis, Contractor will include such reimbursable items accompanied by appropriate references to the Agreement covering such items and a summary sheet cross referencing such items to all relevant Billing Information to demonstrate a clear audit trail substantiating all such items presented with the Payment Certificate;

and accompanied by all relevant supporting documentation as Engineer or Company may reasonably require to verify the progress achieved.

- (b) For compensation based on Payment Milestones, when Contractor considers that a Payment Milestone has been completed and the criteria for completion of that particular Milestone have been achieved, it shall issue to Engineer, for Company's Approval, a Payment Certificate in the form set forth in Exhibit 3 – Coordination Procedures, together with all relevant supporting documentation as Engineer or Company may reasonably require to verify the successful completion of the relevant Milestone criteria and achievement of the Payment Milestone.
- 12.9 Where payment is made for Work items on a unit price basis, the quantities of unit priced items in Exhibit 1 – Scope of Work and Schedule of Unit Prices in Exhibit 2 - Compensation are estimated quantities only. Any increase or decrease in the quantities of Work performed in respect of those items listed in Exhibit 1 – Scope of Work and Schedule of Units Prices in Exhibit 2 – Compensation shall not result in a change in the unit price for those items.
- 12.10 On receipt of a Payment Certificate, Engineer shall review it and the associated supporting Billing Information. If Engineer determines that:
- (a) For Work compensated on a monthly progress basis:
- (i) the progress claimed in the Payment Certificate has been achieved, Engineer shall recommend to Company that the Payment Certificate may be Approved; or
- (ii) the progress claimed has not been achieved, Engineer shall amend the Payment Certificate to reflect the progress actually achieved and advise Contractor in writing the reasons for the revision, and recommend to Company that the revised Payment Certificate may be Approved; and
- (b) For Work compensated on a Payment Milestone basis:
- (i) the Milestone has been achieved, Engineer shall recommend to Company that the Payment Certificate may be Approved; or
- (ii) the Milestone has not been achieved, Engineer shall reject the Payment Certificate and advise Contractor in writing the reasons why the Milestone has not been achieved.
- 12.11 Upon receipt of a Payment Certificate Approved by Company, Contractor shall submit an invoice for the amount due as determined in accordance with Exhibit 2 – Compensation and the requirements of Exhibit 3 – Coordination Procedures. The invoice shall be supported by the Approved Payment Certificate and all Billing Information as Engineer or Company may reasonably require.
- 12.12 Contractor shall address invoices to:

Labrador-Island Link Limited Partnership
350 Torbay Road Plaza, Suite No. 2
St. John's, NL
A1A 4E1
Attention: Lower Churchill Project Accounts Payable

- 12.13 If any Change affects the Contract Price, Contractor may issue an invoice for the Work completed pursuant to the applicable Change Order, as follows:
- (a) For Change Orders carried out on a lump sum basis, Contractor shall comply with the requirements outlined in **Articles 12.5** through **12.12** in the same manner as if the completion of the Change Order Work is payable by monthly progress or constitutes a Payment Milestone.
 - (b) For Change Orders carried out on a reimbursable basis, Contractor shall include that portion of the Change completed in the previous month in its application for payment pursuant to **Article 12.8(a)** accompanied by all Billing Information including an executed copy of the relevant Change Order, a copy of time sheets Accepted by Engineer, daily progress reports and any other information as Engineer may require to verify the progress, completion and associated charges pertaining to the Change. The final invoice for reimbursable Changes shall also include any information as Engineer may reasonably require to verify the successful completion of the Change.
- 12.14 If Contractor fails to comply with the requirements of **Article 12.6**, the Work shall be deemed incomplete and Company may withhold monies otherwise payable to Contractor and/or return invoices to Contractor for resubmission until such Billing Information has been provided to the satisfaction of Company.
- 12.15 Within thirty (30) days following Engineer's receipt of a properly prepared invoice, accompanied by acceptable Billing Information in accordance with **Article 12**, Company shall pay to Contractor the amount stated to be due, subject to all of the following:
- (a) Company shall be entitled to withhold from such payment any amount(s) required by Applicable Laws or permitted hereunder.
 - (b) Notwithstanding the foregoing, if Engineer disputes any item charged in any invoice, Engineer shall notify Contractor of the disputed item specifying the reason therefor. Payment of such disputed item shall be withheld until settlement of the dispute, provided that payment shall be made on the undisputed portion.
 - (c) Company shall be entitled to set off amounts which it owes to Contractor under this Agreement or any other agreement against amounts which Contractor owes to Company under this Agreement or any other agreement.

- (d) For any payments made by Company to Contractor by electronic transfer, Contractor shall provide Company with the necessary banking information to facilitate electronic transfer of funds to Contractor's bank. Any changes in Contractor's banking information or payment instructions shall be submitted in writing to the Company Representative. The Company shall not be held liable or responsible for errors or delays resulting from incorrect or delayed submission of changes in banking instructions.

12.16 Not Used.

12.17 Company shall be entitled to withhold payment, or to deduct from Contractor's compensation, any amounts associated with:

- (a) invoiced items reasonably disputed by Company;
- (b) Contractor's failure to make payments promptly to Subcontractors, agents, or suppliers;
- (c) Contractor's failure to remit or pay any Tax or make any other payment required under Applicable Laws where Company, acting reasonably, determines that any such remittance or payment may be assessed against the Company;
- (d) Defects in the Work not remedied;
- (e) liens or claims filed or registered against property, or reasonable evidence indicating to Company the probability of claims or liens being filed or registered, with respect to the Work; and
- (f) any other matter as permitted or required by Applicable Laws or as expressly provided in Exhibit 2 – Compensation, or elsewhere in this Agreement.

12.18 Company's obligation to pay any amounts to Contractor under this Agreement is subject to the following terms and conditions, which are inserted for the sole benefit of Company and may be waived by Company in whole or in part in respect of any payment, without prejudicing the rights of Company at any time to assert such terms or conditions in respect of any subsequent payment, namely:

- (a) no notice of claim for lien shall have been given in connection with the Work or if a notice of such a claim for lien shall have been given, such claim shall have been released, vacated or, if applicable, removed from title or the claim shall have been secured through the delivery of a bond in respect of the full amount of the claim;
- (b) there shall exist no default, or any event which, with the passage of time or the giving of notice or both, would constitute a default on the part of Contractor; and

- (c) Company shall have received such other documents or satisfied such other conditions as Company or its project lenders may reasonably require and which are material to the Work.
- 12.19 If either Party fails to make payments as they become due under the terms of this Agreement or under an award by arbitration or Court, interest at the three (3) month Treasury Bill rate, as published by the Bank of Canada for the period in question, on unpaid amounts will also be due and payable until payment. Interest will apply at the rate and in the manner prescribed by this Article on the amount of any claim settled pursuant to **Article 30** from the date the amount would have been due and payable under this Agreement, had it not been in dispute, until the date it is paid.
- 12.20 For greater certainty, Contractor and Company acknowledge that, notwithstanding any other provision of this Agreement, any amounts payable by Company to Contractor pursuant to this **Article 12** are exclusive of any HST as payable pursuant to section 165 of the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15. If Contractor is required to collect from Company an amount of HST with respect to the provision of any goods or services supplied pursuant to this Agreement, then Company, subject to compliance by Contractor with **Articles 12.21** and **12.22**, shall pay the amount of such HST to Contractor.
- 12.21 Contractor represents and warrants that it is now and shall remain registered for the purposes of the HST in accordance with Part IX of the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15, for the Term and that its HST Registration number is 827 187 691RT0001.
- 12.22 Contractor shall provide, at all times when any HST is required to be collected, such documents and particulars relating to the supply as may be required by Company to substantiate a claim for any input tax credits as may be permitted pursuant to the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15, in respect of such HST. Without limiting the foregoing, Contractor shall include on all invoices issued pursuant to this **Article 12** all of the following particulars:
- (a) HST registration number of Contractor;
 - (b) the subtotal of all taxable supplies;
 - (c) the applicable HST rate(s) and the amount of HST charged on such taxable supplies; and
 - (d) a subtotal of any amounts charged for any "exempt" or "zero-rated" supplies as defined in Part IX of the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15.

ARTICLE 13

TAXES

- 13.1 Contractor acknowledges that it shall be carrying on business in the Province of Newfoundland and Labrador (and elsewhere as applicable) during the performance of the Work and agrees to prepare and to file in a timely manner all Tax returns or declarations required by any applicable Authority or Applicable Laws having jurisdiction over this Agreement or any portion thereof. Contractor shall lawfully discharge its Tax obligations.
- 13.2 Subject to the obligation of the Company to pay HST pursuant to **Article 12.20**, Contractor shall pay all Tax and shall use its best efforts to ensure payment by Subcontractors of all Tax which may be lawfully assessed upon Contractor or any Subcontractor by any Authority having jurisdiction over Contractor, Subcontractor or this Agreement.
- 13.3 Contractor represents that Contractor's residence status for the purposes of Canadian income tax legislation is as set forth in Exhibit 10 – Declaration of Residency. Contractor shall advise Company of the country where Contractor is a resident for income tax purposes and shall give thirty (30) days Notice to Company and obtain its prior written consent before making or allowing any change to its tax residency status. If Contractor obtains, and provides to Company a copy of, an income tax waiver from the Canada Revenue Agency (CRA) waiving a non-resident tax source deduction as may be required by Canadian income tax legislation, Company agrees not to withhold any such income tax deduction to the extent waived so long as the waiver is and remains in force. In any event, Contractor further agrees to be liable for all such Taxes and shall indemnify Company in respect thereof pursuant to **Article 21.9** of this Agreement.
- 13.4 If required by the Applicable Laws of any country having jurisdiction, Company shall have the right to withhold amounts, at the withholding rate specified by such Applicable Laws, from any compensation payable for the Work performed by Contractor Group, and any such amounts paid by Company to an Authority pursuant to such Applicable Laws shall, to the extent of such payment, be credited against and deducted from amounts otherwise owing to Contractor hereunder. Contractor shall note on each invoice whether any portion of the Work covered by such invoice was performed inside or outside of Canada for the purposes of Canadian income tax legislation or such other information requested or required by Company to properly assess withholding requirements. At the request of the Contractor, Company shall deliver to Contractor properly documented evidence of all amounts so withheld which were paid to the proper Authority for the account of Contractor.
- 13.5 Contractor shall supply and arrange for all Contractor's Personnel to supply Company with all information relating to the activities under this Agreement that is necessary to enable Company or its Affiliates to comply with the lawful demand for information by any Authority. In the event Contractor does not supply or take all steps to arrange for any Subcontractor to supply such information and, as a result, an Authority imposes a Tax or

fine upon Company or any of its Affiliates, Contractor shall forthwith pay or reimburse Company or any of its Affiliates for such Tax or fine.

- 13.6 Subject to the obligation of Company to pay HST pursuant to **Article 12.20**, the Contract Price shall include, and Contractor shall be responsible for, all Taxes which Contractor or Company is obliged pursuant to Applicable Laws to pay and does pay, for the purchase, sale, importation and exportation of the Work, or Contractor's Items, or personal property of any member of Contractor Group. Except as otherwise expressly provided herein, Contractor shall be the "importer of record" for the purpose of importing into Canada all Contractor's Items and the Work, or any part thereof, and shall pay all Taxes payable in respect of all such importations.
- 13.7 Contractor shall obtain for the benefit of Company all available exemptions from or recoveries of Taxes and shall employ all prudent mitigation strategies to minimize the amounts of Taxes required to be paid in accordance with Applicable Laws. In the event Contractor obtains any rebate, refund or recovery in respect of any such Taxes, it shall immediately be paid to Company to the extent that such amounts were paid by Company or reimbursed to Contractor by Company.
- 13.8 Notwithstanding any other provision of this Agreement, Contractor Group shall not make any statement, representation, filing, return or settlement regarding Taxes on behalf of Company to an Authority without the prior Approval of Company.
- 13.9 For greater certainty, Contractor and Company acknowledge that, notwithstanding any other provision of this Agreement, any amounts payable by Contractor to Company pursuant to this Agreement are exclusive of any HST payable pursuant to the *Excise Tax Act* (Canada), R.S.C. 1985, c. E-15 or any other Taxes exigible in respect of such amounts payable. If Company is required to collect from Contractor an amount of HST or other Taxes with respect to any such amounts payable pursuant to this Agreement, then Contractor shall pay the amount of such HST or other Taxes to Company. If the amounts payable by Contractor to the Company pursuant to this Agreement are deemed by any Applicable Law to include an amount of HST or other Taxes, the amount otherwise payable pursuant to this Agreement shall be increased to the extent necessary so that the amount payable to the Company, net of such HST or other Taxes, is equal to the amount that would have been payable to the Company if such HST or other Taxes were not deemed to have been included in such amount.
- 13.10 For greater certainty, anti-dumping duties, countervailing duties and the like shall, in all cases, be borne by Contractor. Should any such duties become payable by Company, Contractor shall be liable for and defend, protect, release, indemnify and hold Company harmless from and against any such duties, together with any interest, penalties and reasonable costs related thereto, and Contractor shall immediately provide Company with sufficient funds to pay such duties and other amounts in full. If Company has already paid such duties or other amounts, Contractor shall reimburse Company, on demand, the full amount of such duties and other amounts so paid.



ARTICLE 14 CHANGES IN THE WORK

- 14.1 Company has the right to make a Change at any time and from time to time during the performance of the Work by issuing a Change Order. Contractor shall implement all Changes required by Company. Compensation for a Change shall be determined in accordance with Exhibit 2 – Compensation and Exhibit 3 – Coordination Procedures.
- 14.2 Contractor shall not perform and shall not be entitled to any compensation for a Change without a Change Order issued by the Company to the Contractor for the Change.
- 14.3 Contractor shall commence with and shall execute all Changes with all due diligence immediately upon receipt of a Change Order issued by Company.
- 14.4 Contractor shall comply with the requirements of Exhibit 3 – Coordination Procedures in the development of the pricing, impacts on resources and schedule as it relates to a Change and present a comprehensive proposal covering the Change to Company for Approval.
- 14.5 Except to the extent expressly provided in a Change Order, no Changes shall vitiate or invalidate or be deemed to amend or be deemed to constitute a waiver of any provision of this Agreement. All Changes shall be governed by all the provisions of this Agreement. Changes will not result in any limitation of Contractor's Warranty under **Article 17**.
- 14.6 In the event the Parties fail to reach agreement on the pricing and impacts on resources and schedule with respect to a Change, Contractor shall perform the work specified in the Change Order as issued by Company and either Party may give a Notice of the Dispute which will be handled in accordance with **Article 30** but in no case shall the price of any Change exceed an amount determined in accordance with **Article 14.10**.
- 14.7 If Contractor considers that a Change is necessary or desirable, Contractor may request a Change Order by submitting a Change Request in writing to Engineer in accordance with the procedure set out in Exhibit 3 – Coordination Procedures.
- 14.8 If Contractor considers that an occurrence has taken place which constitutes a Change, then Contractor shall, within ten (10) Business Days of the occurrence, contact Engineer and request a Change Order, by submitting a Change Request to Engineer in accordance with the procedure set out in Exhibit 3 – Coordination Procedures. If Company:
- (a) agrees that the occurrence constitutes a Change, then Company shall issue a Change Order in respect of the Change;
 - (b) disagrees that the occurrence constitutes a Change, Contractor shall proceed with the Work without delay and such continuation of the Work shall be without prejudice to Contractor's rights to advance a Dispute under **Article 30**.

If Contractor fails to comply with the conditions of this **Article 14.8**, it will relinquish its right to request a Change Order and waives any claim it may have for additional compensation and for an extension of time to complete a Milestone arising from the occurrence.

- 14.9 Changes shall be invoiced and paid for in accordance with **Article 12**, Exhibit 2 – Compensation and Exhibit 3 – Coordination Procedures. Cost of the work carried out under a Change Order will reflect any discounts, rebates, refunds or free material credits earned with purchase of material or other goods and services charged under a Change.
- 14.10 The adjustment in the Contract Price for a Change carried out prior to agreement by Contractor and Company on the price for the Change shall be determined on the basis of the cost of expenditures and savings to perform the work attributable to the Change as determined in accordance with **Articles 14.11** and **14.12(a)**, and overhead and profit as follows:
- (a) to the extent rates and prices in Exhibit 2 – Compensation apply, there shall be no allowance for overhead and profit;
 - (b) to the extent rates and prices in Exhibit 2 – Compensation do not apply:
 - (i) if a Change results in an increase in the Contract Price, an allowance for overhead and profit will be included as specified in Exhibit 2 - Compensation;
 - (ii) if a Change results in a decrease in the Contract Price, the amount of the credit to Company will be the cost of the work removed by the Change with a corresponding nine percent (9%) deduction on that cost for overhead and profit; and
 - (iii) when both additions and deletions covering related work or substitutions are involved in a change in the Work, the allowance or deduction for overhead and profit will be calculated on the basis of the net increase or decrease, if any, with respect to that change in the Work.
- 14.11 Contractor shall keep and present in such form as Company may require an itemized accounting of the cost of expenditures and savings referred to in **Article 14.10** together with supporting data. The cost of performing the work attributable to the Change shall be limited to the actual cost incurred by Contractor for the performance of the work attributable to the Change, using any applicable rates and prices in Exhibit 2 – Compensation, where the actual cost shall be limited to:
- (a) wages (including applicable Taxes) and benefits paid for labour in the direct employ of Contractor under applicable collective bargaining agreements;
 - (b) the cost (including cost of transportation) of all equipment, material products incorporated into the Work less any trade discounts;

- (c) the cost (including cost of transportation) of materials, supplies, equipment and maintenance thereof, which are consumed, less any trade discounts and less salvage value on such items used but not consumed and which remain the property of Contractor;
- (d) rental cost of all tools, machinery and equipment, exclusive of hand tools, whether rented from or provided by Contractor or others;
- (e) deposits lost;
- (f) the amounts of all costs arising out of Subcontracts;
- (g) the cost of quality assurance such as independent inspection and testing services;
- (h) any adjustment in duties, and bonding and/or insurance costs, for which Contractor is liable; and
- (i) the cost of removal and disposal of waste products and debris.

14.12 If the quantity of the Work is decreased or any part of the Work is deleted:

- (a) to the extent possible, the value of any deletion or reduction in the Work shall be determined using the rates and prices set out in Exhibit 2 – Compensation; and
- (b) Contractor shall not be entitled to claim any indirect or consequential damages, including loss of profits or loss of revenue.

14.13 If at any time after the start of the work directed by a Change Order for which there was no agreement on price, Company and Contractor reach agreement on the adjustment to the Contract Price and any adjustment to Exhibit 9 – Schedule, this agreement will be recorded in an amendment to the Change Order issued by Company.

14.14 If there is a change in Applicable Laws which makes modifications to the Work necessary or advisable, Company shall advise Contractor of the change in Applicable Law and shall present to Contractor a proposal for such modifications required as a result of the change in Applicable Law. On receipt of such proposal, Contractor shall prepare and provide to Company the following:

- (a) details of the effect, if any, on the costs of the Work;
- (b) details of the impact, if any, on dates for completion of Milestones and/or the Technical Requirements; and
- (c) details of the impact on the Contract Price.

ARTICLE 15

HEALTH, SAFETY AND ENVIRONMENTAL PROTECTION

- 15.1 Contractor shall be responsible for ensuring the health and safety of all Contractor's Personnel who are engaged in the performance of the Work and also be responsible for environmental management. Without limiting the foregoing, Contractor shall:
- (a) ensure that all Contractor's Items are maintained in safe, sound and proper condition and capable of performing the function for which each is intended and meets all industry standards and Applicable Laws;
 - (b) cease all activities in the area of any identified health, safety or environmental problem until such problem is resolved;
 - (c) immediately report to Engineer all health, safety and environmental problems and hazards;
 - (d) provide sufficient supervision, instruction and resources to ensure that Contractor Group's Work execution and Worksites comply with all Applicable Laws and good environmental practices;
 - (e) at its own expense and in accordance with Applicable Laws, supply and maintain Contractor's Personnel with personal protective equipment which shall be worn and used on all occasions as indicated by notices, instructions, good practice or as required by risk assessment;
 - (f) conduct such drills and tests of Contractor's Items, equipment, Personnel and procedures to ensure that they are available, trained and in place, respectively, for immediate and effective action in the event of emergency;
 - (g) comply with Company's emergency response requirements as described in Exhibit 11 – Company Supplied Documents;
 - (h) cooperate fully and comply with any directions given by Authorities, including the police, safety and environment regulatory officials and fire authorities; and
 - (i) report to Engineer monthly training compliance and safety statistics as identified by Engineer.
- 15.2 Contractor shall develop and submit to Engineer for Acceptance a detailed health and safety plan for the Work which demonstrates that, in connection with Contractor's performance of the Work, Contractor has identified risks pertaining to the health and safety of Contractor's Personnel, and that effective controls are implemented to prevent accidents and health and safety threats. Contractor's plan shall:



- (a) satisfy the requirements of Exhibit 5 – Health and Safety Requirements;
 - (b) be structured in accordance with various elements within the Work such as fabrication, transportation, installation and commissioning;
 - (c) include measurable, achievable targets for health and safety performance, including: lost time frequency; total recordable frequency; injury severity data; and first aid cases;
 - (d) comply with Company's safety policies and procedures set out or described in Exhibit 11 – Company Supplied Documents; and
 - (e) comply with Applicable Laws and Exhibit 3 – Coordination Procedures.
- 15.3 Contractor shall develop and submit to Engineer for Acceptance a detailed environmental protection plan for the Work which demonstrates that, in connection with Contractor's performance of the Work, Contractor has identified risks pertaining to the environment and that effective controls are implemented to prevent threats and damage to the environment. Contractor's plan shall:
- (a) satisfy the requirements of Exhibit 6 – Environmental and Regulatory Compliance Requirements;
 - (b) be structured in accordance with various elements within the Work such as fabrication, transportation, installation and commissioning;
 - (c) include measurable, achievable targets for performance, including: performance criteria for environmental emissions and waste, and hazardous materials; and
 - (d) include an environmental management plan that satisfies the Technical Requirements and Applicable Laws.
- 15.4 Engineer, on behalf of Company, shall Accept Contractor's plans required by **Articles 15.2** and **15.3** provided the plans comply with this Agreement, Applicable Laws and any ordinances, orders and decrees of any Authority having jurisdiction over health, safety and environmental compliance of the Work or the Worksite and any other requirements of Company.
- 15.5 Contractor shall comply with all such standards and the provisions of the plans required by **Articles 15.2** and **15.3**, along with any changes thereto as Contractor may be notified from time to time by Engineer, and all Applicable Laws relating to occupational health, safety and environmental protection. Contractor shall ensure that all Contractor's Personnel involved in the performance of the Work comply with the provisions of Contractor's health, safety and environmental plans and all Applicable Laws relating to occupational health, safety, and environmental protection. Contractor shall appoint a safety officer who shall assist Contractor in safety matters relating to Contractor's Personnel.

- 15.6 Contractor shall promptly investigate and report to Engineer and Authorities having jurisdiction any near miss incidents or any accidents resulting in injury, death or illness to any of Contractor's Personnel engaged in the performance of the Work, any criminal acts, any damage to property or any adverse impact on the environment and any release of substances hazardous to the environment.
- 15.7 Contractor shall submit to Engineer for Acceptance Contractor's drug and alcohol policy which shall be in compliance with Applicable Laws. Contractor shall ensure that Contractor's Personnel who are engaged in the performance of the Work, are familiar with, and comply with, Contractor's drug and alcohol policy.
- 15.8 Company shall have the right to suspend performance of the Work for as long as necessary to prevent or stop any violation of this **Article 15**. During such period of suspension, Contractor shall not demobilize from the Worksite. No compensation shall be payable to Contractor by Company and the Contractor shall not be entitled to compensation for any costs it incurs as a result of the suspension.
- 15.9 Company reserves the right to audit and inspect the Worksites to verify compliance with this Agreement, which audits and inspections may be performed by Engineer or such other third party as Company may direct.
- 15.10 Notwithstanding **Article 39.5**, in the event Company declares an emergency with respect to any matter affecting health, safety, the environment or potential damage to or loss of property, Contractor shall comply with verbal instructions issued by Company or Engineer with respect to such emergency. Company or Engineer shall confirm such instructions in writing at the first reasonable opportunity.
- 15.11 Contractor shall exercise all diligence to conduct operations under this Agreement in a manner that will prevent any adverse impact to the environment including seepage, discharge or escape of pollutants, hazardous substances, debris and damage to or destruction of habitat. Contractor shall be responsible for all risks and costs to:
- (a) handle, dispose and/or cleanup those hazardous substances, if any, identified in Exhibit 11 – Company Supplied Documents in respect of the Sites;
 - (b) handle, dispose and/or cleanup those hazardous substances disposed of or discharged on the Worksites by Contractor Group in connection with or incidental to the performance of or default in any of Contractor's obligations under this Agreement;
 - (c) remediate any environmental damage arising from Contractor's performance of the Work including the removal and cleanup of any pollution, debris and hazardous substances;

- (d) take such measures as are necessary in the circumstances to prevent or mitigate any environmental damage resulting from any pollution, seepage or discharge or escape of pollutants, debris and hazardous substances; and
- (e) take such measures that Contractor or Company is under instructions to take from any Authority having jurisdiction to so instruct.

15.12 If Contractor:

- (a) encounters hazardous substances at a Site; or
- (b) has reasonable grounds to believe that hazardous substances are present in or on or under any of the Worksites which are not disclosed in the Exhibit 11 – Company Supplied Documents or are present in or on or under or migrating from any other sites;

Contractor shall:

- (c) take all reasonable steps to secure such Site, including stopping the Work, to ensure that no individual suffers an injury, sickness or death and that no property is injured or destroyed as a result of exposure to the presence of the hazardous substances;
- (d) immediately report the circumstances to Engineer in writing; and
- (e) report the circumstances to Authorities as required by Applicable Laws.

- 15.13 If hazardous substances are encountered during the Work, Contractor shall employ best practices and methods so as to minimize the costs of any work which may be required to handle and dispose of the hazardous substances and any environmental cleanup and to meet the requirements of Applicable Laws or Authorities as a result thereof.

ARTICLE 16 ACCESS, INSPECTION, TESTING, AUDIT

16.1 Contractor shall:

- (a) keep one copy of the current Agreement, submittals, reports, construction documents (including working plans or drawings, "issued for construction" drawings, Technical Specifications and shop drawings) and records of meetings at the Worksites, in good order and available for inspection by Company and Engineer; and
- (b) maintain, and shall require each Subcontractor to maintain, in accordance with generally accepted accounting principles and practices satisfactory to Company, books, records, expense accounts and accounts pertaining to the provision of the Work, including Contractor's and Subcontractors' personnel records,

correspondence, instructions, receipts, vouchers, memoranda, tapes, data, models, data stored in computer libraries and such other documentation and related systems of controls necessary for an accurate audit and verification of costs of the Work provided and general contract compliance.

16.2 The Company Group may:

- (a) at any time, without notice, have access to all Work being conducted on the Worksites;
- (b) upon reasonable notice, have access to any and all other premises where Contractor or any Subcontractor carries on any activity in any way relating to the Work, the LCP or this Agreement or where any test results, samples, books, records, accounts and documents are kept relating to the Work or this Agreement; and
- (c) upon reasonable notice, have access to such test results, samples, books, records, accounts and documents and be authorized to examine and make copies, including electronic copies, of all such test results, samples, books, records and documents and such other documents and systems as may be related to this Agreement and shall be authorized to interview Contractor's Personnel as may be necessary for an accurate audit and verification of costs of the Work provided and general contract compliance.

16.3 Notification of any claims made or discrepancies disclosed by an audit shall be made in writing to Contractor. Contractor and Company shall diligently attempt to resolve and agree upon such audit claims or discrepancies. Upon an audit claim or discrepancy being resolved and agreed upon, Contractor shall forthwith reimburse Company for any monies due as a result of such agreement or determination. Company may set off any amounts owed to it by Contractor for audit claim or discrepancies against any payments owed to Contractor by Company.

16.4 Contractor shall not be reimbursed for any costs it may incur as a result of Company conducting an audit pursuant to this **Article 16**. All such audits shall be conducted during normal business hours of Contractor and Company shall give reasonable notice to Contractor of the audit and shall specify the matters which are the subject of the audit.

16.5 Contractor shall provide, and shall cause the Subcontractors to provide, Company and Engineer with all requested information and documentation with respect to the Work and this Agreement, and access thereto on a timely basis.

16.6 Company's rights of access, inspection, testing and audit pursuant to this Agreement shall expire seven (7) years after the satisfaction of all of the obligations of Contractor pursuant to this Agreement.

- 16.7 The existence or exercise by Company or Engineer of its rights of access, inspection and audit shall not in any manner reduce or limit the obligations and responsibilities of Contractor pursuant to this Agreement.
- 16.8 Contractor shall provide sufficient, safe and proper facilities at all times for the inspection and testing activities by Company Group and all inspection and testing activities by Authorities.
- 16.9 Contractor shall:
- (a) prepare and maintain at all times copies of all test results and samples and, in accordance with principles and practices satisfactory to Company, proper, accurate and complete books, records, accounts and documents in which fair and proper entries shall be made of all activities and transactions in respect of the Work and this Agreement;
 - (b) ensure that Company Group Personnel has access to such test results, samples, books, records, accounts and documents in accordance with **Article 16.2** in order that Company and Engineer may exercise rights of inspection and audit; and
 - (c) ensure that such test results, samples, books, records, accounts and documents shall not be destroyed until Company's rights of access, inspection and audit have expired or, if arbitration or Court proceedings to which such test results, samples, books, records, accounts and documents are relevant have been commenced, until such arbitration or Court proceedings have been finally concluded.
- 16.10 Company and Engineer shall each have the right at any time to conduct such on-site observations and inspections and such civil, structural, mechanical, electrical or other tests of the Work as Company or Engineer deem desirable to ascertain whether the Work complies with this Agreement. Company shall pay for any test, observation or inspection requested by Company, and the costs of such tests, observations or inspections (including the cost of any work reasonably necessary to restore any aspect of the Work to a condition or state that existed prior to the conduct of such test, observation or inspection) shall be borne by Company unless such test, observation or inspection reveals the failure of the Work to comply with this Agreement, in which event Contractor shall correct the Work and reimburse Company for the costs of such tests, observations and inspections.
- 16.11 Contractor shall give Engineer reasonable notice of its schedule with respect to inspections or testing of the Work in progress prior to its covering or completion, which notice shall be sufficient to afford Engineer a reasonable opportunity to conduct a full inspection of such Work.
- 16.12 Contractor shall, at Engineer's request, take apart or uncover for inspection or testing any previously covered or completed Work. The cost of uncovering, taking apart or replacing such Work shall be borne as follows:

- (a) by Contractor, if such observation or test reveals that the Work does not comply with this Agreement; or
- (b) by Company, if such observation or test reveals that the Work complies with this Agreement.

16.13 Within five (5) Business Days of Notice by Company to Contractor, Contractor shall deliver to Company the most recent annual audited financial statements of Contractor.

ARTICLE 17 WARRANTY

17.1 Contractor agrees that, for a period of three (3) years following the date of Final Completion shown on the Final Completion Certificate, it shall at its own expense promptly:

- (a) correct any Work which is not in accordance with this Agreement;
- (b) rectify and make good or cause to be rectified and made good all Defects in the Work which are detected and discovered; and
- (c) have available at the Worksites or at a proximate location to the Worksites all necessary equipment, spare parts and labour to comply with the foregoing obligations.

17.2 Contractor shall provide to Company a products and workmanship warranty on any products, materials, and equipment incorporated into the Work to remain in effect for three (3) years from the date of Final Completion shown on the Final Completion Certificate. Such warranties shall provide for replacement of the component parts of such products or equipment or replacement of materials and shall cover incidental direct costs incurred by Company arising out of Defects in or failure of the warranted product, materials, or equipment.

17.3 Company shall notify Contractor of any Defects in the Work or any such failure in respect of any item of Work as soon as practicable after Company becomes aware of them and shall stipulate a reasonable period of time within which the Defect or failure is to be rectified. Contractor shall rectify any such Defect or any such failure within the time stipulated therein. Notice of any Defect discovered during the period set out in **Article 17.1** must be given to Contractor no more than sixty (60) days after the end of the period in **Article 17.1**.

17.4 Contractor shall secure for the benefit of Company, written warranties from the Subcontractors who provide or cause to be provided equipment, materials and/or systems which warranties shall include the terms set forth in **Article 17.2**.

17.5 Contractor will correct or pay for damage resulting from corrections made under the requirements of **Article 17**.

- 17.6 No payment by Company under this Agreement nor partial or entire use or occupancy of the Work by Company shall constitute an Approval of any portion of the Work which is not in accordance with this Agreement or a waiver by Company of any of the requirements of this Agreement.
- 17.7 Nothing in this Article shall be construed so as to prejudice, restrict, limit, waive or otherwise diminish the rights and remedies of Company at law with respect to latent Defects. Without limiting the foregoing, nothing in this Article shall be construed so as to restrict, limit, waive or otherwise diminish Contractor's warranty of adequacy of the Work and Contractor guarantees that:
- (a) all material will be new and free from Defects;
 - (b) all Work will be of a good and workmanlike quality;
 - (c) to the extent that Contractor is responsible for design under this Agreement, the Work applicable to such design shall be fit for purpose, as more specifically set forth in this Agreement, and where no purpose is specified, fit for its intended use; and
 - (d) the Work shall be free from Defects, including latent Defects.
- 17.8 If Contractor does not fulfill its requirements under this **Article 17** or fails to fulfill its requirements within the period set by Company, within five (5) Business Days of Notice to Contractor by Company, Company may have the Work which is the subject of the Notice from Company corrected by a third party at the sole cost of Contractor. Such recourse shall in no way relieve Contractor from its Warranty obligations.

ARTICLE 18 CONTRACTOR INSURANCE

- 18.1 Contractor will procure insurance policies in accordance with the requirements of **Article 18.3** from a financially sound insurance company and which is acceptable to Company. If Contractor fails to procure such policies or fails to provide certificates of insurance confirming such coverage in a form and with content acceptable to Company within the time specified in **Article 18.2**, or if any insurance is cancelled and not immediately replaced with comparable insurance to the satisfaction of the Company, then Company may at any time by Notice to Contractor terminate the Agreement.
- 18.2 Prior to commencing work at the Site or within ten (10) Business Days following the Effective Date, whichever is earlier, Contractor shall submit to Company certificates of insurance or such other documentation as Company may require evidencing the insurance required by **Article 18.3**. Failure of Company to advise Contractor of any insurance deficiencies shall not relieve Contractor of any liability related to its obligations under this **Article 18**. On written request by the Company to the Contractor, the Contractor shall

provide copies of insurance policies obtained by the Contractor in accordance with **Article 18.3**.

18.3 Contractor shall at all times while conducting the Work carry at least the following insurance, with limits not less than those specified below, covering property and liability outside the scope of insurance supplied by Company pursuant to **Article 20.1**. The cost of insurance procured by Contractor, including deductibles or self-insurance or policy retentions, shall be for the sole account of Contractor.

(a) Workers' Compensation

Workers' Compensation coverage for all of its Personnel engaged in the Work in accordance with the Applicable Laws of the jurisdictions in which the Work is performed. Contractor shall further ensure that non-residents are fully covered by Workers' Compensation insurance and Employer's Liability insurance with such coverage including an extraterritorial benefits extension providing benefits at least equal to those provided by the jurisdiction in which the Work is performed.

(b) Employer's Liability

Employer's Liability insurance, with limits as required by Applicable Laws, but not less than Canadian five million dollars (\$5,000,000.00) covering each employee engaged in the Work.

(c) Comprehensive General Liability

Comprehensive General Liability insurance written on an occurrence basis with limits of not less than Canadian five million dollars (\$5,000,000.00) per occurrence for bodily injury and/or property damage including contractual liability, sudden and accidental pollution liability for risks assumed by Contractor, broad form property damage, personal injury, contractor's protective liability, completed operations for a period of not less than twenty-four (24) months, contingent employer's liability and incidental medical malpractice.

(d) Automobile Liability Insurance

When not otherwise covered by Contractor's Comprehensive General Liability policy, Contractor shall obtain and maintain in effect automobile liability insurance covering all licensed vehicles whether owned, non-owned, leased or hired. Such insurance will provide a minimum combined single limit of liability for bodily injury and property damage of Canadian five million dollars (\$5,000,000.00) per occurrence.

(e) Owned and Non-owned Aircraft

To the extent that aircraft are used in the performance of the Work, owned and/or non-owned aircraft liability insurance with a combined single limit of not less than Canadian ten million dollars (\$10,000,000.00).

(f) Property

"All risks" property insurance covering all real and personal property which Contractor owns, leases or has in its care, custody or control including all machinery and equipment to be used for the Work but not forming part of the Work.

(g) Property in Transit

If required by Exhibit 2 – Compensation, Contractor shall provide property insurance coverage for the full value of equipment, goods, products and materials to be incorporated into the Work with such coverage to apply during transportation from Contractor's plant, factory or distribution centre to the location for delivery, with a maximum deductible of Canadian twenty-five thousand dollars (\$25,000.00).

(h) Subcontractors

Contractor is required to ensure that each of the Subcontractors provides insurance similar to the foregoing, as well as insurance which:

- (i) is required by Applicable Laws; or
- (ii) is reasonably appropriate in respect of the Work to be performed.

When requested to do so by Company, Contractor shall provide or cause to be provided to Company certified copies of such Subcontractor insurance policies or such other evidence of insurance acceptable in form and content to Company acting reasonably. Contractor Group shall not perform the Work during any period when any required policy of insurance is not in effect.

(i) Other

In addition to the insurance coverage specified above, Contractor shall carry such other insurance policies and in such amounts:

- (i) as may be required in order to comply with Applicable Laws; and
- (ii) as directed by Company with regard to liabilities assumed under the Agreement or in respect of specific activities performed for the Work.

18.4 All insurance policies required to be obtained by Contractor in accordance with **Article 18.3** shall be endorsed to waive insurer's rights of subrogation against Company Group and their Personnel, stockholders, successors, assigns and Affiliates. All liability policies required

above shall name Company Group and their Personnel, stockholders, successors, assigns and Affiliates as additional insureds and shall contain cross liability and severability of interest provisions. Except with respect to the insurance coverage to be procured by Company pursuant to **Article 20.1**, all insurance policies obtained by Contractor shall operate as primary to any insurance policies maintained by Company and their Personnel, stockholders, successors, assigns and Affiliates.

- 18.5 All policies obtained by Contractor in accordance with **Article 18.3** shall be further endorsed to provide Company thirty (30) days prior Notice of cancellation or any material change in coverage.
- 18.6 Company may reduce or waive all or any portion of Contractor's insurance requirements under this **Article 18** under circumstances where the Work to be performed does not require equivalent insurance coverage. Such reduction or waiver shall be obtained in writing and shall in no way reduce or waive Contractor's responsibility or liability for the Work.
- 18.7 Nothing in this **Article 18** shall or is intended to limit the liability of Contractor under any other provision of this Agreement. The provisions of this **Article 18** will not be interpreted as relieving Contractor of any of its obligations under this Agreement. Contractor may purchase, at its own expense, any additional insurance it deems necessary.
- 18.8 Contractor shall give Company prompt notification of any claim involving the Work with respect to any of the insurance policies referred to in **Article 18.3**, accompanied by full details of the incident giving rise to such claim. Contractor agrees to do all acts, matters and things as may be reasonably necessary or required to expedite the adjustment of any loss or damage covered by insurance so as to expedite the release and disposition of such insurance in the manner and for the purposes contemplated in this Agreement. If requested by Company, Contractor shall advise Company in writing of the final resolution of any such insurance claims.

ARTICLE 19

WORKERS' COMPENSATION

- 19.1 Prior to the commencement of any Work, Contractor and all Subcontractors shall provide written confirmation to Engineer from the WHSCC of compliance with or exemption from workers' compensation requirements and confirmation that all required assessments that are due and payable have been paid.
- 19.2 Upon completion of Subcontract work, each Subcontractor shall deliver to Engineer a clearance certificate from the WHSCC.
- 19.3 Upon completion of the Work, Contractor shall deliver to Engineer a clearance certificate from the WHSCC and all Subcontractors which have not previously provided evidence of

compliance with **Article 19.2** shall deliver to Engineer a clearance certificate from the WHSCC.

- 19.4 Contractor shall at all times pay, or cause to be paid, any assessment or contribution required to be paid pursuant to Applicable Laws relating to workers' compensation in respect of Contractor's Personnel and, upon failure to do so, authorizes Company, in addition to any other rights of Company under this Agreement, to withhold and remit on behalf of Contractor an amount equal to such assessment or contribution, including any interest and penalty assessed thereon.

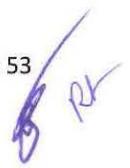
ARTICLE 20 PROJECT INSURANCE

- 20.1 The following insurance coverages shall be procured by Company. Policies will cover Company Group, Contractor and subcontractors of every tier (but not including vendors and suppliers except to the extent a vendor or supplier performs operations at the Site) as their interests and/or liabilities may appear:

- (a) Construction All Risk (CAR) insurance, including design defect coverage to LEG2/96 or better, subject to a limit of not less than the total Contract Price, attaching on or in place and in effect as of the Effective Date.
- (b) Wrap-up liability insurance, with Company as the named insured and its Personnel, stockholders, successors, assigns and Affiliates as additional insureds, written on an occurrence basis with limits not less than Canadian fifty million dollars (\$50,000,000.00) per occurrence for bodily injury and/or property damage including contractual liability, broad form property damage, personal injury, contractor's protective liability, completed operations for a period of not less than twenty-four (24) months, contingent employer's liability, incidental medical malpractice, cross liability and severability of interest provisions.
- (c) Pollution liability insurance, with Company as the named insured and its Personnel, stockholders, successors, assigns and Affiliates as additional insureds, written with limits not less than Canadian ten million dollars (\$10,000,000.00) per occurrence and in the aggregate.

- 20.2 All insurance policies required by **Article 20.1** shall:

- (i) be endorsed to waive insurer's rights of subrogation against Contractor and subcontractors of every tier (but not including vendors and suppliers except to the extent a vendor or supplier performs operations at the Site) and their Personnel, stockholders, successors, assigns and Affiliates; and



- (ii) include Contractor and subcontractors of every tier (but not including vendors and suppliers except to the extent a vendor or supplier performs operations at the Site) as additional insureds.
- 20.3 Contractor shall be responsible for deductibles under the Construction All Risk (CAR) policy of Canadian two million dollars (\$2,000,000.00), under the wrap-up liability policy of Canadian one hundred thousand dollars (\$100,000.00), under the pollution liability policy of Canadian two hundred fifty thousand dollars (\$250,000.00), up to a maximum of five percent (5%) of the Contract Price for any one claim, provided that:
- (i) Contractor shall not be responsible for deductibles arising from claims for damage or loss caused by earthquake;
 - (ii) Contractor shall not be responsible for deductibles arising from claims for damage or loss caused by flood except Contractor shall be responsible for deductibles where the flood was caused or exacerbated by the acts or omissions of Contractor; and
 - (iii) to the extent a claim for damage or loss was caused by the negligence of Company, Company shall be responsible for that portion of the deductible which represents the proportion of fault attributable to Company.
- 20.4 The insurance policies required by this **Article 20** shall be in place and shall be maintained until a Final Completion Certificate has been issued, with any completed operations coverage to continue after the issuance of the Final Completion Certificate as set out in the policy.

ARTICLE 21 INDEMNITY

- 21.1 The Parties hereby agree and acknowledge that if a provision in this **Article 21** conflicts with any other provision in this Agreement, the provision in this **Article 21** shall prevail.
- 21.2 For the purposes of this Agreement, any liability assumed or indemnity given by Contractor for the benefit of Company shall be deemed to be given by Contractor for the benefit of Company, its successors and assigns, Affiliates and Personnel.
- 21.3 It is agreed and understood that the exculpatory clauses and indemnity obligations of each Party as provided in this Agreement shall apply to any and all Claims whatsoever incurred by the indemnified Party.
- 21.4 Except as otherwise specifically stated in this Agreement, Company shall indemnify, keep indemnified and shall hold the Contractor harmless from and against any and all Claims by a third party which the Contractor may at any time sustain or incur by reason of or in consequence of a breach or non-performance by Company or any agent, employee or

licensee for whom the Company is in law responsible arising from the performance of any of the obligations of the Company under this Agreement.

- 21.5 Contractor shall defend, indemnify, keep indemnified and shall hold Company harmless from and against any and all Claims which Company may at any time sustain or incur by reason of or in consequence of any one or more of the following:
- (a) any negligent act or omission or wilful misconduct of Contractor Group or any licensee, invitee or Person acting on behalf of any of them in connection with or incidental to the performance of or default in any of Contractor's obligations under this Agreement;
 - (b) any inaccuracy in any representation or warranty made by Contractor Group, the guarantors or any other Person that delivers to Company any document, or security instrument containing any such representation or warranty pursuant to this Agreement;
 - (c) any breach or non-performance by Contractor Group, or any licensee, invitee or Person acting on behalf of Contractor of any of the obligations of the Contractor in respect of the performance of the Work;
 - (d) any Claims by any third party in contract, tort, under any statute or otherwise at law or in equity with respect to any injury, damages, losses, costs, and expenses arising out of a breach of contract or negligent actions or omissions or wilful misconduct of Contractor Group or any invitee, licensee or Person acting on behalf of any of them in connection with or incidental to the Work;
 - (e) any action taken by Company to mitigate or cure a breach or non-performance by the Contractor Group of any covenant or inaccuracy in any representation or warranty pursuant to the Agreement;
 - (f) any non-payment of amounts due and payable to Subcontractors, and Subcontractors' subcontractors, vendors and suppliers of every tier, resulting from furnishing of services, material, equipment, labour or otherwise in connection with the performance of Work;
 - (g) any Claim in respect of loss or damage to the property of Contractor Group however caused unless the Claim was caused by the negligence or wilful act or omission by Company;
 - (h) any Claims in respect of personal injury or death of Contractor's Personnel however caused and regardless of whether or not the Claim was caused by negligence, breach of agreement or breach of duty; or
 - (i) any representation or holding out by Contractor that it is an agent of Company.

21.6 Contractor shall include in all of its Subcontracts, a provision stating that Subcontractors shall defend, protect, release, indemnify and hold Company harmless from and against all Claims for the death of or bodily injury to Subcontractors and their respective Personnel, and for damage to or loss of the property of Subcontractors or their respective Personnel, unless the Claims were caused by the sole negligence or wilful act or omission by Company.

21.7 Except as provided in **Article 21.4**, Contractor shall:

- (a) be liable to Company for all Claims which Company may suffer, sustain, pay or incur; and
- (b) defend, protect, release, indemnify and hold Company harmless from and against all Claims which may be brought against or suffered by Company or which Company may sustain, pay or incur;

directly or indirectly on account of the death of or bodily injury to third parties, and for damage to or loss of property of third parties arising from or in connection with the performance, non-performance or purported performance of the Work, unless such Claims are caused by or contributed to by the negligence of Company or any of its Personnel.

21.8 Without limiting the generality of **Article 21.5**, Contractor shall be liable for and defend, protect, release, indemnify and hold Company harmless from and against all Claims (including any fine, penalty or demand of any Authority having jurisdiction) which may be brought against or suffered by Company or which Company may sustain, pay or incur, arising out of any failure by Contractor to comply with its obligations with respect to the environment under **Article 15**.

21.9 Without limiting the generality of **Article 21.5**, and subject to the obligation of Company to pay HST pursuant to **Article 12.20**, Contractor shall be liable for and defend, protect, release, indemnify and hold Company harmless from and against:

- (a) any and all Taxes imposed by any Authority on any of Contractor Group in respect of this Agreement, and any and all Claims including payment of Taxes which may be brought against or suffered by Company or which Company may sustain, pay or incur in conjunction with the foregoing as a result of the failure by Contractor to pay any and all Taxes imposed as stated herein;
- (b) any and all Taxes imposed by any Authority in respect of the Work, or Contractor's Items, or any other items used by Contractor Group in the performance of the Work, or in respect of any services performed by Contractor Group in respect of this Agreement, and any and all Claims (including Taxes) which may be brought against or suffered by Company or which Company may sustain, pay or incur in conjunction with the foregoing as a result of the failure by any member of Contractor Group to pay any and all Taxes imposed as stated herein; and

- (c) all Claims of any nature in connection with the payment of any of Contractor Group, including all compensation, medical costs, Taxes (including all Canadian and foreign payroll and withholding Taxes and remittances), unemployment insurance premiums, Canada pension plan contributions and other benefits of whatever nature or as may be applicable in any jurisdiction (including any jurisdiction where the Work is performed or where the Personnel of the foregoing reside or are employed).

21.10 The liability and indemnities specified in this **Article 21** shall apply:

- (a) except as otherwise expressly provided in this **Article 21**, without limit and without regard to the cause of any Claim, including the negligence or fault (whether sole, concurrent, gross (except when gross negligence or wilful misconduct is expressly provided as an exception to a specific provision hereof), active or passive negligence) or otherwise or wilful act or omission and including strict liability, breach of contract, breach of duty (statutory or otherwise) and including any pre-existing conditions, of either Party or any other Person (including the Party or Person seeking indemnity);
- (b) whether or not any Claim is asserted to have arisen by virtue of tort, contract, quasi-contract, statutory duty, or any Applicable Laws;
- (c) whether or not any Claim is made or enjoyed by the Person sustaining the injury or loss or by the dependents, heirs, claimants, executors, administrators, successors, survivors or assigns of such Person.

21.11 The indemnities given in this **Article 21** shall apply in respect of the full liability of the indemnified Party for Claims, notwithstanding that the indemnified Party may be entitled to contribution thereto from any other Person and notwithstanding such liability may relate to the negligence of a third party, provided that in such case the indemnifying Party shall be fully subrogated to the rights of the indemnified Party against such third party.

21.12 If a Claim by a third party is asserted in circumstances which gives or may give rise to indemnification under this Article, the Party against whom the Claim is asserted (the "**non-indemnifying Party**") shall forthwith give Notice thereof to the other Party (the "**indemnifying Party**") and, at the discretion of the non-indemnifying Party, the indemnifying Party shall undertake the defence of such Claim. The Parties shall consult and cooperate in respect of such Claim and in determining whether such Claim and any legal proceedings relating thereto should be resisted, compromised or settled. Each Party shall make available to the other all information in its possession or to which it has access, and which it is legally entitled to disclose, which is or may be relevant to the particular Claim. The indemnifying Party shall provide the non-indemnifying Party with reasonable information as to the progress of such Claim on a regular basis. No such Claim shall be settled or compromised without the written consent of the indemnifying Party. Notwithstanding the foregoing, if the indemnifying Party, within a reasonable time after

Notice of any such Claim is given to it by the non-indemnifying Party, fails to defend such Claim, the non-indemnifying Party shall have the right to undertake the defence and compromise or settle such Claim on behalf of and for the account of the indemnifying Party.

21.13 During the period commencing at the time that Contractor has possession of, or control over, Work in which title has vested in Company, including items and/or services free issued by Company's Other Contractors, and until such time as Company takes care, custody and control of those items, Contractor shall:

- (a) be liable to Company for all Claims which Company may suffer, sustain, pay or incur directly or indirectly on account of damage to or loss of such Work or items or any other items free issued to Contractor; and
- (b) defend, protect, release, indemnify and hold Company harmless from and against all Claims which may be brought against or suffered by Company or which Company may sustain, pay or incur directly or indirectly on account of damage to or loss of such Work or items or any other items free issued to Contractor.

21.14 Except for a Party's indemnity obligations to the other Party in respect of third party Claims under this **Article 21** and liquidated damages pursuant to **Article 26**, a Party has no responsibility and shall not be liable under this Agreement to the other Party for any Claim in respect of loss of profit, business interruption, loss of use, or any similar indirect or consequential damages or losses resulting from, arising out of or in connection with the Work or any obligation pursuant to this Agreement howsoever caused.

21.15 Notwithstanding anything to the contrary in this Agreement, the maximum aggregate liability of Contractor to Company for all Claims arising out of or connected with the Work or performance or breach of this Agreement shall be limited to the sum of:

- (a) one hundred percent (100%) of the total Contract Price; and
- (b) the amount of actual insurance proceeds received with respect to such Claims from insurance to be maintained under this Agreement, less any applicable deductible in respect of any proceeds received by Company under Contractor's third party liability insurance;

provided however that such limitation shall not apply in cases of:

- (i) Claims for personal injury (including death) for which Contractor is liable to Company or has a duty to indemnify Company under this Agreement;
- (ii) Claims for property damage or loss for which Contractor is liable to Company or has a duty to indemnify Company under this Agreement, except for damage to or loss of the Work;
- (iii) Contractor's fraud, willful misconduct or gross negligence;

- (iv) Taxes, fines and/or penalties imposed by any Authority for which Contractor is liable under this Agreement;
- (v) Claims for infringement of patents and/or other intellectual property rights, or breach of the confidentiality provisions of this Agreement;
- (vi) Claims for any environmental damage or loss for which Contractor is liable to Company or has a duty to indemnify Company under this Agreement or resulting from a breach of this Agreement by Contractor; and
- (vii) any other Claims by a third party, including any Authority, for which Contractor has a duty to indemnify Company under this Agreement.

ARTICLE 22

SITE AND TRANSPORT CONDITIONS

- 22.1 Contractor shall inform itself fully as to the risks and contingencies and all other data, matters and things, local or otherwise, respecting a Site, transportation routes and any other aspects of the Work necessary to satisfactorily perform the Contractor's obligations under this Agreement. Contractor shall be deemed to have been satisfied as to the suitability and availability of such Site, transportation routes including access routes to the Site, and such other aspects of the Work.
- 22.2 Contractor acknowledges and agrees that utilities and service connections may not be located as exactly shown on drawings provided by Company or Engineer. Contractor shall satisfy itself fully as to the exact location of all utilities and service connections and shall, at no additional cost, make such alterations to the Work as may be required to avoid conflicts in or damage to utilities and connections.
- 22.3 Contractor shall be solely responsible for determining the transport route for shipment of all equipment and materials for use at a Site. Contractor shall conduct its own tests or investigations to satisfy itself as to all transport route conditions, including obstructions, road conditions, weight restrictions, size limitations and utilities. Contractor accepts all risks and contingencies associated with the transport of all equipment and materials for the Work.
- 22.4 Contractor waives its right to any claim against Company for additional compensation or any extension to a date for completion of performance of any part of the Work set out in Exhibit 9 – Schedule based on, resulting from or arising out of any differences between transport route conditions that may exist and those conditions that may have been assumed or anticipated by Contractor, including resulting from any assumptions, anticipations, misunderstandings or misinterpretation by Contractor of port, bridge or road conditions or from any information provided by Company or Engineer.

- 22.5 Contractor shall bear all costs and charges for special and/or temporary rights which Contractor may require, including those for transport of components of the Work and access to a Site. Contractor shall also obtain, at Contractor's cost, any additional facilities outside a Site which Contractor may require for purposes of Work.
- 22.6 Contractor shall be solely responsible for and assumes all risks associated with the transportation of all Contractor's Personnel to and within the Site, and the cost of such transportation shall be included in the Contract Price.
- 22.7 Contractor shall be solely responsible for and assumes all risks associated with weather conditions at the Site, and the cost of performing the Work under all weather conditions experienced at the Site shall be included in the Contract Price.

ARTICLE 23 SUBSURFACE CONDITIONS

- 23.1 If, during the course of the Work, Contractor encounters unforeseen geological or geotechnical conditions, including ground water, which it believes may impact upon its ability to complete the Work by the dates specified in Exhibit 9 – Schedule, Contractor shall immediately provide notice in writing to Engineer, which notice shall contain such information as is reasonably available to Contractor at that time relating to the nature of the unforeseen geological or geotechnical conditions.
- 23.2 Within ten (10) Business days of a notice delivered pursuant to **Article 23.1**, Contractor shall determine the length of the delay resulting solely and directly from the unforeseen geological or geotechnical conditions, if any, and Contractor shall prepare and deliver to Engineer for Acceptance a revised Construction Schedule showing the impact thereof.
- 23.3 Contractor agrees that the Construction Schedule and timing of any Payment Milestone may be adjusted by Engineer to reflect the time by which Contractor is solely and directly delayed or prevented from proceeding with the Work as a result of unforeseen geological or geotechnical conditions.
- 23.4 If Contractor disputes Engineer's decision regarding the delay, it may give a Notice of Dispute respect to the matter and thereafter refer the matter for resolution pursuant to the Dispute resolution procedures in **Article 30**.
- 23.5 Contractor shall at all times use all reasonable efforts and take all reasonable steps as may be required to eliminate or mitigate the impact on the Construction Schedule due to unforeseen geological, groundwater or geotechnical conditions.
- 23.6 To the extent unforeseen geological or geotechnical conditions may constitute a Change, the provisions of **Article 14** shall apply.

ARTICLE 24 DEFAULT AND TERMINATION

24.1 The following events shall constitute defaults by Contractor:

- (a) if Contractor does not properly prosecute the Work or fails in the performance or observance of any of its obligations under this Agreement and such failure has a material adverse effect on Company or the Work except to the extent that the failure in performance or observance is excused by reason of Force Majeure; or
- (b) if any representation or warranty made by Contractor herein or in any certificate, statement or document given pursuant to the terms thereof shall prove to be false or intentionally misleading in any material respect as of the date on which it was made, and any material adverse consequences to Company directly caused thereby shall have not been remedied within five (5) days after Notice thereof shall have been given to Contractor by Company; or
- (c) if Contractor fails to make prompt payment when due to any Subcontractor or supplier except to the extent that such payments are being contested through mediation, arbitration or litigation; or
- (d) if Contractor fails to comply with the Applicable Laws and such failure has a material adverse effect on the Work, this Agreement or the interests of Company therein; or
- (e) if Contractor has made an assignment of this Agreement without the Approval of Company; or
- (f) if there is an abandonment of the Work or any part thereof; or
- (g) if the Work is discontinued or ceases for a single continuous period of seven (7) days or more, unless contemplated by the Construction Schedule or seasonal interruptions which are customary in the usual and ordinary course of the construction of the Work or without the prior Approval of Company (not to be unreasonably withheld); or
- (h) if there is an adverse departure from the Technical Requirements; or
- (i) if Contractor consents to an appointment of or the taking of possession by a receiver, trustee, custodian or liquidator of itself or of a substantial part of its property, or fails or admits in writing its inability to pay its debts generally as they become due or makes a general assignment for the benefit of creditors; or
- (j) if Contractor files a petition in bankruptcy or seeks reorganization and a proceeding under any applicable bankruptcy or insolvency law (as may now or hereafter come into effect) or seeks relief by voluntary petition under the provisions of any existing



or future bankruptcy or insolvency or other laws providing for the liquidation, reorganization or winding-up of corporations or form of agreement of extension or adjustment with its creditors; or

- (k) except as stated in **Article 24.1(j)**, if Contractor has a substantial part of its properties made subject to the appointment of a receiver, trustee, liquidator or custodian by court order and such order shall remain in effect for more than five (5) days or Contractor is declared bankrupt or insolvent or has any property sequestered by a court order and such order shall remain in undisputed effect for a period of more than fourteen (14) days; or
- (l) Contractor fails to procure or maintain the Parent Guarantee and/or the letter of credit in accordance with **Article 7**.

24.2 In the event of a default by Contractor (other than a default as described in **Articles 24.1(i), 24.1(j), 24.1(k)** and **24.1(l)** or another default which Company considers may cause irreparable harm to any member of Company Group or the LCP), Company shall give a Notice of the default to Contractor and the surety. Contractor shall remedy the default to the satisfaction of Company within fourteen (14) days of receipt of such Notice or, if such default cannot reasonably be remedied within such fourteen (14) day period, Contractor shall promptly begin to remedy the default within the fourteen (14) day period and thereafter diligently prosecute to conclusion all acts necessary to remedy the default.

24.3 On the occurrence of a default by Contractor as described in **Articles 24.1(i), 24.1(j), 24.1(k)** and **24.1(l)** or another default which Company considers may cause irreparable harm to any member of Company Group or to the LCP, Company may elect to terminate this Agreement and, if Company so elects, shall give Contractor two (2) days' Notice of such termination. Contractor shall have no right to dispute the termination. On such termination Contractor shall cease all Work.

24.4 If Contractor fails to remedy a default, in accordance with **Article 24.2**, Company shall have the right, at its election, to exercise any or all of the following remedies:

- (a) terminate in whole or in part, the rights or obligations of Contractor under this Agreement;
- (b) take possession of the Work and Worksites and, subject to **Article 24.8**, finish the Work by whatever method Company deems expedient;
- (c) remedy or cause to be remedied the default;
- (d) require the performance of the Work to be stopped (in whole or in part); and
- (e) bring any proceedings in the nature of specific performance, injunction, or other equitable remedy, it being acknowledged that damages at law may be an inadequate remedy for default by Contractor under this Agreement.

- 24.5 This Agreement shall not be construed as limiting Company's rights or remedies at law or in equity and any such rights or remedies of Company whether at law or in equity or under this Agreement:
- (a) may be exercised individually or together with any one or more of its other rights or remedies and as often or in such order as Company deems expedient; and
 - (b) are cumulative and are in addition to and not in substitution for any other rights and remedies.
- 24.6 All costs of Company relating to or arising out of the lawful exercise by Company of any of its remedies:
- (a) shall constitute a debt by Contractor to Company which shall immediately become due and payable;
 - (b) shall bear interest at the three (3) month Treasury Bill rate, as published by the Bank of Canada for the period in question, until payment is made;
 - (c) may be deducted by Company from the Contract Price; and
 - (d) failing payment by Contractor, shall be paid by the guarantor under the Parent Guarantee and/or paid pursuant to the letter of credit referenced in **Article 7**.
- 24.7 Notwithstanding anything to the contrary contained in this Agreement, if in the reasonable opinion of Company there is a real or apprehended danger of material injury or damage to Persons, property or the environment arising out of or in connection with any matter, state, condition or thing relating to the Work, whether as a result of a breach by Contractor of this Agreement or otherwise, Company may, without notice and without prejudice to other remedies (but without obligation to do so), rectify any such matter, state, condition or thing, in which event Contractor shall be responsible for all costs incurred by Company in connection therewith. Company shall forthwith advise Contractor of any action Company takes in reliance on this **Article 24.7**.
- 24.8 Where Company has, pursuant to **Article 24.3** or **Article 24.5(a)** terminated the rights or obligations of Contractor under this Agreement, Company shall, within thirty (30) days of the termination, advise Contractor as to whether or not Company shall complete or cause the Work to be completed. If Company elects to complete or cause the Work to be completed, Company shall use reasonable efforts to ensure that the Work is completed in a cost efficient and timely manner and shall cause the Work to be completed in accordance with this Agreement.
- 24.9 If Company elects to complete the Work (or cause the Work to be completed), Company is not obliged to pay Contractor for any Work in connection with the completion of the Work until the date of Final Completion, in which event the amount to be paid to Contractor will be the Contract Price for such Work less:



- (a) one hundred ten percent (110%) of the costs of completing the Work actually incurred by Company; and
 - (b) any amounts previously paid to Contractor on account of Work performed.
- 24.10 Company shall, as soon as practicable after the date of Final Completion, determine the total costs incurred and accrued in completing the Work including additional overhead and reasonable legal fees on a solicitor-client basis. If the total costs incurred by Company in completing the Work in accordance with the terms of this Agreement exceed the balance of the Contract Price unpaid at the time of delivery of the Default Notice, then Contractor shall be responsible and shall forthwith pay to Company the amount of such excess costs.
- 24.11 Notwithstanding any other provision of this Agreement, Company may in its sole and absolute discretion and for any reason, including convenience of Company and without any fault or default on the part of Contractor, terminate this Agreement effective immediately upon giving Notice to the Contractor or effective at a future date specified in the Notice.
- 24.12 If Company terminates this Agreement pursuant to **Article 24.11** or pursuant to **Articles 24.3** or **24.4(a)** and Company elects not to complete the Work, Contractor is not entitled to further payment for any of the Work; provided however, Contractor is entitled to any amounts payable on account of Work it performed and to retain any amounts previously paid to Contractor on account of Work it performed.
- 24.13 Where Company has terminated the rights and obligations of Contractor under this Agreement, Contractor shall:
- (a) stop the performance of all Work and services hereunder except as may be necessary to carry out such termination;
 - (b) assign to Company, upon Company's request, all rights of Contractor under such of the Subcontracts entered into by Contractor in connection with this Agreement as Company may specify;
 - (c) terminate all Subcontracts as Company may specify in writing;
 - (d) provide to Company a detailed list of all tangible and intangible property relating in any way to the Work including all equipment, machinery, fixtures, supplies, designs, concepts, plans, drawings, specifications, schedules, models, samples, patents, technology leases, licenses, books and records;
 - (e) be deemed to have granted to Company for Company purposes a non-exclusive, perpetual license or other right to use any and all intellectual property, subject to the terms and conditions set forth in **Article 36.3**;
 - (f) deliver or cause to be delivered to Company executed copies of all Subcontracts and related agreements to which it is a party, and shall use its best efforts to deliver or

cause to be delivered copies of all documents and agreements relating to the Work which are in the possession or control of any Subcontractors;

- (g) deliver or cause to be delivered record drawings for the portion of the Work which has been completed to that date;
- (h) remove from the Site all material, debris, equipment and supplies that have not been incorporated in the Work and that are designated in writing by Company to be so removed;
- (i) do all such acts, execute and deliver to Company all such documents, conveyances, deeds, assignments, transfers, bills of sale, assurances and certificates and take all actions as may be required by Company to exercise its rights hereunder;
- (j) quit the Site;
- (k) surrender possession and control of the Site and the Work and deliver to Company or its nominee the Work (except those owned by third parties) free and clear of any and all security interests;
- (l) provide Company with such evidence or assurances as Company may reasonably require that title to the Work is unencumbered, and indemnify Company in connection therewith as provided for in **Article 21**, including an indemnification for any outstanding actions, suits or proceedings;
- (m) remove and dispose of such of the Work as is designated in writing by Company to be so removed and decommission or mothball the Work as reasonably required by Company; and
- (n) take any other action towards termination of the Work which Company shall request in writing.

24.14 Company and Contractor each agree that, upon the request of the other, it will do all such acts and execute all such further documents, conveyances, deeds, assignments, transfers, assurances, certificates and the like as may be necessary or desirable to effect the purpose of this **Article 24**, whether before or after this Agreement is terminated.

24.15 To the extent Contractor does not perform its obligations under **Articles 24.13, 24.14 or 36.3**, Contractor hereby irrevocably nominates, constitutes and appoints Company as Contractor's true and lawful attorney in fact and agent for, in the name of and on behalf of Contractor to execute and deliver all such assignments, transfers, deeds, instruments, conveyances and other documents as may be necessary to give effect to the provisions of **Articles 36.3** and this **Article 24**, as the case may be. Such appointment and power of attorney, being coupled with an interest, shall not be revoked by the dissolution, winding-up, bankruptcy, insolvency or subsequently in the capacity of Contractor, and Contractor

hereby ratifies and confirms and agrees to ratify and confirm all that Company may lawfully do or cause to be done by virtue of the provision hereof.

ARTICLE 25 SUBSTANTIAL AND FINAL COMPLETION

- 25.1 Substantial Completion shall have occurred if and only if all of the items in paragraphs (a) to (h), inclusive, of this **Article 25.1** have occurred to the satisfaction of Engineer in accordance with this Agreement.
- (a) The Work is ready for use or is being used for the purpose intended and is capable of achieving Final Completion at a cost of not more than two percent (2%) of the Contract Price.
 - (b) Contractor has delivered to Engineer all documents required in Exhibit 4 – Supplier Document Requirements List.
 - (c) Engineer has prepared and delivered an updated Punch List to Contractor, which includes any minor items with respect to which Engineer has notified Contractor are incomplete or which have Defects.
 - (d) Contractor has delivered to Engineer a certificate:
 - (i) detailing all outstanding Claims of Contractor under this Agreement with documentation sufficient in the opinion of Engineer to support such Claims, and Company shall not be liable to Contractor for any Claim under this Agreement which is not identified within that Notice and supported by sufficient documentation; or
 - (ii) certifying that there are no such outstanding Claims.
 - (e) Contractor has delivered to Engineer the latest available clearance certificate from the WHSCC that no assessments or other amounts are owing to the date therein specified.
 - (f) Contractor has removed all Contractor's Items, Contractor's Personnel, supplies, equipment, materials, rubbish and temporary facilities, except those reasonably required for completion of outstanding Punch List items, from the Worksite so that the Worksite is neat, clean and safe.

- (g) Contractor shall have assigned to Company all representations, warranties, guarantees and obligations which Contractor received from Subcontractors, manufacturers or suppliers subject to Contractor's right to retain the benefit of all Subcontractors that Contractor requires to complete the Work.
 - (h) There being no liens filed or registered pursuant to the *Mechanics' Lien Act*, R.S.N.L. 1990, c.M-3 with respect to or arising from the Work at that time.
- 25.2 When Contractor believes the requirements of Substantial Completion have been met, Contractor shall request from Engineer a Substantial Completion Certificate. Such request shall contain a declaration by Contractor that all the requirements of Substantial Completion have been met and a report of the results of any required tests for the Work with sufficient detail to enable Engineer to determine whether Substantial Completion has been achieved. If all requirements of Substantial Completion have been met to the satisfaction of Engineer, the date of Substantial Completion shall be the later of (i) the date specified in Contractor's request, and (ii) the date when the requirements of Substantial Completion were met to the satisfaction of Engineer. Promptly after Substantial Completion has been achieved as provided above, Engineer shall issue a Substantial Completion Certificate to Contractor, which states the date of Substantial Completion and Contractor shall turn over control and operation of the Work to Company.
- 25.3 Not Used.
- 25.4 If any item of Work on the Punch List is not completed by the date specified on the Punch List for such item, Company may complete or employ others to complete the item and Contractor shall be liable for and pay Company all costs to complete such item, plus ten percent (10%), and Company may deduct such amount from any amount otherwise owing to Contractor, without affecting any Warranty.
- 25.5 Contractor's access to and continued presence at the Worksite after the date of Substantial Completion shall be for the sole purpose of achieving Final Completion. In performing such work Contractor will use its best efforts not to inconvenience or interfere with Company and Company's Other Contractors.
- 25.6 Final Completion of the Work shall have occurred if and only if all of the following have occurred to the satisfaction of Engineer in accordance with this Agreement:
- (a) Substantial Completion shall have occurred and a Certificate of Substantial Completion has been issued;
 - (b) there being no liens filed or registered pursuant to the *Mechanics' Lien Act*, R.S.N.L. 1990, c.M-3 with respect to or arising from the Work at that time;
 - (c) all other outstanding obligations of Contractor under this Agreement have been fulfilled;

- (d) Contractor shall have delivered the warranties from Subcontractors as referred to in **Article 17**;
 - (e) Contractor shall have delivered to Engineer electronic copies and reproducible hard copies of the record drawings for the Work;
 - (f) all Punch List items have been remedied to the satisfaction of Engineer;
 - (g) Contractor shall have delivered to Engineer a certificate of one of Contractor's senior officers that all accounts for all Subcontracts, and all other indebtedness which may have been incurred by Contractor in connection with the Work, have been paid in full (except for amounts properly retained as a holdback or as an identified amount in dispute);
 - (h) Contractor shall have delivered a certificate that its Subcontractors have paid or discharged their obligations in connection with the performance of the Work referred to in the certificate which certificate shall have attached thereto such releases and waivers of liens which are in the possession of the Subcontractors as may reasonably be requested by Company in order to establish such payment or discharge; provided however that if a Subcontractor is unable to provide a certificate that a lien has been discharged, such Subcontractor or Contractor shall furnish a bond or other instrument acceptable to Company to indemnify Company against any such lien claim; and provided further that if any such lien claim remains unsatisfied after all payments are made, Contractor shall refund to Company all monies that Company may be compelled to pay in discharging such lien including reasonable legal fees on a solicitor-client basis; and
 - (i) Contractor has delivered to Engineer evidence satisfactory to Engineer that Contractor and all Subcontractors engaged in the Work are then assessed with the WHSCC and that their respective accounts are current.
- 25.7 When Contractor believes the requirements of Final Completion have been satisfied, Contractor shall request by Notice a Final Completion Certificate. Such Notice shall contain a declaration by Contractor that all the requirements of Final Completion have been met. If all requirements of Final Completion have been met to the satisfaction of Engineer, the date of Final Completion shall be the later of (i) the date specified in Contractor's request, and (ii) the date when the requirements of Final Completion were met to the satisfaction of Engineer. Promptly after Final Completion has been achieved as provided above, Company shall issue a Final Completion Certificate to Contractor, which states the date of Final Completion.
- 25.8 By submission of the Notice to Company for confirmation that Contractor has fully performed all of the Work pursuant to **Article 25.7**, Contractor agrees that, as of the date of the issuance of the Notice, Contractor waives, remises, releases and discharges Company of any and all Claims as of the date of the Notice that are known, ought to have been known or

discoverable by reasonable means by Contractor, which Contractor has or may have relating to or arising out of this Agreement and the subject matter of this Agreement, and all facts and circumstances related to the Work, save and except:

- (a) any Claims previously submitted in writing prior to the date of the Notice, and remaining unresolved; and
- (b) the balance of the Contract Price payable, if any, upon the issuance of the Final Completion Certificate.

25.9 A Final Completion Certificate shall not be conclusive evidence of the value of the Work or that the Work is in accordance with the Agreement or that the Contractor has performed all its obligations under the Agreement:

- (a) to the extent that fraud or dishonesty relates to or affects any matter dealt with in the Notice of Final Completion; or
- (b) to the extent that any latent Defect is discovered.

25.10 Within thirty-five (35) days following issuance of a Final Completion Certificate, Company shall pay the balance of the Contract Price for the Work less:

- (a) an amount to satisfy any liens registered against the property of Company arising out of Contractor Group's performance of the Work;
- (b) any amount Company is entitled to set off against payment to Contractor;
- (c) any amount payable to Company pursuant to the provisions of this Agreement; and
- (d) any amounts required or permitted to be withheld by Company by Applicable Laws or this Agreement.

ARTICLE 26 LIQUIDATED DAMAGES

26.1 For each Milestone specified in Exhibit 2 – Compensation as being subject to liquidated damages, if Contractor fails to deliver that part of the Work to achieve the Milestone by the date specified, Contractor shall pay Company as liquidated damages the full amount stipulated in Exhibit 2 – Compensation for each day, including any part thereof, of the delay of that Milestone, from the date the delay commenced to the date the Milestone is achieved, unless the failure to achieve the Milestone is due to an event of Force Majeure. Contractor's limit of liability for liquidated damages payable by Contractor to Company pursuant to this **Article 26.1** shall be a maximum of ten percent (10%) of the Contract Price.

- 26.2 Contractor acknowledges that Company's damages for which Contractor is responsible as determined in accordance with **Article 26.1** are difficult to ascertain, and that the remedies of Company described therein are fair and reasonable in the circumstances, and Contractor agrees that it will not challenge the validity of any such remedies in any legal proceedings or otherwise claim or assert that any such remedies are invalid or unenforceable. Contractor agrees that Company may plead this **Article 26.2** in any legal proceedings as an estoppel and complete answer in defence to any challenge, claim or assertion. For clarification, **Articles 26.1** and **26.2** shall not be construed as restricting the rights or remedies of Company:
- (a) with respect to the exercise by Company of any remedy otherwise available under this Agreement or at law; or
 - (b) in respect of any Claim by Company that a breach of this Agreement by Contractor has occurred; or
 - (c) as to the amount or value of any damages incurred or suffered by Company as a result of any breach by Contractor.
- 26.3 Company shall have the right to payment by Contractor of liquidated damages from time to time by giving Notice to Contractor. Any such Notice shall specify the amount of such damages and Contractor shall pay the amount so specified within ten (10) Business Days of the date of such Notice. Failure by Company to give Contractor a Notice shall not constitute a waiver of Company's right to claim all liquidated damages under this **Article 26**.
- 26.4 Company has the right to set off any amount of liquidated damages, plus interest determined in accordance with **Article 12.19**, owed by Contractor to Company against any amount due or to become due from Company to Contractor under the Agreement.

ARTICLE 27

TITLE AND RISK

- 27.1 Contractor warrants good title to all Contractor's Items, consumables, goods and other items furnished by it under this Agreement and that they are free from any liens or encumbrances in favour of third parties. Risk of, and in, Contractor's Items shall remain with Contractor throughout the Term.
- 27.2 Title to the Work (or any part of the Work) performed, including all Contractor's documentation related to the Work, shall vest in Company as and when performed or prepared. Title to all equipment, materials and products to be supplied by Contractor or its Subcontractors for incorporation into the Work shall vest in Company as and when identified and designated for incorporation into the Work. Title to any items free issued to Contractor by Company shall always remain vested in Company.

- 27.3 Company shall have the right, without prejudice to any other right it may have under the Agreement, to decline to pay for any part of the Work if Contractor is unable to provide evidence reasonably satisfactory to Company that title to the same has passed to Contractor or shall pass unconditionally to Company as provided in the Agreement, free from any liens or encumbrances in favour of any third parties.
- 27.4 Contractor shall cause the inclusion of terms consistent with the terms of **Articles 27.1, 27.2** and **27.3** in all Subcontracts so that Company and Contractor shall have the rights herein set forth with respect to each Subcontractor involved in the performance of the Work.
- 27.5 Subject to **Article 17**, risk of and in the Work shall be assumed by Company upon issuance of a Substantial Completion Certificate, and Contractor shall assume the risk of and undertake the care and control of the Work until such time as the Substantial Completion Certificate is issued in accordance with **Article 25.2**.
- 27.6 Contractor shall make available to Company all data relating to the operation and performance of the Work in electronic media for use by Company during the Term and during the operation of the Work. Contractor shall undertake all reasonable efforts to ensure data is provided in a form fully useable to Company with well recognized industry standard applications, including the requirements of Exhibit 3 - Coordination Procedures and Exhibit 11 - Company Supplied Documents.
- 27.7 Company, at its discretion and upon Notice to Contractor, may take possession of or use Work, and/or any part of the Work, at any time prior to Substantial Completion of such Work. If Company takes possession of or uses the Work following such Notice:
- (a) Company shall not be deemed to have Approved the Work or that part possessed or used;
 - (b) the Warranty shall apply except that the Warranty shall commence upon use of that part of the Work to which the Notice applies, notwithstanding the time for commencement in **Article 17.1**, and continue for the duration specified in **Article 17**; and
 - (c) Contractor shall not be relieved of its responsibilities and obligations under this Agreement.

ARTICLE 28 SUSPENSION

- 28.1 Company may at any time during the Term, at Company's sole discretion for any reason, suspend performance of the Work, or any part thereof, by giving Notice to Contractor (such period of suspension hereinafter "**Suspension Period**"). The Work shall be resumed by Contractor on a date as may be specified by Company in a Notice to Contractor. During the

Suspension Period, Contractor shall properly protect and secure the Work as Approved in advance by Company.

- 28.2 Subject to **Article 28.3** and **Article 28.4**, Company shall reimburse Contractor its reasonable expenses (which Contractor shall use its best efforts to mitigate) incurred in compliance with any suspension order and associated reinstatement order (the "**Suspension Expenses**"). Any such Suspension Expenses are to be subject to audit in accordance with **Article 16**. In no event shall Contractor be entitled to any compensation for indirect or consequential losses, including lost profits and revenue, that may have resulted from such suspension or reinstatement order.
- 28.3 Company shall have the right to suspend performance of the Work for as long as necessary to prevent or stop any contravention of **Article 15**. During such period of suspension, no Suspension Expenses shall be payable to Contractor by Company.
- 28.4 In case of suspension due to Contractor's failure to perform the Work in accordance with **Article 3**, Contractor shall not be entitled to Suspension Expenses incurred from the moment the Notice of suspension was given until a reinstatement order (if any) is given by Company but shall remain liable, without prejudice to Company's other rights under this Agreement.
- 28.5 Contractor shall cause all terms of this Article to be inserted in all Subcontracts so that Company and Contractor shall have the rights herein set forth with respect to all Subcontractors.

ARTICLE 29 FORCE MAJEURE

- 29.1 For the purposes of this Agreement, Force Majeure shall mean and be limited to the following:
- (a) acts of God, riot, civil unrest, civil disturbance (including blockades to or from the Site), war, acts of civil or military authority, epidemics, quarantine restrictions, acts of terrorism;
 - (b) earthquake, flood, fire, storms in excess of a one hundred (100) year storm or other natural physical disaster, but excluding other weather conditions as such regardless of severity;
 - (c) strikes at a national level, industrial disputes at a national level, which affect a substantial or essential portion of the Work;
 - (d) a change in Applicable Law or the interpretation thereof (recognized by relevant courts or relevant government authorities) which change could not on the Effective

Date reasonably have been foreseen and which affects a substantial or essential portion of the Work; and

- (e) maritime and aviation disasters.
- 29.2 Neither Contractor nor Company shall be responsible for any failure to fulfil any term or condition of this Agreement if and to the extent that such fulfilment has been delayed or rendered impossible by a Force Majeure occurrence of which the other Party has been notified in accordance with this **Article 29** and which is beyond the control and without the fault or negligence of the Party affected, and which by the exercise of reasonable diligence the said Party is unable to provide against.
- 29.3 A Party may not rely upon the provisions of **Article 29.2**:
- (a) unless it shall immediately upon being made aware of the Force Majeure occurrence notify the other Party of such Force Majeure and of the obligations expected to be affected thereby;
 - (b) unless it shall immediately take all such steps as may be commercially reasonable in the circumstances to cause the discontinuance of, and to minimize the effect of, the Force Majeure occurrence and resume performance of the obligation affected by the Force Majeure as soon as reasonably possible; and
 - (c) to the extent that and for so long as there would be concurrent delay to Work resulting from pre-existing matters within the responsibility or obligation of the Contractor under this Agreement.
- 29.4 Where Company claims Force Majeure and is entitled to rely upon the provisions of **Article 29.2**, then no compensation shall be payable to Contractor during the period that the Force Majeure occurrence continues to prevent performance by Company. Where Contractor claims Force Majeure and is entitled to rely on the provisions of **Article 29.2**, then no compensation shall be payable to Contractor during the period that the Force Majeure occurrence continues to prevent performance by Contractor.
- 29.5 If Contractor is prevented from or delayed in performing any of its obligations as a result of an event of Force Majeure for a cumulative period of more than thirty (30) days or a consecutive period of more than fifteen (15) days during the Term, Company shall have the right thereafter to immediately terminate this Agreement upon giving Notice thereof to Contractor and Company shall have no further liability whatsoever to Contractor (except payment for Work performed prior to such termination).
- 29.6 A Force Majeure occurrence shall in no circumstances entitle Contractor to an increase in the Contract Price.
- 29.7 During any period in which the performance of the Work is prevented because of Force Majeure, Contractor and Company shall mutually agree either (1) to continue maintaining

Contractor's Items and Personnel at or near the Worksite, in which case Company will reimburse Contractor at the rates outlined in Exhibit 2 - Compensation which is intended to cover only those expenses incurred by Contractor as a direct result of such prevention of performance, or (2) to demobilize Contractor's Items and Personnel.

ARTICLE 30 DISPUTE RESOLUTION

- 30.1 If any dispute, controversy, claim, question or difference of opinion arises between the Parties under this Agreement including an interpretation, enforceability, performance, breach, termination or validity of this Agreement ("**Dispute**"), the Party raising the Dispute shall give Notice to the other Party in writing within thirty (30) days of the Dispute arising, and such Notice shall provide all relevant particulars of the Dispute.
- 30.2 Upon issuance of Notice of Dispute, the Parties shall, acting in good faith and a commercially reasonable manner, attempt to resolve the Dispute in the following manner:
- (a) Within fifteen (15) days of the Notice, the senior project managers for each of the Company and the Contractor shall meet;
 - (b) If not resolved by senior project managers, the project sponsors or representative Vice Presidents for each of the Company and Contractor shall meet within thirty (30) days following the meeting of the project managers; and
 - (c) If not resolved by project sponsors or representative Vice Presidents, the Chief Executive Officers for each of the Company and Contractor shall meet within thirty (30) days following the meeting of the project sponsors or representative Vice Presidents.
- 30.3 If the Dispute is not resolved by the Parties within ninety (90) days from the date of delivery of the Notice of Dispute then a Party may take whatever action is deemed appropriate pursuant to this Agreement. For greater certainty, the Parties must comply with this **Article 30** before commencing any further action, legal or otherwise, with respect to a Dispute under this Agreement.
- 30.4 Notwithstanding that a matter or matters have been referred to be resolved by application of the Dispute resolution procedures in this **Article 30**, each of Company and Contractor shall, to the extent reasonably possible or unless advised in writing by Company to suspend or discontinue work, continue to perform their obligations under this Agreement without interruption or delay and the continuation of such performance shall in no way amount to a waiver of, or in any way prejudice, positions taken by the Parties in the dispute being arbitrated under this Agreement. There shall be no extension to any date for completion of a Milestone by reason that a matter or matters have been referred to be resolved pursuant to the Dispute resolution procedures in **Article 30**.

ARTICLE 31 LABOUR RELATIONS

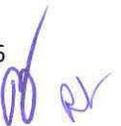
- 31.1 Contractor acknowledges that some or all of Company's Other Contractors and their Subcontractors at a Worksite may be union or non-union and that the Company requires Contractor to ensure that labour peace shall be maintained. Contractor shall take all necessary precautions to avoid labour disputes and to minimize the disruption in the event of any dispute.
- 31.2 Contractor shall at all times promptly take all steps necessary to maintain good labour relations with Contractor Personnel to the extent that such requirement is consistent with sound business practice in accordance with the Standard of a Prudent Contractor. Subject to **Article 29.1(c)**, the existence of any labour disturbance relating to Contractor Personnel shall not relieve Contractor of its obligations under this Agreement.
- 31.3 Contractor represents and warrants that no collective or other agreement with its Personnel or between its Subcontractors and their workers, and no expiry or termination of any such agreement, will adversely affect labour peace at the Worksites or delay the Contractor's performance of the Work.
- 31.4 Contractor represents and warrants that it and its Subcontractors, if unionized, have written agreements with the unions representing the workers employed by them that include provisions that non-affiliation rights in any collective agreement or pursuant to any statutory right will not be exercised in connection with the Work. Any and all such agreements shall be submitted to Engineer within five (5) Business Days of the Effective Date or of the date an agreement comes into effect.
- 31.5 Whenever the Contractor has knowledge that any actual or potential labour dispute is delaying or threatening to delay the schedule and performance of the Work, the Contractor shall immediately advise Engineer in writing, including all relevant information with respect to such dispute or potential dispute and potential impact on the schedule and performance of the Work.
- 31.6 Without restricting the generality of Company's right to terminate the Agreement, Company may, but is not obligated to, give Notice to Contractor requiring Contractor to terminate any Subcontract by giving five (5) days Notice to the Subcontractor if:
- (a) the workers of the Subcontractor, or anyone employed by or through the Subcontractor:
 - (i) declare or engage in a strike, a work stoppage or a refusal to supply material; or
 - (ii) engage in a slowdown or other concerted activity which restricts or limits or, is likely to restrict or limit, the progress or performance of the Work;



- (iii) picket or cause picketing to occur or support picketing by the refusal to Work, or continue to Work at or in the Worksites whether in support of lawful strike or for any other reason; or
 - (iv) do not comply with **Article 2.14**.
 - (b) the Subcontractor, or anyone engaged by or through the Subcontractor, imposes a lockout, lawful or unlawful, against their workers engaged in performing the Work.
- 31.7 Contractor shall ensure that all Subcontracts allow termination in each of the events set out in **Article 31.6**.
- 31.8 The sole cost and expense of preventing, avoiding or removing any of the matters or events giving rise to a labour disruption shall be borne by Contractor, who shall prevent, avoid and remove any and all such labour disruptions within five (5) days of the commencement of such disruptions, including making any necessary applications for injunctive or other relief to the Court.
- 31.9 Except for strikes, labour disputes or industrial disputes referenced in **Article 29.1(c)**, delays in the performance of the Work as a result of any strike, industrial dispute, labour disruption or labour dispute are to be considered as a delay attributable to Contractor, and for which the Contractor shall not be entitled to compensation or an extension to the date for completion of a Milestone.

ARTICLE 32 CONFIDENTIALITY

- 32.1 The term "**Confidential Information**" shall mean all information and data, in whatever form, which Company provides to Contractor in connection with this Agreement (including events witnessed by Contractor Group in connection with the performance of the Work). Confidential Information does not include information which:
 - (a) prior to the time of disclosure or acquisition is lawfully in the public domain;
 - (b) after disclosure or acquisition becomes part of the public domain, through no act or omission on the part of a Party;
 - (c) prior to disclosure or acquisition was already lawfully in a Party's possession without limitation on disclosure to others;
 - (d) was obtained by a Party from a third party who is lawfully in possession of such information and is not subject to a contractual or fiduciary relationship with the other Party with respect to such information; or



- (e) was independently developed by the receiving Party without the use of Confidential Information.
- 32.2 Contractor shall not disclose Confidential Information (including photographs of activities of Company) to any third party nor use any Confidential Information without the Approval of Company. Notwithstanding the foregoing, Contractor may disclose Company's Confidential Information if required by Applicable Laws. Contractor shall promptly notify Company in advance of any such intended disclosure. Contractor shall adopt and follow precautionary measures with respect to Confidential Information to ensure that it is not disclosed to third parties by any of Contractor Group, without the Approval of Company. Any Approval given by Company shall apply only to the specific request for Approval made by Contractor.
- 32.3 Company may disclose information received by Contractor to Company's Affiliates, Engineer and the directors, officers, employees, contractors, subcontractors, legal counsel, consultants and advisors of the foregoing to whom disclosure is required to enable the Company to perform its obligations hereunder or to any other Person if such disclosure is required by Applicable Laws, provided Company has taken such reasonable and necessary precautions to prevent any of the foregoing parties from disclosing such information to any third party. Company may disclose such necessary Contractor's information to Company's bankers and to financial institutions from whom Company may seek financing for the LCP.
- 32.4 To the extent Company is subject to the provisions of the Privacy Law, all documents and other records in the custody of or under the control of the Company and its Affiliates, and in relation to the Work in the custody of or under the control of Contractor, will be subject to the Privacy Law. Contractor acknowledges that Company is subject to the access to information and Privacy Law pursuant to which the public may have access to Company's records.
- 32.5 If Contractor discloses Confidential Information to its Personnel, Contractor shall ensure that any such Personnel are informed of the confidential nature of the information disclosed and that such Personnel comply with the Contractor's obligations under this **Article 32**.
- 32.6 This **Article 32** does not apply to the disclosure of Confidential Information by Contractor in order to comply with any Applicable Law or legally binding order of any Court or Authority, as long as prior to such disclosure Contractor gives Notice to Company with full particulars of the proposed disclosure.
- 32.7 If requested by Company, whether prior to or after the expiry or earlier termination of the Agreement, Contractor shall promptly deliver to Company all Confidential Information provided by Company that is in the custody, possession or control of Contractor or any of its Personnel.
- 32.8 The breach of any of the conditions contained in this **Article 32** will be deemed to be a material breach of the Agreement.

ARTICLE 33 GENERAL

- 33.1 Nothing in this Agreement, nor the conduct of a Party, shall in any manner whatsoever constitute or be intended to constitute Contractor as the agent or representative or fiduciary of Company or any of its Affiliates, nor constitute or be intended to constitute a partnership or joint venture between Company and Contractor or any other Party, but rather as between Company and Contractor each Party shall be severally responsible, liable and accountable for its own obligations under this Agreement or otherwise for any conduct arising therefrom and for all Claims, demands, actions and causes of action arising directly or indirectly therefrom. Neither Party shall have the authority to make nor shall it make any statements, representations or commitments of any kind, or take any action, that will bind the other Party, except as expressly provided in this Agreement or as otherwise authorized in writing by the applicable Party.
- 33.2 Contractor shall, for all purposes under this Agreement and in relation to any aspect of the performance of its obligations in respect of the Work, be an independent contractor and shall have responsibility for and control over the details and means of performing such obligations in accordance with the terms and conditions of this Agreement. Contractor's Personnel shall not be employees of Company. Contractor's Personnel shall be under the direct supervision and control of Contractor and not of Company. Contractor accepts complete responsibility as the principal for Contractor's Personnel.
- 33.3 Contractor agrees and shall cause the Subcontractors to agree at all times to highlight the independent nature of the relationship between Company and Contractor wherever possible, including through the use of on-site signage and identifiable logo, letterhead, colour schemes and equipment identification.
- 33.4 Each of the Parties shall, from time to time, at its own cost and expense, execute or cause to be executed all such further documents and do or cause to be done all things which are necessary to give effect to the provisions of this Agreement.
- 33.5 This Agreement embodies the entire agreement between Contractor and Company with respect to the Work and comprises all matters relating to the planning, procurement, construction, testing, inspection, commissioning and completion of the Work. Unless otherwise expressly stated, this Agreement supersedes all prior agreements, understandings or writings between the Parties, whether written or oral and whether legally enforceable or not. Subject to Applicable Laws, no Party shall be bound by or be liable for any statement, representation, promise, warranty, inducement, agreement, obligation or understanding of any kind or nature not set forth in this Agreement.
- 33.6 No modification of this Agreement by Contractor or Company, either before or after the execution of this Agreement, shall be of any force or effect unless such modification is in writing, is expressly stated to be a modification of this Agreement and is signed by duly

authorized representatives of each of the Parties, with the exception of the following Exhibits where changes to same may be issued solely by Company:

- (a) Exhibit 3 – Coordination Procedures;
- (b) Exhibit 5 – Health and Safety Requirements;
- (c) Exhibit 6 – Environmental and Regulatory Compliance Requirements;
- (d) Exhibit 11 – Company Supplied Documents;
- (e) Exhibit 13 – Provincial Benefits.

- 33.7 Contractor agrees that all public relation matters arising out of or in connection with the Work shall be the sole responsibility of Company. Contractor shall obtain Company's Approval of the text of any announcement, publication or other type of communication concerning the Work.
- 33.8 Contractor shall not advertise or issue any information, publication, document or article (including photographs or film) for publication or media releases or other publicity relating to the Work, the Agreement, the LCP or Company's business and activities without Approval of Company except as may be required by Applicable Law. Contractor shall refer to Company any enquiries from the media concerning the Work, the Agreement, the LCP or Company's business and activities. Contractor shall include in each Subcontract a provision that incorporates the terms of **Article 33.7** and this **Article 33.8** such that those terms shall apply to each Subcontractor.
- 33.9 This Agreement shall be binding upon and shall enure to the benefit of the Parties hereto and their respective successors and permitted assignees.
- 33.10 The following provisions of this Agreement shall survive the termination or expiration of this Agreement and remain in full force and effect: **Articles 1.11, 1.12, 1.14, 1.15, 1.19, 3.7, 5.1, 5.7, 5.8, 6.11, 7.1, 7.2, 10.7, 12.15, Article 13, Article 17, Article 21, Article 24, Article 25, Article 32, 33.8, 33.9, 35.1, 35.2 and Article 39.**

ARTICLE 34 ASSIGNMENT

- 34.1 Company may, without the Approval of Contractor, assign this Agreement, or any part thereof, to:
- (a) any Affiliate of Company (an "**Affiliate Assignee**"); or
 - (b) any successor to or replacement corporation of Company or similar entity in connection with any merger, consolidation or other reorganization of Company or transfer of all or any part of Company's assets other than as contemplated in paragraph (a) above; or

- (c) any entity that has provided or provides financing for the LCP, or any part thereof, to Company or its Affiliates, successors and replacements;

and upon Notice by Company to Contractor of such assignment, Company shall be fully and finally released and discharged from all liabilities, obligations, any and all actions, causes of action and covenants, whether expressed or implied, Claims or demands for damages, sums due, indemnity, costs (including without limitation legal fees and disbursements), expenses, interest, loss or injury of every nature and kind whatsoever and howsoever arising, which Contractor may heretofore have had, may now have, or may hereinafter have, in any way relating to or under this Agreement, both past and future. In the case of an assignment to an entity described in paragraphs (a) or (b) of this **Article 34.1**, Contractor acknowledges and agrees that the assignee shall thereupon be the sole obligor for all past and any future obligations under this Agreement in the same manner and to the same extent as if it was the sole obligor and original party hereto in the place and stead of Company under this Agreement, the whole without any further action, Approval, notice or document being taken, obtained, sent or executed by or to any of the Parties at any time.

34.2 In the event of an assignment pursuant to **Article 34.1(c)**, Contractor agrees that:

- (a) prior to the exercise by Contractor of any rights it may have under the Agreement arising by reason of any breach by Company of the Agreement (any such breach, a "**Breach**"), including cancellation or suspension of the Contractor's performance thereunder, Contractor shall give to the Agent Party at such time, written notice of the Breach at the time such notice is provided to Company. Upon receipt of such notice, such Agent Party shall be entitled, but shall in no way be obligated, to cure or cause to be cured such Breach and curable breaches which arose prior to such notice within sixty (60) days following the receipt by such Agent Party of such notice ("**Cure Period**"), provided that:
- (i) such Cure Period will automatically be extended for the period of time the Contractor is precluded by Applicable Laws or by virtue of any debt reorganization, insolvency or bankruptcy proceedings, from cancelling the Agreement; and
 - (ii) during the Cure Period, Contractor will not be obligated to supply goods or services or otherwise perform prospective obligations under the Agreement unless Contractor receives immediate payment for such goods, services or obligations; and
- (b) it shall not exercise any rights of cancellation or suspension under the Agreement before the expiry of the Cure Period, unless the Agent Party at such time, expressly notifies the Contractor in writing that such Agent Party shall not:
- (i) cure or cause to be cured the Breach specified in the relevant notice if such Breach is of a curable nature, or

- (ii) observe and perform the obligations of Company under the Agreement, including curing curable breaches which arose prior to such notice.
- 34.3 Company shall not assign this Agreement or any of its benefits or obligations thereunder to any third party, other than those described in **Article 34.1**, without Contractor's Approval, which Approval shall not be unreasonably withheld, conditioned or delayed.
- 34.4 Following any assignment by Company pursuant to this **Article 34**, this Agreement may be re-assigned to Company without Contractor's Approval.
- 34.5 Contractor shall not assign any of its interest in this Agreement without the Approval of Company. Such Approval shall not release or relieve Contractor from any representation or warranty given by Contractor or any obligation to be performed on the part of Contractor under this Agreement. Notwithstanding the foregoing, Contractor may at any time assign its interest in this Agreement to an Affiliate, provided that:
- (a) Contractor shall remain liable for any obligation to be performed on the part of Contractor under this Agreement, including Performance Guarantees, if such Affiliate fails to fulfill any such obligation;
 - (b) the Parent Guarantee and the letter of credit referenced in **Article 7** shall remain in place, remain effective and available to Company in the event the Affiliate fails to fulfill the Contractor's obligation under this Agreement; and
 - (c) if the Affiliate has a tax residency status that is different than the tax residency status of Contractor as declared to Company in accordance with **Article 13.3** (or such subsequent tax residency Approved by Company), Contractor has obtained the prior written approval of Company of the proposed assignment to the Affiliate.
- 34.6 In the event of a transfer by sale, assignment, amalgamation, merger, trust, operation of law or otherwise of any shares, interest or voting rights of Contractor which may result in the change of identity of the Person exercising *de facto* or *de jure* control over Contractor, the provisions of **Article 34.5** shall apply.

ARTICLE 35 LIENS AND CLAIMS

- 35.1 Without prejudice to the provisions of this **Article 35**, Contractor shall prevent the imposition of any liens, claims, encumbrances or attachments by or on behalf of any third party against Contractor's Items, the Work, and Company property wherever located, or any portion thereof and any liens or attachments which nevertheless are imposed shall be promptly vacated and removed from title by Contractor, at Contractor's sole cost, and Contractor shall indemnify, defend and hold Company Group harmless from and against the same.



- 35.2 Contractor shall defend, protect, release, indemnify and hold Company Group harmless from and against, and shall keep Contractor's Items, Company's property, Site and Work thereon free and clear of all liens, charges, claims, assessments, fines and levies suffered, created, or committed by Contractor Group, save only liens or encumbrances created with the prior written consent of Company voluntarily in favour of financial organizations in connection with Contractor's obtaining reasonable, prudent and necessary financing. Company may post on any of Contractor's property such notices as it may desire to protect itself against such liens, claims, assessments, fines and levies.
- 35.3 Notwithstanding the efforts of Contractor hereunder, if Company suffers costs or expenses or becomes liable for payment as a result of the imposition of such liens or attachments, then without prejudice to any other rights or remedies available to Company, Company shall have the right to withhold and set off an amount equal to any such costs, expenses or payments incurred or made by Company from any payments due to Contractor hereunder.

ARTICLE 36

CONTRACTOR'S DOCUMENTS AND INTELLECTUAL PROPERTY

- 36.1 Contractor, on or before the time set forth herein, shall prepare and deliver to Engineer all documents listed in Exhibit 4 – Supplier Document Requirements List.
- 36.2 Contractor shall provide Engineer, without charge or cost, copies of all documents required by this Agreement whether obtained by or prepared by or on behalf of Contractor.
- 36.3 (a) All plans, specifications and other documents conceived of or produced or caused to be prepared, conceived of or produced and delivered in the performance of this Agreement by or on behalf of Contractor ("**Intellectual Property**") and which are particular to the Work shall be the property of Company.
- (b) Subject as is hereinafter provided, Contractor hereby grants to Company the exclusive, perpetual license or other right to use all such Intellectual Property and all patents, copyrights and other industrial and intellectual property rights, including trade secrets, arising in relation to the Intellectual Property ("**Rights**"), if any, that are held by Contractor. Contractor also agrees to obtain a non-exclusive, perpetual licence or other right to use such Intellectual Property and Rights from any other Persons who hold any rights and interests in the Intellectual Property and Rights and agrees to assign to Company the right to use all such Intellectual Property and Rights for all purposes in relation to the LCP.
- (c) Contractor shall execute any and all written documentation which Company, Engineer and/or Lender may require to evidence the grant and assignment of the Rights.

- (d) Contractor shall not be liable in any manner whatsoever for Claims arising as a result of the use by Company or Engineer of the Intellectual Property or Rights other than in connection with the LCP.

ARTICLE 37 SHOP DRAWINGS

- 37.1 Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, product and other data (including data in electronic form) which Contractor provides to illustrate details of a portion of the Work.
- 37.2 Shop Drawings shall be based on the design drawings and specifications set out in Exhibit 1 – Scope of Work.
- 37.3 Contractor will provide Shop Drawings as described in the Agreement or as Engineer may reasonably request.
- 37.4 Contractor will review all Shop Drawings prior to submission to Engineer. Contractor represents by this review that Contractor has determined and verified all field measurements and field construction conditions, product requirements, catalogue numbers and similar data and that Contractor has checked and coordinated each Shop Drawing with the requirements of the Work and of the Agreement. Contractor will confirm this review of each Shop Drawing by stamp, date and signature of the person responsible. At the time of submission Contractor will notify Engineer in writing of any deviations in the Shop Drawings from the requirements of the Agreement.
- 37.5 Contractor will submit Shop Drawings to Engineer to review in orderly sequence and sufficiently in advance so as to cause no delay in the Work or in the work of Company's Other Contractors. Upon request of Engineer, Contractor and Engineer will jointly prepare a schedule of the dates for submission and return of Shop Drawings. Any Shop Drawings which require Approval of any Authority will be submitted to such Authority by Contractor for Approval.
- 37.6 Contractor will submit Shop Drawings in the form specified in the Agreement or as Engineer may direct. Engineer will review and return Shop Drawings in accordance with the schedule agreed upon or otherwise with reasonable promptness. Engineer's review is for conformity to the design concept and for general arrangement only. Engineer's review will not relieve Contractor of responsibility for errors or omissions in any Shop Drawing submitted by Contractor or for meeting all requirements of the Agreement unless Engineer expressly notes the Acceptance of a deviation on the Shop Drawings.
- 37.7 Upon Engineer's request, Contractor will revise and resubmit Shop Drawings which Engineer rejects as inconsistent with the Agreement unless otherwise directed by Engineer. Contractor will notify Engineer in writing of any revisions to the resubmission other than

those requested by Engineer. Contractor will not be entitled to any extension to the dates for completion of a Milestone nor any adjustment to the Contract Price as a result of complying with its obligations to resubmit Shop Drawings under this paragraph.

ARTICLE 38 APPROVAL OF EQUIPMENT

- 38.1 For equipment types identified in Exhibit 1 – Scope of Work, Contractor shall provide Engineer with a detailed list of the equipment that the Contractor proposes to use in the performance of the Work. The list of equipment provided by Contractor shall include manufacturer, model and a summary specification for each item listed.
- 38.2 Contractor shall not use any type of equipment required to be listed in accordance with **Article 38.1** unless the specific equipment has been Accepted by Engineer. If Contractor seeks to use different equipment from that listed and Accepted by Engineer, Contractor shall notify Engineer and provide Engineer with such information as Engineer may require.
- 38.3 Engineer may, on reasonable grounds, object to any item of equipment proposed by Contractor in the equipment list. If each alternative make, manufacturer or model is rejected by Company for any item, type or class of equipment set out in the proposed list of equipment then Contractor shall resubmit the proposed list of equipment with further alternatives for the rejected item, type or class of equipment.

ARTICLE 39 NOTICES

- 39.1 Unless otherwise specified in the Agreement, any Notice given or made pursuant to the Agreement shall:
- (a) be in writing;
 - (b) be marked to the attention of the Contractor's Project Manager, in the care of the Contractor, or to the Company Representative, in the case of the Company;
 - (c) where given by Company, be signed or authorized by either Company Representative, an officer, a director or company secretary of Company, or a duly authorized representative of Company;
 - (d) where given by the Contractor, be signed or authorized by either Project Manager, an officer, a director or company secretary of the Contractor, or a duly authorized representative of the Contractor; and

- (e) be delivered by prepaid post, by hand or by Aconex to the Party to whom the Notice is addressed at its address specified in **Article 39.3** or such other address as that Party may have notified to the other Party.

39.2 A Notice will be taken to be duly given:

- (a) in the case of delivery by hand, when delivered;
- (b) in the case of delivery by post, five (5) Business Days after the date of posting (if posted to an address in the same country) or twenty (20) Business Days after the date of posting (if posted to an address in another country); and
- (c) in the case of delivery by Aconex, at the time and date recorded by Aconex for delivery to the recipient.

39.3 Any Notice given or made under the Agreement shall be delivered to the intended recipient by hand, post or Aconex to the address below or the address last notified by the intended recipient to the sender:

- (i) to Company:

Labrador-Island Link Limited Partnership
Re: Lower Churchill Project
350 Torbay Road Plaza, Suite No. 2
St. John's, NL
Canada A1A 4E1

Attention: Jason R. Kean, **Deputy General Project Manager - LCP**
email: jasonkean@lowerchurchillproject.ca

- (ii) to Contractor:

Valard Construction LP
Suite 301, 4209-99 Street NW
Edmonton, Alberta
T6E 5V7

Attention: **Adam Budzinski, Executive Sponsor**
email: Abudzinski@valard.com

Except where Notice is given using Aconex in accordance with **Articles 39.2** and **39.3**, if the Parties use any other form of electronic mail for day to day communication such electronic mail shall not be used for and will not constitute Notice under the Agreement where the Agreement expressly requires that a Notice be given.

39.4 Any technical communications pertaining to the Work shall be between Engineer and Contractor's Project Manager. Engineer shall, subject to the terms of this Agreement, be



authorized to act on behalf of Company in all technical matters concerning the Work but not to commit or bind Company to a Change or amendment of the Agreement.

- 39.5 Except where expressly provided otherwise in the Agreement, verbal communications will not constitute formal communication or Notice under the Agreement and neither Party has any obligation to act on any verbal communication or instruction unless and until it is confirmed in writing. Any action taken by a Party based on verbal communications, instructions or assurances will be at that Party's sole risk and will be without liability to or recourse against the other Party.
- 39.6 A Party may, from time to time, give Notice to the other Party of any change to its address.

ARTICLE 40 EXECUTION

- 40.1 This Agreement may be executed in any number of counterparts and any Party may transmit by facsimile or email in portable document format to the other Party a copy of this Agreement executed by that Party, the receipt of which shall have the same force and effect as if the original thereof had in fact been delivered at the same time.
- 40.2 Any original, facsimile copy, portable document format or photocopy of this Agreement bearing one or more signatures on behalf of a Party shall be admissible against that Party in any legal proceeding as evidence of the execution and delivery of this Agreement by that Party and without the requirement to produce an executed original of the Agreement.
- 40.3 Each person signing the Agreement as an authorized representative of a Party hereby represents and warrants that he or she is duly authorized to sign the Agreement for that Party and that the Agreement, upon having been so executed, shall be binding on that Party in accordance with its terms.

EXECUTED AS AN AGREEMENT:

For and on behalf of Labrador-Island Link Limited Partnership, represented by its general partner Labrador-Island Link General Partner Corporation


Signature of Authorized Representative

G.J. Bennett, P.E.-S.
Name of Authorized Representative
Vice President


Signature of Authorized Representative

E. J. Martin
Name of Authorized Representative
President and CEO

For and on behalf of Valard Construction LP, by its general partner Valard Construction 2008 Ltd.


Signature of Authorized Representative

ADAM DUDZINSKI
Name of Authorized Representative

Execution Page to Agreement number CT0327 dated the 8th day of August, 2014 between Labrador-Island Link Limited Partnership and Valard Construction LP.

LOWER CHURCHILL PROJECT	Scope of Work Construction of 350 kV HVdc Transmission Line (Section 1 & 2)	Rev	Date
	ILK-SN-CD-6200-TL-SP-0012-01	C2	24-Jul-2014

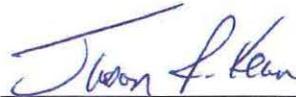
LOWER CHURCHILL PROJECT

CT0327

Construction of 350 kV HVdc Transmission Line (Section 1 & 2)

SCOPE OF WORK

Prepared by:



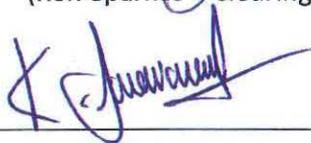
(Jason Kean – Deputy General PM)

Reviewed by:



(Ken Sparkes – Clearing Manager)

Reviewed by:



(Kumar Kandaswamy – Deputy PM - TL)

Approved by:

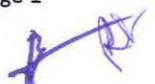


(Keenan Healey - Area Manager)

Approved by:



(Richard Donica – Project Manager,
Construction Execution)



LOWER CHURCHILL PROJECT	Scope of Work Construction of 350 kV HVdc Transmission Line (Section 1 & 2)	Rev	Date
	ILK-SN-CD-6200-TL-SP-0012-01	C2	24-Jul-2014

REVISION LIST

Revision						Remarks
N ^o	By	Rev.	Appr.	Appr.	Date	
C2	JK	KS/KK	KH	RD	07-Jul-2014	Re-Issued for Agreement Execution
C1	AR	RD	GS	KH	28-Jan-2014	Issued for RFP

LOWER CHURCHILL PROJECT	Scope of Work Construction of 350 kV HVdc Transmission Line (Section 1 & 2)	Rev	Date
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1 GENERAL

1.1 Project Description

Phase I of the LCP includes an 824 MW hydroelectric generating facility at Muskrat Falls and associated transmission links to Churchill Falls and the Island of Newfoundland.

The scope of the physical facilities to be constructed during Phase I of the LCP includes the following:

- Muskrat Falls Generation (MFG);
- Labrador Transmission Assets (LTA); and
- Labrador – Island Transmission Link (LIL).

1.1.1 Muskrat Falls Generation (MFG)

Muskrat Falls Generation includes the following:

- 22 km of permanent access roads on the south side of the river, including upgrading and new construction, and temporary bridges;
- A 1,500 person accommodations complex;
- A north Roller Compacted Concrete (RCC) overflow dam;
- A south rock fill dam;
- River diversion during construction via the spillway;
- 5 vertical gate spillway;
- Reservoir preparation and reservoir clearing;
- Replacement of fish and terrestrial habitat;
- North spur stabilization works; and
- A close coupled intake and powerhouse, including:
 - 4 intakes with gates and trash racks;
 - 4 turbine/generator units at approximately 206 MW each with associated ancillary electrical/mechanical and protection/control equipment;
 - 5 power transformers (includes 1 spare), located on the draft tube deck of the powerhouse; and
 - 2 Overhead cranes each rated at 450 Tonnes.

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1.1.2 Labrador Island Transmission Link (LIL)

The LIL consists of the overland high voltage direct current (HVdc – 350kV) transmission system and associated HVdc converter station systems, the Strait of Belle Isle (SOBI) Crossing and a new synchronous condenser facility. Specifically it includes:

- AC Switchyard at Soldiers Pond on the Avalon Peninsula;
- Muskrat Falls HVdc converter stations: HVdc bipolar converter station; 315 kV ac, converted to ± 350 kV dc; and Pole capacity of 450 MW;
- Shoreline pond electrode located on the Labrador side of the Strait of Belle Isle. The L'Anse-au-Diable shoreline pond electrode will be connected to the converter station at Muskrat Falls with dual overhead conductors supported on a wood pole line from the pond electrode site to the HVdc transmission line right-of-way and from there on will be supported on the HVdc line structures;
- Soldiers Pond HVdc converter station: HVdc bipolar converter station; 230 kV ac, converted from ± 350 kV dc; pole capacity of 450 MW; and Shoreline pond electrode located on the east shore of Conception Bay;
- The Dowden's Point shoreline pond electrode will be connected to the converter station at Soldiers Pond with dual overhead conductors supported on a wood pole line;
- HVdc transition compounds for the Strait of Belle Isle submarine cable terminations;
- Three mass impregnated 450MW capacity each submarine cables crossing the SOBI protected using HDD boreholes and seabed rocking dumping;
- One transition compound for each side of the Strait of Belle Isle submarine cable crossing, with associated switch works to manage the junction of multiple submarine cables and the overhead transmission line;
- Overhead transmission line from the Muskrat Falls converter station to Soldiers Pond converter station: 900 MW, ± 350 kV dc, bipolar line, single conductor per pole; galvanized lattice steel guyed suspension and rigid angle towers; 1100 km long; and
- New synchronous condenser at Soldiers Pond – 3 x 175 MVar units.

1.1.3 Labrador Transmission Asset (LTA)

LTA consists of the AC transmission line system from Churchill Falls to Muskrat Falls, specifically:

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- A new 315/735 kV switchyard at Churchill Falls connected to the existing 735 kV switchyard with two overhead lines of 735 kV of approximately 0.6 km and switchyard extension;
- Muskrat Falls switchyard 315 kV; and
- Transmission lines from Muskrat Falls to Churchill Falls: double-circuit 315 kV ac, 3 phase lines, double bundle conductor, single circuit galvanized lattice steel guyed suspension and rigid angle towers; 247 km long.

1.2 General Description of Work

This Scope of Work under this Agreement includes the access and right-of-way (ROW) preparation and construction of 1,094 km of 350 kV HVdc transmission line, extending from Muskrat Falls, Labrador, terminating at Soldiers Pond near St. John's, Newfoundland. The transmission line crosses the Strait of Belle Isle (SOBI) at which point the transmission line will be terminated at transition compounds located on both sides of the SOBI.

The Work includes the construction of approximately 1,094 km of the HVdc transmission line and approximately 384 km of electrode line, which is carried on the towers from Muskrat Falls to a point near Forteau, located approximately 12 km from the Labrador coast, therein being carried approximately 18 km of electrode line which is to be carried on wood poles, from near Forteau, Labrador to the shore electrode compound, near L'Anse-au-Diable, Labrador.

The SOBI will be crossed via sub-sea cables, and this work (including the transition compounds) will be completed by Company's Other Contractors.

The line will be divided into two Sections consisting of five segments. Section 1 includes Segment 1, Segment 2 and Segment 3. Section 2 includes Segment 4 and Segment 5:

1. **Segment 1:** Approximately 250 km of construction of the bipole \pm 350 kV HVdc transmission line including the electrode line carried on the HVdc towers, starting at proposed Muskrat Falls, Labrador converter station gantry to approximately the 250 km point in Labrador. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01.
2. **Segment 2:** Approximately 147 km of construction of the bipole \pm 350 kV HVdc transmission line (including approximately 134 km of electrode line carried on the HVdc towers) and approximately 16.5

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Exhibit 6	Exhibit 6 - Environmental and Regulatory Compliance Requirements, as included in this Agreement.
Exhibit 7	Exhibit 7 - Quality Requirements, as included in this Agreement.
Exhibit 9	Exhibit 9 - Schedule, as included in this Agreement.
Exhibit 12	Exhibit 12 - Site Conditions, as included in this Agreement.
Labrador	The mainland portion of the Canadian province of Newfoundland and Labrador.
Labrador Electrode Lines Route	<i>Labrador Electrode Lines Route Forteau Point to L'anse-au-Diable</i> (Company Doc. No. ILK-SN-CD-6310-TL-DD-0002-01), as included in Exhibit 1 - Scope of Work.
Material Lists	<i>350 kV HVdc Line Construction Section 1 Material List</i> (Company Doc. No. ILK-SN-CD-6200-TL-LS-0012-01), as included in Exhibit 1 - Scope of Work; and <i>350 kV HVdc Line Construction Section 2 Material List</i> (Company Doc. No. ILK-SN-CD-6200-TL-ILS-0020-01), as included in Exhibit 1 - Scope of Work.
Newfoundland	The island portion of the Canadian province of Newfoundland and Labrador.
Overview Map	350 kV HVdc Line Overview Map (Company Doc. No. ILK-SN-CD-6000-TL-MP-0001-01), as included in Exhibit 1 - Scope of Work.
P-WEPP	Project-Wide Environmental Protection Plan, as included in Exhibit 11 – Company Supplied Documents.
Route Drawing Segment 1	<i>350kV HVdc Line Route Map Construction Segment 1</i> (Company Doc. No. ILK-SN-CD-6200-TL-MP-0008-01), as attached to Exhibit 1 - Scope of Work.
Route Drawing Segment 2	<i>350kV HVdc Line Route Map Construction Segment 2</i> (Company Doc. No. ILK-SN-CD-6200-TL-DD-0191-01), as attached to Exhibit 1 - Scope of Work.
Route Drawing Segment 3	<i>350kV HVdc Line Route Map Construction Segment 3</i> (Company Doc. No. ILK-SN-CD-6200-TL-DD-0190-01), as attached to Exhibit 1 - Scope of Work.

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- Route Drawing Segment 4 *350kV HVdc Line Route Map Construction Segment 4* (Company Doc. No. ILK-SN-CD-6222-TL-DD-0001-01), as attached to Exhibit 1 - Scope of Work.

- Route Drawing Segment 5 *350kV HVdc Line Route Map Construction Segment 5* (Company Doc. No. ILK-SN-CD-6223-TL-DD-0001-01), as attached to Exhibit 1 - Scope of Work.

- Section 1 The HVdc ROW from Muskrat Falls, Labrador to the southern end of the Long Range Mountains in Newfoundland, approximately 624 km. Section 1 contains Segment 1, Segment 2 and Segment 3.

- Section 2 The HVdc line from the southern end of the Long Range Mountains in Newfoundland to Soldiers Pond, approximately 470 km. Section 2 contains Segment 4 and Segment 5.

- Segments The Segments as more particularly described in Section 1.2 of this Scope of Work.

- Technical Specification – Part A *350 kV HVdc Line Construction Technical Specification* (Company Doc. No. ILK-SN-CD-6200-TL-TS-0018-01), as included in Exhibit 1 - Scope of Work.

- Technical Specification – Part B Refers to documents contained on the list *HVdc Clearing and Access – Section 1 – Technical Document List* (Company document no. ILK-SN-CD-6200-CV-LS-0001-01) as included in Exhibit 1 - Scope of Work.

- Waste Management Plan *Waste Management Plan - Component 1 and 4b* (Company Doc. No. LCP-SN-CD-0000-EV-PL-0005-01), as attached to Exhibit 11 - Company Supplied Documents.

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1.5 Abbreviations

ACSR	Aluminum Conductor Steel Reinforced
CF	Churchill Falls
HV-GB	The Municipality of Happy Valley-Goose Bay
HVac	High Voltage, alternating current
HVdc	High Voltage, direct current
ITP	Inspection and Test Plan
kV	Kilovolt
LRM	Long Range Mountains
MF	Muskrat Falls
OHSW	Overhead Shield Wire
OPGW	Optical Ground Wire
QA/QC	Quality Assurance / Quality Control
ROW	Right-of-Way
SDRL	Supplier Document Requirements List
SOBI	Strait of Belle Isle

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2 SCOPE OF WORK

2.1 Work Included

This Scope of Work under this Agreement includes:

- The construction of 1,094 km of 350 kV HVdc transmission line, extending from Muskrat Falls, Labrador terminating at Soldiers Pond near St. John's, Newfoundland, including, but not limited to, all tower survey and marking, foundation selection and installation, structure assembly and erection, and stringing operations;
- Working collaboratively with Engineer to optimize access and ROW clearing requirements and execution approaches in order to reduce the overall cost of the Work;
- Managing and directing the right-of-way (ROW) clearing and access development undertaken by Company's Other Contractors;
- Providing support services for Company's Other Contractors, including but not limited to camps, fuel, catering, medical support and health, safety and environment (HSE) programs; and
- With Company's Approval, self-performing right-of-way (ROW) clearing and access development over portions of the transmission routing.

2.2 Format of this Document

The scope of Work is broken into two (2) parts; referred to as Part A and Part B, specifically:

- Part A – Line Construction Works; and
- Part B – ROW Clearing and Access Works.

Common requirements to both Part A and Part B are contained in Section 3.0 – Site Conditions and Contractor's Services, and Section 4.0 – Special Requirements.

2.3 Not Used

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2.4 PART A: Line Construction Works

2.4.1 Work Includes

The Work includes, but is not limited to:

- Mobilization preparedness, including production of all deliverables listed in the SDRL (see Exhibit 4) subject to the Acceptance of Engineer prior to mobilization;
- Mobilization of necessary infrastructure (camps, offices, etc.) and equipment that is required for the Work;
- Acquiring permits prior to the starting of the field Work;
- Design, construction and remediation of any crane pads required for tower erection;
- Design, construction, maintenance and removal of Contractor's laydown areas, accommodations and utility infrastructure;
- Increase the density of the existing geodetic control network as required for line construction;
- Surveying and staking of tower locations, preparation of specific access requirements and laydown areas that may be required for Contractor's equipment;
- Provision of Site services including utilities, communication systems, accommodations, waste management, catering, etc.;
- Provision of Site health, safety, security and emergency response services, including mobile treatment centres;
- Undertaking soil investigation programs as is required for selection and installation of foundations;
- Supply of all construction consumables;
- Installation of tower foundations and guy anchors;
- Materials receipt and management;
- Assembly and erection of towers and hardware;
- Installation of Conductors (Pole and Electrode), OPGW and Counterpoise;
- Provision of As-Built data; and
- Final clean-up, rehabilitation, including tower boxes and stringing sites, and demobilization as per all Agreement requirements excluding removal of any bridges, culverts and any road stabilization works, which is covered under the ROW Clearing and Access Work.

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Contractor maintains overall responsibility for fully completing the construction Work, including but not limited to the items detailed in the subsequent Sections.

Contractor shall, when planning and executing the Work, account for any non-sequential Work (excluding those constraints imposed by landowners or disputed property), environmental restrictions, construction access, logistics, weather, winter construction, etc., for the successful completion of the Work.

The information listed on the Route Drawings is based on initial spotting and may not represent the exact structure locations in the field and shall only be used to assist Contractor's planning. Final drawings will be issued by Engineer before the start of construction Work.

Contractor shall ground truth and validate environmental constraints at the listed structure locations prior to the start of construction Work. Ground-truthing shall be conducted by Contractor's designated representatives, accompanied by Company's designated representative.

2.4.2 Technical Specification – Part A

The term "Technical Specification – Part A" refers to document *350 kV HVdc Line Construction Technical Specification*, Company document no. ILK-SN-CD-6200-TL-TS-0018-01), as included in Exhibit 1 - Scope of Work.

2.4.3 Mobilization

Contractor shall transport to Site all the necessary accommodations, offices, work force and equipment required to fully complete the Work in accordance with Exhibit 9 – Schedule.

Contractor shall produce for Engineer's Acceptance all relevant deliverables required prior to mobilization as identified in Exhibit 4 – Supplier Document Requirements List (SDRL).

Upon mobilization and prior to commencement of any other Work, all Contractor's Personnel shall participate in the LCP's orientation program.

2.4.4 Access Works

Contractor will work with the Engineer in order to optimize access requirements for the transmission line in an effort to ensure an adequate amount of fit-for-purpose access is prepared to support the construction equipment access requirements. The objective is to build the minimal amount of fit-for-purpose access that is

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required to move and mobilize the materials, equipment and Personnel required for transmission line construction, to enable Part A – Line Construction Works to be completed as per the dates indicated in Exhibit 9 – Schedule.

Complete details of Contractor’s responsibilities for the access Work are contained in Section 2.5.

Within this Part A of this Scope of Work, Contractor shall be responsible for:

- Design, construction and remediation of all crane pads or laydown areas that may be required for construction aids; and
- Clearing and preparation of conductor, OPGW and OHSW stringing areas.

2.4.5 Permits

Company will obtain the necessary land agreement approvals and permits for transmission construction, including clearing of ancillary areas (i.e. stringing sites or laydown areas) or access trails, where required as detailed in Exhibit 6 – Environmental and Regulatory Compliance Requirements. Contractor shall identify for Acceptance where it is appropriate to develop access that is different than as described in this Agreement, for the purposes of obtaining permits.

Contractor is responsible for obtaining all additional permits for its Work as detailed in Exhibit 6 – Environmental and Regulatory Compliance Requirements, including camps and other temporary infrastructure works. Copies of all Contractor obtained permits shall be provided to Engineer.

Quarry and borrow pit permits will be obtained by Company for sites within the ROW corridor shown in the Route Drawings.

Contractor shall inform Engineer of any planned Work that is not covered by a valid permit and shall not undertake this Work until a permit is received. Contractor shall ensure that all ongoing Work is covered by the appropriate permits. Contractor is responsible for complying with the requirements and restrictions listed in the permits.

Contractor, in planning the Work, shall give consideration to the lead-time for obtaining such permits.

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2.4.6 Survey and Staking

Contractor is responsible to establish a geodetic control network as required to support the survey requirements for the Work. Details for the geodetic control network are also listed in the Technical Specification - Part A.

Contractor shall complete all survey Work and staking at each structure site that is required for the installation of the line, based on the final structure list. This includes the tower bases, legs, anchors and any offsets that are required. Staking sites shall be subject to the review and Acceptance of Engineer prior to installation of the foundations.

All structures and anchors shall be staked according to the requirements of the Technical Specification – Part A. Any existing facilities that intersect the transmission line centrelines that are not indicated on the structure list or the plan and profile shall be field located, and these points shall also be included in the electronic survey return data.

Company will provide all survey data in its possession at the Effective Date.

2.4.7 Material Supply

2.4.7.1 Company Supplied Material

Material provided by Company is as per the Material Lists and generally includes:

- Foundation and tower steel (excluding piles), tower leg shoes, tower grounding material, nuts, bolts, washers and related items;
- Insulators, conductors, guy wires, counterpoise conductor and OPGW;
- Wood poles for electrode line;
- Hardware and accessories for conductor, guy wire, counterpoise conductor and OPGW, including compression splices and dead-ends as required;
- Signage (danger signs, aerial line number boards, aerial structure number boards, structure number tags, pole markers); and
- Implosive devices as delivered by Engineer to Contractor's storage facility.

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2.4.7.2 Contractor Supplied Material

All construction material other than that listed in the Material Lists above shall be provided by Contractor. This includes but is not limited to the following:

- Material storage – laydown infrastructure required to handle material other than the Engineer’s marshalling yards;
- Camp facilities and related infrastructure - including consumables and temporary power that is required for accommodation;
- Concrete, grout, re-bar, form-work, H-piles, steel plates, round steel pipe for cribs, materials required for proposed micro pile design, and backfill material as required by the foundation design;
- Implosive type connections (conductor dead-ends and splices) are supplied by Engineer and delivered to Contractor’s storage facility. Contractor is responsible for safe storing of all implosive equipment; and
- All tools, equipment, consumables, etc. required to complete the Work.

Contractor is responsible for inspection and quality assurance of all Contractor supplied material.

2.4.8 Material Receipt and Management

Engineer will operate two (2) material marshalling yards, one near Happy Valley - Goose Bay (HV-GB), Labrador, and one near Argentia, Newfoundland. Engineer supplied transmission and electrode lines materials required for Segment 1 and Segment 2 will be marshalled near HV-GB. Engineer supplied transmission lines materials required for Segment 3, Segment 4 and Segment 5 will be marshalled near Argentia. The planned hours of operation of the marshalling yards will be 7:00am to 5:30pm, Monday through Friday.

The materials provided by Company are detailed in the Material Lists. These materials shall be available at Engineer’s marshalling yards. Engineer will be responsible for initial receipt, unloading, storage and distribution of the materials at each of Engineer’s marshalling yards.

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2.4.8.1 Labrador – Segment 1 and Segment 2

Contractor will be required to submit its material requirements (Material Request) to Engineer a minimum of three (3) Business Days in advance of desired pick-up by Contractor. Contractor will provide empty trailers at the material yard for loading by Engineer.

For all of Segment 1 and for the portion of Segment 2 constructed from the south-bound heading (chainage 140km), transportation from the marshalling yard to the ROW will be the responsibility of the Contractor. The return of empty trailers to the yard for subsequent loading will be the Contractor's responsibility.

For the balance of Segment 2 constructed from the Forteau, Labrador north-bound access heading, Engineer will transport materials, using Contractor supplied trailers, from the marshalling yard to an agreed staging area near Forteau, Labrador consistent with the approach for Island material movement as detailed in Section 2.3.8.2. The return of empty trailers to the yard for subsequent loading will be the Engineer's responsibility.

Contractor and Engineer shall regularly communicate to determine adequate trailer capacity for material requested.

Where the Contractor is responsible for transport of the material from the HVGB marshalling yard, Contractor shall be responsible for verifying content and securing the load. Contractor shall assume risk of loss once material is verified on the load. Contractor shall be responsible for transporting and off-loading materials at all necessary Work locations.

Where Engineer is responsible for transport of the material from the HVGB marshalling yard, Engineer shall be responsible for verifying shipping content and securing of the load. Contractor shall assume risk of loss once material is signed for and accepted at the Contractor's Camp/Depot. Material will be delivered and left on flatbed trailers at the Contractor's Camp/Depot. Contractor shall be responsible for managing transporting and off-loading materials at all necessary Work locations.

Handling and storage of material in the field shall be performed in a manner that shall preserve the material in a like-new condition. Care shall be used at all times to prevent damage to any part of the material.

It is Contractor's responsibility to inventory Engineer supplied materials received by Contractor, noting any discrepancies, shortages, overages, damage, etc. Within one (1) Business Day of breaking the bands on steel bundles, Contractor shall notify Engineer, and within five (5) Business Days of breaking the bans on the steel

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bundles, Contractor shall prepare a material shortage/damage list and provide it to the Company. If no list is provided, any shortages or damage will be borne by the Contractor.

Engineer may from time to time, audit Contractor’s field inventory management processes and perform inventory verification.

Contractor is responsible for return or disposing of packing material in accordance to Contractor’s Waste Management Plan. Contractor is responsible for returning all empty conductor and guy wire reels to Engineer’s marshalling yard.

Contractor is responsible for returning surplus material to the marshalling yard for receipt by Engineer.

2.4.8.2 Island of Newfoundland – Segment 3, Segment 4 and Segment 5

Contractor will be required to submit its material requirements (Material Request) to Engineer’s Marshalling Yard Manager a minimum of four (4) Business Days in advance of desired required delivery date to the Contactor’s designated Camp/Depot. Engineer, utilizing Contractor’s flatbed trailers, will load requested material and deliver to Contactor’s designated Camp/Depot.

Contractor will accept delivered material and sign for / verify delivered material accuracy at the Contractor’s designated Camp/Depot.

Contractor is responsible for transportation from the Contractor’s Camp/Depot to the ROW. Empty trailers from the ROW will be returned to the designated Camp/Depot by Contractor. Engineer will be responsible for the transportation of empty trailers from the Camp/Depot to the Engineer’s marshalling yard.

Contractor and Engineer shall regularly communicate to determine adequate trailer capacity for material requested.

Engineer shall be responsible for verifying shipping content and securing of the load at the marshalling yard. Contractor shall assume risk of loss once material is signed for and accepted at the Contractor’s Camp/Depot. Material will be delivered and left on trailers at the Contractor’s Camp/Depot. Contractor shall be responsible for managing transporting and off-loading materials at all necessary Work locations.

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Handling and storage of material shall be performed in a manner that shall preserve the material in a like-new condition. Care shall be used at all times to prevent damage to any part of the material.

It is the Contractor’s responsibility to inventory Engineer supplied materials received by Contractor, noting any discrepancies, shortages, overages, damage, etc. Within one (1) Business Day of breaking the bands on steel bundles, Contractor shall notify Engineer, and within five (5) Business Days of breaking the bans on the steel bundles, Contractor shall prepare a material shortage/damage list and provide it to the Company. If no list is provided, any shortages or damage will be borne by the Contractor.

Engineer may from time to time, audit Contractor’s field inventory management processes and perform inventory verification.

Contractor is responsible for return of disposing of packing material in accordance to Contractor’s Waste Management Plan. Contractor is responsible for returning all empty conductor and guy wire reels to Marshalling Yard.

Contractor is responsible for returning surplus material to Engineer’s marshalling yard for receipt by Engineer.

2.4.9 Soil Investigation, Selection and Installation of Foundations and Guy Anchors

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for:

- Developing and performing foundation selection and installation process and program to determine the appropriate foundation type at each structure. This will include soil classification, and all necessary geotechnical QA/QC work for foundation selection and installation. All foundation selection shall be stamped by a professional geotechnical engineer registered with the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEG-NL). Both the Contractor’s proposed foundation selection and installation process and the Subcontractor providing the geotechnical services is subject to review and Acceptance by the Engineer;
- Contractor will work closely with Engineer to allow sufficient time for Engineer to confirm quantities as construction progresses. Only 90% of the foundation material will be ordered before the foundation selection program. Contractor will work with Engineer to procure steel for the remaining foundations, considering the approximate 180 day material lead time.

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- The selection of the foundation type, as per the requirements of the Technical Specification - Part A, for each structure location;
- Unequal leg identification;
- Transporting the required foundation materials to each structure site;
- The assembly and installation of all structure foundations including anchors for guyed structures as indicated on the foundation Drawings and as per the Technical Specification - Part A. Excess anchor length for guy anchor and rock anchor shall be cut and re-used, with all cut ends being field galvanized;
- Inspection and testing of anchors, as per construction Technical Specification - Part A;
- Completion and submission of the quality control forms as per the Accepted ITP;
- Supply and installation of steel multi-plate round pipe for crib foundations as required and as shown in the foundation Drawings (Contractor may suggest an alternative if cost savings can be achieved); and
- Design, including all necessary geotechnical investigation, supply and installation of pile foundations, if required. The tower leg shoes will be provided as per the Material Lists.

2.4.10 Assembly and Erection of Tower/Framing and Setting Wood Poles

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for:

- Transporting the required tower steel, bolts, guy wire and related hardware and accessories to each tower site;
- Assembling and framing each structure as per the Drawings;
- Inspection of assembled structures;
- Installation of number boards, number tags and danger signage as indicated in the Drawings;
- Selection of wood pole embedment method (blasting or auguring);
- Erection, setting and plumbing of each structure;
- Inspection of erected structures;
- Structure grounding, installation and connection of counterpoise and performing tests as per the ITP and QA/QC;

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- Completion and submission of the quality control forms as per the Accepted ITP;
- Installation of all structure signage, including danger signs, aerial line number boards, aerial structure number boards, structure number tags and pole markers;
- Installation and tensioning of guy wires. Guy wire terminations shall be done by specialized crews due to the large size of the terminations. Extra care for QA/QC shall be provided to prevent failure; and
- Installation of structure accessories including required field drilling and cold galvanizing.

2.4.11 Installation of Conductors, OPGW and Counterpoise

Pole Conductor and OPGW stringing shall be accomplished by the tension-stringing method. Tension stringing shall be in accordance with the appropriate Technical Specification - Part A sections on tension stringing of the specific wire types.

Contractor is responsible, as per the Technical Specification – Part A, the Quality Plan, ITP and QA/QC forms, for the installation of all wires for Segment 1, as follows:

- Two (2) poles and single jumper / slackspan conductor of single modified 3633 kcmil 1841-A1/S1A-110/7 ACSR (56.9 mm), including dampers, hardware and insulators. Nominal reel length is approximately 1350 m on 2.46 m (96”) reels. Note: the pole conductor is out of normal range of conductor sizes, thus Contractor shall ensure the appropriate tension stringing equipment set is used for the custom conductor. Approximately 500 km of conductor shall be strung in this segment;
- Two (2) single electrode conductors on towers including jumpers and slackspans of 1192.5 kcmil ACSR Grackle, including dampers, hardware and insulators. Nominal reel length is approximately 2700 m. With Engineer’s Acceptance of Contractor’s procedure and work method, Contractor is permitted to use slack stringing techniques for the low voltage electrode conductors. Contractor shall be responsible to remediate any material damage that negatively impacts the integrity of the electrode conductor. Contractor’s work method shall include acceptance criteria for electrode conductor;
- One (1) OPGW, 140 kN, 14.5 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- Installation of aerial marker cones, if required by Engineer;

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- Inspection of the all wire sag, suspension and dead-end assemblies and splices as per the Accepted ITP and QA/QC forms;
- Installation and testing of counterpoise and grounding system;
- Testing of the OPGW prior to and after stringing, including end-to-end testing; and
- Slack spans at the Muskrat Falls converter station. This will be completed last, once all line activities are completed and the gantry structure is completed by Company’s Other Contractors.

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for the installation of all wires for Segment 2, as follows:

- Two (2) poles and single jumper / slackspan conductor of single modified 3633 kcmil 1841-A1/S1A-110/7 ACSR (56.9 mm), including dampers, hardware and insulators. Nominal reel length is approximately 1350 m on 2.46 m (96”) reels. Note: the pole conductor is out of normal range of conductor sizes, thus, Contractor shall ensure the appropriate tension stringing equipment set is used for the custom conductor. Approximately 300 km of conductor shall be strung in this Segment;
- Two (2) single electrode conductors on towers including jumpers and slack spans of 1192.5 kcmil ACSR Grackle or 1590 kcmil ACSR Falcon, including dampers, hardware and insulators, as specified. Nominal reel length is approximately 2700 m. With Engineer’s Acceptance of Contractor’s procedure and work method, Contractor is permitted to use slack stringing techniques for the low voltage electrode conductors. Contractor shall be responsible to remediate any material damage that negatively impacts the integrity of the electrode conductor. Contractor’s work method shall include acceptance criteria for electrode conductor. One OPGW, 140 kN, 14.5 mm diameter or one OPGW, 277 kN, 20.6 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- Two (2) single electrode conductors on wood poles including jumpers and slack spans of 1192.5 kcmil ACSR Grackle, including dampers, hardware and insulators. Nominal reel length is approximately 2700 m.
- Installation of aerial marker cones, if required by Engineer;

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- Inspection of all wire sag, suspension and dead-end assemblies and splices as per the Accepted ITP and QA/QC forms;
- Installation and testing of counterpoise and grounding system;
- Testing of the OPGW prior to and after stringing, including end to end testing; and
- Slack spans at the Forteau transition station and at the L’Anse-au-Diable electrode compound. The slack spans will be completed last, once all the line activities are completed.

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for the installation of all wires for Segment 3, as follows:

- Two (2) poles and single jumper / slackspan conductor of single modified 3633 kcmil 1841-A1/S1A-110/7 ACSR (56.9 mm), including dampers, hardware and insulators. Nominal reel length is approximately 1350 m on 2.46 m (96”) reels. Note: the pole conductor is out of normal range of conductor sizes, thus, Contractor shall ensure the appropriate tension stringing equipment set is used for the custom conductor. Approximately 475 km of conductor shall be strung in this Segment;
- One (1) OPGW, 140 kN, 14.5 mm diameter or one OPGW, 277 kN, 20.6 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- Installation of aerial marker cones, if required by Engineer;
- Inspection of all wire conductor sag, suspension and dead-end assemblies and splices as per the Accepted ITP and QA/QC forms;
- Installation and testing of counterpoise and grounding system;
- Testing of the OPGW prior to and after stringing, including end-to-end testing; and
- Slack spans at the Shoal Cove transition station. The slack span will be completed last, once all the line activities are completed.

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for the installation of all wires for Segment 4, as follows:

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- Two (2) poles and single jumper / slackspan conductor of single modified 3633 kcmil 1841-A1/S1A-110/7 ACSR (56.9 mm), including dampers, hardware and insulators. Nominal reel length is approximately 1350 m on 2.46 m (96”) reels. Note: the pole conductor is out of normal range of conductor sizes, thus Contractor shall ensure the appropriate tension stringing equipment set is used for the custom conductor;
- One (1) OPGW, 140 kN, 14.5 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- One (1) OPGW, 278 kN, 20.6 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- Installation of aerial marker cones, if required by Engineer;
- Inspection of the all wire sag, suspension and dead-end assemblies and splices;
- Installation and testing of counterpoise and grounding system; and
- Testing of the OPGW prior to and after stringing, including end to end testing.

Contractor is responsible, as per the Technical Specification - Part A, the Quality Plan, ITP and QA/QC forms, for the installation of all wires for Segment 5, as follows:

- Two (2) poles and single jumper / slackspan conductor of single modified 3633 kcmil 1841-A1/S1A-110/7 ACSR (56.9 mm), including dampers, hardware and insulators. Nominal reel length is approximately 1350 m on 2.46 m (96”) reels. Note: the pole conductor is out of normal range of conductor sizes, thus, Contractor shall ensure the appropriate tension stringing equipment set is used for the custom conductor;
- One (1) OPGW, 278 kN, 20.6 mm diameter, including the installation of fibre splice boxes and hardware where specified. Nominal reel length is approximately 5400 m;
- Installation of aerial marker cones, if required by Engineer;
- Inspection of all wire sag, suspension and dead-end assemblies and splices;
- Installation and testing of counterpoise and grounding system;

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- Testing of the OPGW prior to and after stringing, including end to end testing; and
- Slack spans at the gantry structure at Soldiers Pond. The slack spans will be completed last, once all the line activities are completed.

2.4.12 Special Requirements

On the Site, the following special requirements apply:

- Explosives and blasting methods shall be subject to the review and Acceptance of Engineer and shall be in accordance with all Applicable Laws.
- The number of borrow areas opened during construction shall be minimized. Existing borrow areas shall be used wherever possible. Borrow areas used during construction shall adhere to all Applicable Laws. Without the written permission of Engineer and the property owner, borrow areas shall not be located within:
 - 150 m of any watercourse;
 - 100 m of any roadway; and
 - 15 m of private property.
- Contractor shall obtain necessary permits to carry out construction over public highways, other transmission systems, communications circuits or utility systems. Contractor shall provide all necessary signage, flag persons and protection required for safe execution of all construction operations as per the latest edition of the *Traffic Control Manual* issued by Department of Transportation and Works of the Province of Newfoundland and Labrador.
- A marking/signage plan to maintain a safe work environment and to direct human traffic shall be provided by Contractor, and will be subject to review and Acceptance by Engineer prior to any Work commencing.
- For situations where the HVdc transmission line crosses an existing energized line, Contractor shall produce a line-crossing plan for review and Acceptance by Engineer prior to undertaking the Work.

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- Contractor shall use existing trails wherever possible, and shall repair, at its expense, any terrain disturbance to existing infrastructure, including but not limited to existing snowmobile or ski trails resulting from its activities. The repair shall be performed to Company’s satisfaction.

2.4.13 Inspection and Test Plan (ITP) and QA/QC Requirements

Contractor shall adhere to the quality requirements as stated in Exhibit 7 – Quality Requirements. Exhibit 7 details the Contractor’s responsibilities and specific deliverables under the Agreement.

The requirements of the ITP and QA/QC forms as listed in the Technical Specification - Part A are provided as minimum requirements. Contractor shall submit the completed QA/QC forms for review and Acceptance by Engineer, and shall comply with the Accepted Quality Plan and QA/QC forms. Contractor shall make available its equipment for Engineer’s inspection purposes prior to use.

With regards to closing-in of uninspected Work:

- Contractor shall neither allow nor cause any of its Work to be enclosed or covered up until it has been inspected, tested and Accepted by Engineer; and
- Should any of its Work be enclosed or covered up before such inspection and testing, Contractor shall uncover the Work, and after it has been inspected, tested and Accepted by Engineer, Contractor shall make repairs with the like materials necessary to restore the Work to its original condition, at no cost to Company.

2.4.14 Rehabilitation and Reclamation

For the Work in this Part A, Contractor is responsible for all site rehabilitation. The rehabilitation of the Work area at Site shall be as per the “Rehabilitation and Reclamation” section of the Technical Specification - Part A, however for clarity will exclude the removal of any bridges, culverts and any road stabilization works, which is covered under Part B - ROW Clearing and Access Works.

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2.4.15 As-Builts /Return Data

All QA/QC forms shall be properly completed as per the Accepted ITP, and all as-built drawings properly marked up and return data provided to the Engineer within two (2) weeks after such completion of the Work prompting the documentation.

Contractor's turnover records shall be in an electronic format acceptable to the Company. Turnover shall be a continuous process following achievement of each activity, and are part of the documents used to support payment for Work completed as detailed in Exhibit 2 – Basis of Payment.

These records are referenced in Exhibit 4 - Supplier Document Requirements List (SDRL).

2.4.16 Demobilization

Contractor shall be responsible for removal of all temporary facilities, final clean-up and rehabilitation as per the requirements of the Technical Specification – Part A, excluding access ways, bridges and culverts which is covered under Part B – ROW Clearing and Access Works. This Work is subject to the final Acceptance of Engineer.

2.4.17 Access Requirements for the Engineer

Contractor shall provide reasonable access to the Work areas at Site at all times for Engineer's inspections.

2.4.18 Work Excluded

The demarcation point between the lines construction and work performed by Company's Other Contractors will be at the dead-end assemblies on the gantry structure. Work below the demarcation point will be done by Company's Other Contractors (not including OPGW download and connection into splice box).

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2.5 PART B: ROW Clearing and Access Works

2.5.1 Work Includes

The ROW Clearing and Access Work includes, but is not limited to:

- Working collaboratively with Engineer to optimize access and ROW clearing requirements and execution approaches in order to reduce the cost of the ROW Clearing and Access Work;
- Developing detailed access plans for the ROW Clearing and Access Work;
- Using the Engineer's provided clearing plans for the ROW Clearing and Access Work;
 - Working with Engineer to select and mobilize Company's Other Contractors for the Work;
- Assisting Engineer in procuring materials required for the ROW Clearing and Access Work, including culverts and bridges;
- Managing, directing and supervising the ROW clearing and access work undertaken by Company's Other Contractors;
- Acting in the capacity of general contractor for the work, providing support services for Company's Other Contractors, including but not limited to camps, fuel, catering, communications, medical support and health, safety and environment (HSE) programs;
- With Engineer's Acceptance, potentially self-performing right-of-way (ROW) clearing and access development over portions of the transmission routing;
- Hand-over of the cleared ROW and completed access to the Contractor's Construction Manager;
- Mobilization preparedness, including production of all deliverables listed in the SDRL (see Exhibit 4), subject to the Acceptance of Engineer prior to mobilization;
- Mobilization of necessary infrastructure (camps, offices, etc.) and equipment that is required for the Work;
- Assisting Engineer in acquiring permits prior to the starting of the field Work;
- ROW and access survey and marking;
- Preparation of specific access requirements and laydown areas that may be required for Contractor's equipment; and
- Once constructed, maintain all access roads in a fit-for-purpose condition, including grading, dust control, snow removal and ice control.

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2.5.2 General Description of Work

The ROW Clearing and Access Work is generally defined as all the work required to establish a 60 m wide right-of-way (ROW) for the 350 kV HVdc transmission line from Muskrat Falls to Soldiers Pond, a distance of approximately 1,094 km. The Work also includes the clearing of a 10 m wide ROW, approximately 16.5 km long, as required to establish an electrode line from near Forteau to a site near L'Anse-au-Diable, Labrador; and a 10 m wide ROW, approximately 15 km long, for the electrode line from Soldier's Pond to Dowden's Point. The Work also includes the construction of the temporary, fit-for-purpose access required to facilitate construction of the transmission line.

The line will be divided into two Sections, Sections 1 and 2, consisting of five (5) segments. Section 1 includes Segments 1, 2, and 3, while Section 2 includes Segments 4 and 5:

- Segment 1: Approximately 250 km of 60 m wide ROW clearing, starting at proposed Muskrat Falls, Labrador converter station gantry to approximately the 250 km point. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01.
- Segment 2: Approximately 147 km of 60 m wide ROW clearing and approximately 16.5 km of 10 m wide ROW clearing of the wood pole electrode line from near Forteau, Labrador to the electrode site near L'Anse-au-Diable, Labrador. Segment 2 will start at approximately the 250 km point to the 397 km point at the gantry at the transition compound at Forteau, Labrador. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01.
- Segment 3: Approximately 227 km of 60 m wide ROW clearing. Segment 3 will start at the transition compound at Shoal Cove, at the 0 km point in Newfoundland, to approximately the 227 km point in Newfoundland. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01.
- Segment 4: Approximately 290 km of 60 m wide ROW clearing, starting at approximately the 227 km point in Newfoundland and ending at approximately the 517 km point in Newfoundland. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01.
- Segment 5: Approximately 180 km of 60 m wide ROW clearing. See Overview Map, Company doc. No. ILK-SN-CD-6000-TL-MP-0001-01. Segment 5 also includes the clearing of a 10 m ROW for the 15 km Island electrode line. The clearing for the electrode line starts from Soldiers Pond Converter Station and ends at

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Dowden's Point in Newfoundland. See Drawing Newfoundland Electrode Route Map Soldiers Pond to Dowden's Point (ILK-SN-CD-6320-TL-DD-0001) for line routing details.

Segments 1 through 5 are further broken into specific work blocks across the entire ROW. Each block is unique as described in Appendix A – Block Descriptions attached hereto. The blocks are generally defined by chainage distance as measured along the proposed HVdc Transmission Line route.

The Work will include, but is not limited to, the following;

- Clearing (mechanical harvesting, mulching and manual cutting);
- Timber processing, transporting and piling;
- Slash and debris management;
- Access road construction;
- Road maintenance;
- Material development, hauling and placement;
- Bridge and culvert installations;
- Transport of equipment; and
- Environmental mitigation and rehabilitation.

The typical operations listed above may not necessarily apply to all Work areas or time periods.

The ROW preparation will be carried out with standard utility practices and procedures and will involve the clearing of all vegetation that exceeds 2 m at maturity. Access will be similar to resource road access typical in the forest sector.

2.5.3 Contractor's Responsibilities

The Work will be undertaken under the general management and direction of the Contractor in accordance with permit requirements, the Contractor supplied safety, environmental and quality plans, and best practices.

Contractor maintains overall management responsibility for fully completing the ROW clearing work and all access development as required to support the transmission line construction, and as Accepted by Engineer, in order to achieve the milestones set forth in Exhibit 9 – Schedule. This encompasses the items detailed in the subsequent Sections. Contractor, with Engineer's input, shall be responsible for the overall planning of the ROW clearing and access development work so as to avoid interruption of the linear progression of the transmission line build.

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Contractor and Engineer shall work in a collaborative manner in order to balance the amount and quality of construction access created against the requirements to meet the intended construction techniques as agreed between Contractor and Engineer, as set out in Contractor's Execution Plan for Part A of the Work. This will include the construction of portions of the transmission line using winter access roads only, where it has been agreed as the more viable and prudent access technique (e.g. boggy sections on Northern Peninsula). Further, Contractor will analyze and recommend to Engineer if the transmission line construction techniques contained in its Accepted Execution Plan should be adjusted in order to achieve the objective of building the overall transmission line for the lowest possible construction cost.

In order to undertake the ROW Clearing and Access Work, Contractor shall perform the duties of a general contractor for Company's Other Contractors, synergizing against the planning infrastructure, services, capacity and capability required for the Contractor to perform Part A - Line Construction Works portion of the Work. Company will be financially liable for the portion of such sharing of resources wherein there is a direct cost transferable to the Work. In performing such duties, Contractor does not assume any liability resulting from the performance of Company's Other Contractors, except to the extent that such performance or non-performance results from Contractor's failure to manage, direct or supervise such contractors in accordance with the requirements of this Agreement

Services provided by Contractor under this Part B - ROW Clearing and Access Works include, but may not be limited to:

- Planning and coordination of production and overall supervision of the Work;
- Accommodations and field offices;
- Fuel and services;
- Communications systems;
- Transportation of equipment along the ROW;
- Health, safety, emergency response plans for the Company's Other Contractors to comply with;
- Provision of adequate emergency response equipment and Personnel, including Mobile Treatment Centres and vehicles consistent with practice in other parts of Canada;
- Quality plans and Inspection and Test Plans for the Company's Other Contractors to comply with;
- Environmental and Waste Management plans for the Company's Other Contractors to comply with;
- Field supervising and directing the work of Company's Other Contractors;
- Safety, Environmental and Quality Plans and related oversight resources;

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- Responding to Site Queries etc. from Company’s Other Contractors, except where input of Engineer is required;
- Maps, digital files and other documentation as required by Company’s Other Contractors;
- Field marking and surveying (including boundaries, buffers, tower locations, road location etc.);
- Field level decision making and priority setting to ensure the work is kept moving in a continuous, uninterrupted pattern; and
- Field level contract management for Company’s Other Contractors, including approval of time and material slips, progress claims, keeping appropriate level records, etc.

Company’s Other Contractors will be required to work according to Contractor’s plans and follow all permits, regulations and direction provided by Contractor. Notwithstanding these Contractor provided services, Company’s Other Contractors shall provide general crew supervision as required to meet occupational health and safety requirements and shall follow general environmental, waste management and quality control best practices in its day to day activities.

Contractor shall account for any non-sequential Work, environmental restrictions, construction access, logistics, weather, winter construction, etc., for the successful completion of the Work.

2.5.4 Technical Specification – Part B

The term Technical Specification – Part B, refers to documents contained on the list *HVdc Clearing and Access – Section 1 – Technical Document List*, Company document no. ILK-SN-CD-6200-CV-LS-0001-01, as included in Exhibit 1 - Scope of Work.

2.5.5 Access and Clearing Plan

Contractor and Engineer will work together to develop access and clearing plans for the Work, building upon the previous studies undertaken by Engineer. These access and clearing plans will serve as the Execution Plan for ROW Clearing and Access Work, guiding the overall operations. It will include:

- Block by block description of the harvesting conditions;
- Harvesting techniques for each block;
- Access road routing and class recommendations;

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- Bridge and culvert requirements and installation plans;
- Equipment and labour resource requirements;
- Execution plan for the work, including work schedule;
- Survey strategy and ROW flagging plans;
- Logistics and equipment movement plan;
- Infrastructure requirements, including accommodations, utilities, communications, etc.;
- Work methods and techniques;
- Organization chart, roles and responsibilities for managing, directing and supervising the Work; and
- Assessment of where Contractor would self-perform the Work as opposed to relying on the services of Company's Other Contractors.

An access and clearing study, completed by the Engineer for the proposed ROW, is available to the Contractor for information only. The study includes the following information:

- Descriptions of the general terrain and other geographic details;
- Approximate coordinates and areas of all segments of the ROW and the expected method of clearing required for each segment; and
- Mapping details which identify:
 - The geographical location and features of the entire ROW;
 - Environmental restrictions which dictate clearing methods, timing of Work or other constraints;
 - Water bodies and wetlands;
 - The approximate width of water bodies where temporary bridges will likely be required;
 - The existing access trails intersecting the major highways;
 - Possible locations where new access and bypass trails could be developed for access; and
 - Probable locations where corduroy roads, culverts or temporary bridges may be required on access, bypass trails and along the ROW.

2.5.6 Mobilization

Contractor shall transport to Site all the necessary work force, equipment and materials as required to fully complete the Work as described herein.

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The Contractor shall be responsible for the removal of all equipment, temporary facilities, final clean up and any required rehabilitation. This Work is subject to the final Approval of the Company.

2.5.7 Permits

Engineer, through Company, will obtain the necessary land agreement approvals and permits for ROW clearing, access development, temporary crossings of water bodies as shown on the drawings forming part of the Access and Clearing Plan produced by Contractor, where required as detailed in Exhibit 6 – Environmental and Regulatory Compliance Requirements.

Contractor shall inform Engineer of any planned Work that is not covered by a valid permit and shall not undertake this Work until a permit is received. Contractor shall ensure that all ongoing Work is covered by the appropriate permits. Contractor is responsible for complying with the requirements and restrictions listed in the permits.

Contractor and Engineer will work jointly together to obtain all additional permits for its Work as detailed in Exhibit 6 – Environmental and Regulatory Compliance Requirements. Copies of all Contractor obtained permits shall be provided to Engineer.

2.5.8 ROW Clearing

Contractor is required to plan, direct and supervise Company's Other Contractors in establishing a 60 m wide ROW for the construction and operation of the HVdc line and a 10 m wide ROW for the two electrode lines on wood poles. The Part B – ROW Clearing and Access Works includes the requirements for salvaging merchantable timber and the disposal of wood residue such as branches, non-commercial stems and dead trees. Contractor and/or Engineer has the authority to identify danger trees and instruct Company's Other Contractors to remove them, typically using hand cutting methods. Contractor is responsible for managing, directing and supervising the installation of any infrastructure required to facilitate the ROW clearing, such as temporary bridging, culverts, gravel, environmental protection measures, and other fill materials, etc.

2.5.8.1 Mechanical Harvesting

Mechanical harvesting consists of the clearing of vegetation using mechanical harvesters or feller bunchers, to within 15 cm or less of the ground. Mechanical harvesting is generally required in stands exceeding 60 m³/ha of

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merchantable timber in order to facilitate the recovery of the timber. Recovery of merchantable timber may vary between Labrador and the Island and by Forest District.

Merchantable timber is defined in the applicable cutting permit and salvage is generally required, unless otherwise directed in writing by the Engineer. Some merchantable timber may be utilized locally in the construction of access (e.g. corduroy roads) and bridges.

Mechanical clearing Work (both harvesting and mulching) shall be performed using machinery and methods appropriate for the environmental conditions to limit excessive rutting, compaction or soil displacement. Clearing shall be done manually where environmental, wildlife or safety considerations require machine use to be minimized or restricted. Engineer will instruct Contractor to modify the clearing and salvaging methods as required.

2.5.8.2 Mulching

Mulching is an option that can be used to clear low volume stands that generally contains less than 60 m³/ha of merchantable volume. Purpose built machines (e.g. CMI mulcher) and boom mounted mulching devices are commonly used dependent on ground conditions. In some cases, mulching of higher volume stands and merchantable stems may be a reasonable option, as agreed or directed in writing by the Engineer and subject to conditions of the applicable cutting permit. The ability to mulch merchantable stands may vary between Labrador and the Island and by Forest District.

Mulching as a means of debris management is addressed in subsequent Sections.

2.5.8.3 Manual Cutting

Manual cutting consists of cutting of vegetation, with chain saws and/or brush saws, to within 15 cm or less of the ground, including merchantable and non-merchantable timber and debris. If required and feasible, the subsequent removal, processing and piling of merchantable timber shall be done by mechanical equipment. Debris that inadvertently enters a watercourse may have to be removed by hand if it cannot be reached by machine or cable. Generally, manual cutting will be limited to special ground conditions (e.g. steep, wet/sensitive, selective buffers) or areas of very low volume in rocky terrain where mulching equipment is not suitable. Manual cutting may also be necessary to remove individual danger trees that may be located along the ROW edges.

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2.5.8.4 Timber Processing, Transporting and Piling

Unless otherwise directed in writing by the Engineer, merchantable timber shall be processed (i.e. limbed and bucked) into specified or random lengths, and piled along the edge of the ROW (including both road and transmission ROWs) so as not to interfere with planned activities. Minimum top diameter for processing is specified in the applicable cutting permit and may be modified under the written direction of the Engineer. In special tower box work areas, sensitive environmental locations, or as directed in writing by the Engineer, timber may need to be transported short distances to more appropriate piling locations. Timber may be transported in full tree form prior to processing or subsequent to processing in the case of a short-wood operation.

Piles shall not exceed 3 m in height and shall not exceed 200 m in length without allowing for 6.5 m spacing between piles. Piles shall be arranged in a safe and orderly manner acceptable to the Engineer.

2.5.8.5 Slash and Debris Management

Wood residue such as branches and tops, non-merchantable stems and other woody debris shall not be burned. No debris shall be left within tower box work areas. Occasionally, outside of tower boxes, where debris accumulations exceed 30 cm in depth, the debris may be concentrated into piles or mulched as directed by the Engineer.

In general, unless within a special tower box work area, slash and debris is expected to be left untreated. In some locations, under direction of the Engineer, debris may be left specifically to provide habitat for small mammals in special management areas.

Residual stems and small patches of non-merchantable trees, that are likely to exceed 2m in height at maturity, shall be cleared from the ROW. Such residual vegetation may exist in older stands with uneven age class distribution. The Company will provide direction as required.

Wood debris is not permitted to enter a watercourse.

2.5.9 Access Road Construction

Contractor will be required to either:

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- a) With Engineer’s oversight, self-perform construction of access roads to and along the transmission line ROW; or
- b) Manage, direct and supervise the construction of access roads to and along the transmission ROW as undertaken by Company’s Other Contractors.

Generally, roads will be constructed to fit-for-purpose standard in order to withstand the anticipated amount of traffic expected to travel over them. Access roads will generally be constructed to either a Class ‘C’ or ‘D’ standard as Accepted by the Engineer. Shorter roads accessing only one or two towers may be constructed to the minimum standard and longer roads with long-term traffic may be constructed to a higher standard.

The Contractor, working with the Engineer, will establish the road centerline in advance of the work fronts. Access road design incorporates horizontal and vertical alignment that provides for user safety. The table below summarizes the standard alignment controls for the classes of road that may be required by the Company. Class B roads will generally not be required.

Standard	Class B	Class C	Class D
Cleared Right of Way	25 m	20 m	20 m
Grubbed Right of Way (as required)	23 m	18 m	15 m
Road Width – shoulder to shoulder	7.5 m	5.5 m	5.0 m
Granular Topping Depth – average compacted (subject to Engineer’s Approval)	100 mm	100 mm	----
Granular Topping Width (subject to Engineer’s Approval)	6.5 m	5.0 m	----
Maximum degree of horizontal curve	20	30	30
Maximum sustained grade	8%	10%	12%
Maximum short pitch grade	12%	15%	18%
Minimum horizontal site distance	120 m	90 m	50 m
Minimum depth of ditch	0.6 m	0.6 m	0.3 m
Maximum depth of ditch	1.2 m	1.2 m	1.2 m
Cross slope (as directed by Engineer)	12 cm crown	10 cm crown	8 cm crown
Fill Slope:			
Rock or Till	1:1	1:1	1:1
Clay	1.5:1	1.5:1	1.5:1
Silt	2.5:1	1.5:1	1.5:1
Cut Slope:			
Rock	1:4	1:4	1:4
Silt	1.5:1	1.5:1	1.5:1
Other	1:1	1:1	1:1

Pullouts shall be located every 300 to 500 m and be 20 to 40 m long, providing for a total width, including road width, of 8 to 10 m.

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2.5.9.1 Corduroy Roads

Use of logs over wet areas may be required to support the finished road surface. Use of merchantable timber is acceptable. Geotextile fabric may be placed over top of the logs prior to the placement of 0.3 to 0.6 m of local suitable fill material, as directed by the Engineer. Geotextile will be provided by the Engineer unless otherwise agreed with Engineer.

2.5.9.2 Tote Roads

Wherever possible, tote roads will be located to follow the same path as the planned final construction access roads. Additional tote roads, that will not be required for subsequent transmission line construction access, will be established in agreement with the Engineer.

2.5.9.3 Winter Roads

The use of temporary winter roads will be optimized as required to enable winter activities for Part A – Line Construction.

Temporary winter roads will generally be constructed to a Class D standard. Winter roads will generally use overlanding methods over frozen ground and utilize clean snow and ice as fill material.

2.5.10 Road Maintenance

To allow for the safe transport and evacuation of work crews, and as may be required to address environmental concerns, the Contractor and/or Company's Other Contractors shall maintain constructed roads in a fit-for-purpose condition during the execution of the Work. Road maintenance may include snow clearing, sanding, grading, culvert repair, capping etc. Such Work shall be subject to the pre-Approval of the Engineer, with the need varying depending on the time of year and the nature of the road construction material and traffic requirements.

2.5.11 Material Development, Hauling and Placement

Contractor and/or Company's Other Contractors may be required to develop borrow sites or rock quarries to provide materials required for road construction or bridge and culvert placement. Where a balanced cut and fill cannot be achieved, the Contractor and/or Company's Other Contractors shall be responsible for hauling excess

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material from the Site or hauling borrow material to the Site. Corduroy material may be hauled and placed in sensitive areas.

In the case of the Contractor performing the Work, this Work will be directed by the Engineer, while in the case of Company's Other Contractors, this Work will be directed by the Contractor.

2.5.12 Bridge and Culvert Installations

Contractor will be required to either:

- a) With Engineer's oversight or third party specialist contractor (i.e. bridge supplier), self-perform the installation of culverts and bridges to and along the transmission line ROW; or
- b) Manage, direct and supervise the installation of culverts and bridges to and along the transmission ROW as undertaken by Company's Other Contractors.

All culverts and bridges shall be installed as per the Technical Specification – Part B and the P-WEPP. Culverts, bridges and related materials will be free issued by the Engineer unless otherwise agreed or specified in this Agreement, and will be made available from designated storage locations. The Contractor may be required to transport the materials from the storage locations to the work areas at Site.

Culverts, in streams, if required shall be installed as per the Technical Specification – Part B and the P-WEPP. Contractor may use culverts for crossing ditches or other depressions, where the use of fill material would inhibit drainage during periods of precipitation, as Accepted by the Engineer.

If Contractor is self-performing the Work, Contractor shall be responsible for the installation of culverts throughout the ROW along the access roads. If Contractor is not self-performing the Work, Company's Other Contractors will install culverts throughout the ROW along the access roads. Refer to the Technical Specification – Part B and P-WEPP for guidelines related to the installation of culverts.

The installation of short span, "rig mat style" bridges and longer span steel girder bridges will be required. This Work will include construction of suitable abutments or sills and may also include the installation of wheel guards, rails, running surface, deck and accessories as Accepted by the Engineer. Engineer will free issue materials unless otherwise agreed by both Parties.

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2.5.13 Transport of Equipment and Materials

During execution of the Work, Contractor may be required to relocate both Contractor and Company's Other Contractors equipment to new work fronts. The Contractor may also be required to transport culverts, bridges and related materials to the work area at Site for installation.

In some cases, however, the Contractor and Engineer may agree to direct Contractor or Company's Other Contractors to move to a higher priority Work location, or to conduct higher priority Work, regardless of the completion status of the existing work front. All precautions shall be taken, and required procedures followed, during loading and unloading of equipment to ensure there is no damage to public or private infrastructure. Repair of damages caused by Contractor shall be at the Contractor's expense.

2.5.14 Environmental Mitigation and Rehabilitation

Contractor is required to adhere to all environmental requirements as specified or directed in writing by Engineer. Contractor shall be prepared to address anticipated environmental issues and supply all necessary sediment control devices (e.g. silt fencing), spill kits, fire protection equipment, etc.

Contractor is required to rehabilitate disturbed areas, as directed by Engineer, in order to ensure areas are left in a stable condition and that sensitive areas are protected.

2.5.15 Survey and Marking of ROW and Access

Contractor will manage, direct and supervise the surveying and marking of the boundaries of the ROW, access roads and areas with environmental restrictions prior to executing the clearing Work as undertaken by either Engineer, Contractor or Company's Other Contractors in accordance to the requirements of the Technical Specification – Part A. All relevant Control Points are listed in the Technical Specification – Part A.

2.5.16 Inspection and Acceptance of Work performed by Company's Other Contractors

All Work undertaken by Company's Other Contractors will be subject to the monitoring and acceptance by Contractor. Contractor shall ensure adequate inspection records are available to support validation of payment requests for portions of the Work made by Company's Other Contractors.

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2.5.17 Handover of Cleared ROW for Line Construction

The protocol for handover of the cleared ROW for line construction shall be defined by the Contractor and shall be subject to the Acceptance of the Engineer.

2.5.18 Special Requirements

2.5.18.1 Tower Box Working Areas

A special working area is established at each proposed tower site. These areas are approximately 60 m x 80 m (i.e. 40 m in front and behind the tower and 30 m on each side). Merchantable timber and wood residue shall not be piled within these areas. Construction of access through tower box areas will require special attention so as not to interfere with tower foundations and anchors.

2.5.18.2 Danger Trees

A danger tree is defined as a tall tree located outside of the established ROW that, if it were to fall, it would be tall enough to contact the conductors. Danger trees shall be felled along the ROW edge, into the ROW and processed if possible. Contractor and/or Engineer has the authority to identify danger trees and instruct Company's Other Contractors to remove them, typically using hand cutting methods.

2.5.18.3 Steep Valleys

In steep valleys, where the tree height at maturity will not interfere with the conductors, the ROW clearing may be reduced and minimized for the purposes of access only. Trees and debris shall be kept out of watercourses when present in these valleys/gullies. Contractor will confirm the extent of clearing in these locations and provide direction to Company's Other Contractors.

2.5.18.4 Buffer Zones

Contractor will establish required buffers unless otherwise directed in writing by Engineer. Contractor shall be familiar with buffer requirements for various features as defined in the P-WEPP or as otherwise specified in this Agreement.

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A natural vegetation screen shall be left at all Provincial highway and secondary road crossings, where practical, and this screen shall have a length of 20 m from the edge of the cleared ROW of the roadway. Cutting within this vegetation screen, if required for access, shall be minimized. Selective cutting is allowed in the screen and will likely occur to ensure the safe operation of the transmission line.

2.5.18.5 Existing Trails and Roads

Existing trails, roads or cut-lines will be used whenever possible, and the development of new access will be minimized, to the extent practical, to avoid disturbance to riparian vegetation and, where practical, access roads and trails will be located to avoid riparian shoreline.

Contractor shall repair at its expense or direct Company's other Contractors to repair at their expense, any terrain disturbance to existing snowmobile or ski trails resulting from Contractor's or Company's other Contractors' activities, to Company's Approval. No trails shall be relocated unless directed in writing by Engineer. All displaced signs and damaged road surfaces shall be restored.

2.5.19 Rehabilitation and Reclamation

For the Work in this Part B – ROW Clearing and Access Works, Contractor is responsible for all site rehabilitation. The rehabilitation of the Work area at Site shall be as per "Rehabilitation and Reclamation" section of the Technical Specification - Part A.

2.5.19.1 Cleanup and Waste Disposal

Waste disposal shall be undertaken as per the Company's Waste Management Plan.

2.5.19.2 As-Builts / Return Data

All QA/QC Forms shall be properly completed as per the ITP, and all as-built drawings properly marked up and return data provided to the Engineer within two weeks after such completion of the Work prompting the documentation.

Contractor's turnover records shall be in an electronic format acceptable to the Company. Turnover shall be a continuous process following achievement of each activity. These records are referenced in the Supplier Document Requirements List (SDRL).

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2.5.19.3 Demobilization

Contractor shall be responsible for removal of all temporary facilities/access, final clean-up and rehabilitation. This Work is subject to the final Acceptance of Engineer.

2.5.20 Contractor Supplied Material

- Camp facilities and related infrastructure - including consumables and temporary power that is required for accommodation.

Contractor is responsible for inspection and quality assurance of all Contractor supplied material.

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3 SITE CONDITIONS AND CONTRACTOR'S SERVICES FOR COMPANY'S OTHER CONTRACTORS

3.1 General

The Site conditions and Contractor's services for Company's Other Contractors contained in the following Sections provide the basis for how the Contractor will undertake the operational support of the Work. Wherein reference is made to Company's Other Contractors, such a reference is with operational requirements related to Part B - ROW Clearing and Access Works portion of the Work only.

3.2 Work Area

Contractor may install its trailers, containers and other temporary buildings for its own use in close proximity to its Work area, subject to Engineer's Acceptance.

During the execution of the Work, Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or dispose of Contractor's Items and surplus materials, and clear away and remove from the Site any wreckage, rubbish or temporary works no longer required.

Unless otherwise provided elsewhere in the Agreement, Contractor shall, throughout the Term, maintain its Work area, laydown area(s) and passage ways in order to permit the safe movement of pedestrians and vehicles at all times.

Contractor is responsible for all maintenance and snow removal within the Contractor's Work area, inclusive of Contractor's temporary/construction roads.

3.3 Clearance of Site on Completion

Upon Substantial Completion of the Work, Contractor shall clear away and remove from the Work area at Site all of Contractor's Items, surplus material, rubbish and temporary works of every kind, and leave such part the Site and works clean and in a workmanlike condition to the satisfaction of Engineer.

3.4 Contractor Signage

Contractor is responsible for adhering to the latest edition of the *Traffic Control Manual* issued by the Department of Transportation and Works of the Province of Newfoundland and Labrador. Marking and signage

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as required to maintain a safe work environment and to direct traffic, shall be provided by Contractor and subject to Acceptance by Engineer. Contractor shall be responsible for the supply and installation of such marking and signage, with costs being to Contractor’s account.

Only standard safety signage (e.g. bulletin boards and safety signs) used to identify the LCP, Company, designated representatives and Contractor, shall be allowed on the Site with prior Acceptance of Engineer. Contractor shall also be responsible for providing public advisory signage, including but not limited to signage prohibiting hunting and hiking in areas where Work shall potentially commence.

A marking/signage plan to maintain a safe work environment and direct human traffic shall be provided by Contractor and is subject to Acceptance by Engineer prior to any Work commencing.

Contractor will be responsible to specify, supply and install signage required for access trail marking and public advisory signage as may be required for the ROW Clearing and Access Work. Cost for the supply of these signage is to Company’s account.

For greater clarity, Contractor shall be responsible to specify, supply and install any and all other signage as it may require in order to fulfill its obligations under this Agreement.

3.5 Construction Services

Contractor shall provide and maintain construction services on the basis of seven (7) days a week, 24 hours a day until the Work has been completed. At the end of the Term, all unnecessary facilities shall be dismantled by Contractor and remain its property, unless otherwise indicated by Engineer. At any time, Company has the right to inspect the provisional facilities of Contractor and may require changes as Engineer deems necessary, at the expense of Contractor. Contractor shall submit to Engineer, for Acceptance, drawings and specifications for any construction services or installations that it intends to install twenty (20) Business Days before the commencement of their installation, or as agreed upon with Engineer.

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3.6 Electrical Power

Contractor shall be responsible for providing its own electrical power as necessary to execute the Work and to provide electrical power to Contractor Group's and Company's Other Contractors used in Part B Work facilities, equipment and workshops.

3.7 Lighting

Contractor shall be responsible for providing all lighting required for its Work areas. When Work is done at night or when daylight is not available, Contractor shall provide adequate lighting taking into consideration the nature of the Work to be performed.

3.8 Potable Water

Contractor shall be responsible to providing potable water for the Work and for Company's Other Contractors used in Part B Work.

3.9 Industrial Water

Contractor shall be responsible for providing industrial water for the Work, either by pumping from rivers or streams or by wells. Contractor shall make the necessary arrangements to treat water to achieve these requirements.

3.10 Heating

Contractor shall be responsible for the heating of its facilities and for any other heating required for the execution of the Work.

3.11 Dewatering and Sediment Control

Contractor shall provide, install and maintain pumping and dewatering systems in the Work areas. This includes the construction, operation and maintenance of sedimentation ponds, if required. From the beginning of the Work, Contractor shall take the necessary measures for the control and evacuation and sediment control of any water inflow or seepage of water in its Work areas, including those of Company's Other Contractors used in Part B Work.

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Contractor shall provide proper drainage for all of its construction activities. Silt-laden water shall be directed to settling ponds prior to release into water bodies or the environment. Only water with a Total Suspended Solids (TSS) of less than 30 ppm is permitted to be released to the environment.

3.12 Sanitary Facilities

Contractor shall provide mobile wash cars, as required. Contractor shall be at liberty to locate this facility at the most convenient place and relocate it from time to time as the need arises. Contractor shall be responsible for providing all waste collection, all stipulated sanitary cleaning required, all associated consumables, and water supply.

3.13 Cleaning of Lunch Rooms and Offices

Contractor shall be responsible for cleaning, on a regular basis, all offices, lunchrooms, workshops and all other workplaces under its responsibility. Such lunchrooms shall be cleaned after each meal or break. Such services may be subcontracted by the Contractor, at its own expense, and is subject to Acceptance of the Engineer.

3.14 Waste Management

Contractor shall be responsible for providing trash containers to be placed at Contractor's laydown area at the Site. Contractor shall be responsible for the supply, installation and periodic replacement as required.

Contractor shall be responsible for collecting all recoverable waste, refuse and packing material Contractor generates and for disposing it at the appropriate containers (clearly identified as to its restricted content) provided by Contractor. If Contractor fails to take the necessary measures to comply with and/or fulfill this obligation, Engineer will notify the Contractor in writing to take immediate corrective action. If Contractor does not comply after notification by Engineer, Engineer will have these task completed and back-charge the costs to Contractor.

3.15 Security Services

Contractor is responsible for a security service for the protection of all facilities and property as required in support of the implementation of the security measures detailed in Contractor's Health and Safety Plan as Accepted by Engineer. Regular security patrols will take place within the camp boundaries to protect its facilities, equipment and residents.

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Company takes no responsibility for any loss or damage of any kind incurred by Contractor's Personnel.

3.16 Telecommunications

3.16.1 Services Provided by Contractor

Contractor shall provide the telecommunications services and infrastructure to support the operational and recreational activities during the completion of the Work. The telecommunications services required at each remote accommodation camp for construction include, but are not limited to, the following:

- a) Recreational services (provided by Contractor):
 - Internet access;
 - Telephony access; and
 - Television.
- b) Business services in the office (provided by Contractor):
 - Internet access;
 - Telephony access;
 - Land Mobile Radio Service; and
 - Satellite phones as required.
- c) Other business services (provided by Engineer for the Engineer):
 - Satellite telephony for Engineer.

Recreational and business services provided by Contractor to its Personnel shall be made available to the Company Group Personnel and Company's Other Contractors as well.

3.16.2 Structured Cabling System

All office spaces shall be provided with two telecommunications outlets: one for data and one for voice. Each outlet shall be identified with its cable number. Cable shall be cat6 or better and installed adhering to TIA/EIA-568-C standards and the document *Structured Cabling System Construction Phase*, Company document no.

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MFA-SN-CD-1420-TE-TS-0011-01) contained in Exhibit 11 – Company Supplied Documents. All cables shall be terminated on cat6 patch panels in the telecommunication reserved space for the office zone.

3.16.3 Space for Information Technology (IT) Equipment

The telecommunication space, where distribution cables are terminated, shall be provided with a 48.3 cm racking space of a minimum of 20 U. The minimum usable depth for the equipment in the racking space shall be 76.2 cm. A wall-mounted cabinet is an acceptable solution. An A/C and heating system shall be available for the telecommunication space. It can be the same systems as the one for the room, but it shall be designed with enough capacity to support additional telecommunications equipment. Two power circuits of 120 Vac / 20 A shall be provided for the equipment installed in the racking space. The power shall be sustained in an event of power failure through a generator. An uninterruptable power supply to gap the timeslot for the generator to be stable shall be provided by Company.

3.16.4 Internet Access

The same internet access service as provided by Contractor for its business requirements shall be available to Company and Company's Other Contractors.

The internet access for Engineer's office shall be a dedicated bandwidth with a minimum of 2 Mbps downlink / 0.5 Mbps uplink. If the bandwidth is on a shared connection, it can be reused if not fully used by the office zone (example: during the night), but the office zone traffic shall be assigned with the highest priority using Quality of Service mechanisms and have precedence over the other types of traffic.

3.16.5 Voice Access

The same voice access service as provisioned by Contractor for its business requirements shall be available to Company and Company's Other Contractors.

3.16.6 Land Mobile Radio Service (LMRS)

If Contractor provides portable radios and/or mobiles radio devices to its crew, the same devices will be provided to Company and Company's Other Contractors for work coordination and safety communications.

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3.16.7 Satellite Phone

Contractor shall be responsible to provide satellite phones to its crew for coordination purposes with the Engineer and the Company's Other Contractors.

3.16.8 Recreational Internet Access

Internet access shall be provided to the workers (Contractor's Personnel and Company Group Personnel) as a recreational service.

At a minimum, one internet kiosk per 20 workers shall be placed in a reserved area for the workers.

3.16.9 Recreational Telephony

Telephony access shall be provided to the workers (Contractor' Personnel and Company Group Personnel) as a recreational service.

At a minimum, one telephone booth per 20 workers shall be placed in a reserved area for the workers. Telephone booths shall permit adequate privacy for workers.

3.16.10 Recreational Television

Television access shall be provided to the workers (Contractor's Personnel and Company Group Personnel) as a recreational service and one high definition television set shall be placed in the public area to entertain the workers.

3.16.11 Other Services

The Contractor shall be responsible for other telecommunication services and systems that it may need as well as those required by its crews. For the other services, if this system can be used to permit the communication between the Company and the Contractor, the Contractor shall provide devices to the Company.

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3.16.12 Internet Access for Company and Company's Other Contractors Use Only

Company and Company's Other Contractors shall be entitled to use the Internet access provided by Contractor. Each of Company and Company's Other Contractors is responsible for its own data equipment and terminals, regardless of the internet access provider.

3.16.13 Voice Access for Company and Company's Other Contractors Use Only

Company and Company's Other Contractors shall be entitled to use the voice access service, telephony equipment and terminals provided by Contractor.

3.16.14 Satellite Phone for Company and Company's Other Contractors Use Only

Company and Company's Other Contractors are responsible to provide a satellite phone to each of their Personnel. These phones shall be used as the primary communication system for the coordination of the Work and for safety communication.

3.17 Fuel Station and Fuel Management

During the execution of the Work, the Contractor shall be responsible for providing fuel to the Site, sufficient for all members of the Contractor Group, Engineer and Company's Other Contractors.

Contractor may establish fuelling facilities at a camp location, provided that Contractor complies with all health, safety and environmental requirements, including adequate separation, storage and handling.

3.18 Accommodations

3.18.1 General

This Section identifies Contractor's requirement to supply, install and operate the accommodation and office facilities needed by Contractor's work force, the Engineer and Company's Other Contractors.

Refer to Exhibit 6 – Environmental and Regulatory Compliance Requirements for permitting details and other environmental guidelines relating to the details that follow.

Contractor shall provide the following documentation:

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- Monthly reports regarding camp occupation for all Contractor, Engineer and Company’s Other Contractors;
- Quality follow-up reports on potable water and used waters, according to regulatory requirements and at least four times a year;
- Health certificates for kitchen Personnel; and
- Progress reports on kitchen and housekeeping services for all buildings located on the campsite.

Contractor is responsible for the establishment and operation of adequate work force accommodations facilities for the scope of Work and for the Company’s Other Contractors, with the exception of the construction of the first 70 km of transmission line extending from Muskrat Falls heading south, wherein for Part A of the Work, Company has agreed to free-issue up to 17,500 person-days of accommodations to Contractor at the Muskrat Falls Accommodations Complex to enable the Work to be completed. Contractor requests for beds at the Muskrat Falls Accommodations Complex from Engineer shall be in accordance with the requirements for site access and normal operating protocols at Muskrat Falls.

3.18.2 Supply and Installation of the Accommodation Facilities

Contractor is responsible to establish and operate work force accommodation facilities at a location, frequency and size as it determines if required to optimally enable the Work, including the ROW Clearing and Access Works by Company’s Other Contractors, to be undertaken. Contractor shall be solely responsible for all activities necessary to establish and operate the accommodations facilities including, but not limited to, the following tasks:

- Identify suitable location(s), subject to Acceptance by the Engineer;
- Obtain all required permits and approvals to install and operate each facility;
- Mobilize the camp when required to support the ROW clearing and access development scope of Work;
- Site preparation including clearing and levelling;
- Installation of utilities with sufficient capacity and reliability for year-round operation. The utility systems shall meet all regulatory requirements and follow all environmental guidelines for the Work.

They include:

- An electrical supply and distribution system;
- A potable water treatment and distribution system;
- A sanitary sewage collection, treatment and evacuation system; and

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- Site-specific construction and installation of foundations, roads, walkways, fencing and exterior lighting as required; and
- Supply, transportation and installation of buildings such as kitchens, dormitories, offices, infirmaries, storage and maintenance facilities required by Contractor.

3.18.3 General Operating Requirements

The overall operation of the accommodation facilities will include, but are not limited to, the following activities:

- A transportation system with the capacity to safely move people to and from the camp, the Work areas at the Site and any other locations required by Contractor;
- Efficient transportation of food, equipment, material and fuel;
- Proper disposal of waste;
- Ongoing site maintenance such as snow removal from roads and walk-ways as well as the use of abrasives to ensure the safe movement of people and vehicles on the Site;
- Repairs and maintenance of the utilities and other items requiring general upkeep;
- Standard operation of large-scale food and accommodation services; and
- Ongoing availability of emergency medical services, security and fire protection.

3.18.4 Living Conditions

Contractor shall provide all workers including Company Group Personnel with a single room. Each dormitory shall include at least common sanitary facilities for its occupants.

Contractor shall provide living accommodations for at least 20 Personnel of the Engineer at each of the Contractor’s accommodations facilities. Unless otherwise Accepted by the Engineer, all rooms shall have individual sinks and toilets, with a shower shared between two (2) adjoining rooms.

Contractor shall provide living accommodations for Company’s Other Contractors for ROW Clearing and Access Works as agreed with Engineer.

The Contractor shall define, for all its buildings, the nature, frequency and manpower required for housekeeping services and shall submit its planning for the Acceptance of the Company.

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A sales counter, with business hours compatible with workers' availability, shall offer, at competitive prices, usual products such as: toilet ware, pharmaceutical products without prescription, soft drinks, candies, smokers' articles, sanitary articles, newspapers, calling cards, batteries, etc. However, some articles are forbidden, such as fishing equipment, offensive weapons, munitions or fireworks, any pantry ware and fuel required for cooking or lighting. No alcoholic beverage shall be sold or provided on the camp site.

Contractor shall control and restrict access to its workers, Engineer's Personnel and Company's Other Contractors' Personnel. Visitors pre-authorized by the Engineer and involved in the Work will be able to obtain food and lodging services on a short-term basis according to availability.

Contractor will establish and post Camp Rules in accordance with the provisions of the Project Labour Agreement (as referenced in Exhibit 2 - Compensation).

3.18.5 Office Space

In addition to the requirements of Contractor's workforce, the Contractor shall provide all of the following office space and items at each camp:

- An open area of approximately 70 m² (12 feet x 60 feet trailer) with a conference room at one end with a boardroom table and chairs;
- Ten (10) desks and twenty (20) chairs;
- Two (2) collapsible tables;
- One (1) whiteboard;
- Kitchen area with counter space, fridge and microwave;
- Washroom facilities that are part of or in close proximity to the office space;
- Adequate power, heat, air conditioning and internet connection; and
- Regular janitorial services.

3.18.6 Food Services

3.18.6.1 Health Requirements

Contractor shall ensure that all Personnel allocated to the cafeteria are capable of performing the applicable Work and have the required qualifications. Contractor shall provide, for each person that is or may be in contact

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with food, kitchen ware or equipment, a recent health certificate indicating that such person is not carrying infectious agents that could be transmitted by food and does not suffer from a reportable disease.

Contractor shall ensure that all food handlers are clean and that they change their working clothes as often as conditions so require.

Contractor shall ensure a strict maintenance of kitchen space and food service equipment. The cleanliness of utensils and dinnerware shall be above reproach.

3.18.6.2 Meal Service and Food Quality

Contractor shall ensure that food quality, including milk products, fruits and vegetables, meats, poultry or fish, shall be as typically defined by Quality Canada A, Canada No. 1, Canada Category A or Canada First Category.

Particular attention shall be paid to the food conservation and cooking temperature. The food storage life shall be ensured by stock control and rotation in the warehouse. Particular attention shall be paid to hygiene during food handling to avoid any contamination.

Daily meals shall comprise of two hot meals and a lunch. Contractor shall ensure the preparation of typical menus to be submitted for Acceptance for:

- Breakfasts;
- Lunches for noon meals;
- Hot supper meals for a three week period without repetition and including at least two choices of menu;
- Buffet dinners including salads, condiments and cold cuts available at dinner time; and
- Desserts.

3.18.7 Camp Demobilization

Contractor shall meet all Applicable Laws and environmental guidelines for the LCP when demobilizing or moving camps. This includes the receipt of confirmation that the requirements of all permits have been met.

3.19 Air Transportation

Contractor is responsible for air transportation of its Personnel to/from the Work areas at Site as well as ground transportation to/from the closest airport. In doing so, Contractor is encouraged to leverage Company's air

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transportation services agreement with a joint venture partnership between Innu Mikun Partnership and Provincial Airlines Ltd. (PAL) in order to leverage LCP-wide synergies.

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4 SPECIAL REQUIREMENTS

Section 4.0 requirements are applicable for both Part A and Part B of the Work.

4.1 Health and Safety Requirements

4.1.1 General Requirements

Refer to Exhibit 5 – Health and Safety Requirements for general health and safety requirements, including details on Contractor’s responsibilities and specific deliverables under the Agreement.

Prior to starting the Site Work, Contractor shall prepare a Contract Specific Health and Safety Management Plan for review and Acceptance by Engineer. Refer to Exhibit 5 – Health and Safety Requirements for details of the contents that this Plan must consider.

If Contractor’s incident rates for the Work reflect deficiencies in Contractor’s safety program, Contractor shall take immediate corrective action to address the root causes. Contractor shall submit to Engineer a written recovery plan within ten (10) Business Days from the date the plan is requested by Engineer, detailing what corrective actions Contractor will use to prevent future incidents. Corrective action may include additions or modifications to the Contractor’s safety program already in place, increasing the amount of safety and health training for all employees performing Work, increasing the number of qualified employees to perform the Work, replacing defective equipment with equipment suitable for the Work and any other means deemed necessary and appropriate.

Corrective action may include removal from the Work any Personnel not implementing or following the required safety and health measures established for the Work. Costs associated with any corrective action will be borne by the Contractor.

4.1.2 Forest Fire Protection

Contractor is required to comply with the *Forest Fire Regulations* of the Province of Newfoundland and Labrador and the Operating Permit related to the LCP. Prior to the start of fire season, Contractor, with Engineer’s input, shall develop a fire forest preparedness plan and complete a readiness assessment of the Contractor’s readiness to respond to potential events.

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4.1.3 Emergency Response Plan

Contractor shall develop a detailed emergency response plan as part of its overall health and safety management plan. This plan will describe how Contractor intends to react to all foreseeable emergencies related to the Work, as well as a plan to minimize the effects of those emergencies.

Contractor shall regularly test this plan, including completing drills that adequately simulate the various emergencies that may occur at Site.

4.1.4 Emergency Medical Treatment and Transportation

Contractor is required to supply and maintain adequate Personnel and equipment necessary to provide emergency medical treatment for all Personnel in its Work areas at Site. This includes provisions for emergency medical transportation using Mobile Treatment Vehicles at each major work front, as well as emergency clinics at each of Contractor's camps. These services and equipment will meet the requirements as described in the *Occupational Health and Safety First Aid Regulations* of Newfoundland and Labrador, and shall be overseen by a licensed medical physician in the Province of Newfoundland and Labrador.

4.1.5 Existing Transmission Line Facilities

All Personnel performing Work within six meters of energized transmission lines shall have successfully completed an Authority approved Power Line Hazards program prior to engaging in the Work. This training program is one day in duration and is to be provided by a third party. Contractor is responsible for making the necessary arrangements for this training.

4.1.6 Project Orientation

Contractor's Personnel are required to participate in the LCP orientation provided by the Engineer prior to the commencement of Work.

4.2 Environmental Requirements

Contractor shall comply with the requirements as stated in Exhibit 6 – Environmental and Regulatory Compliance Requirements. Details on Contractor's responsibilities and specific deliverables under the Agreement are contained in this Exhibit.

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For Part A – Line Construction, prior to starting the Site Work, Contractor shall prepare a Contract Specific Environmental Protection Plan (C-SEPP) for review and Acceptance by Engineer. The C-SEPP will detail the environmental protection measures that will be implemented by Contractor for all components of the Work. Contractor shall refer to Exhibit 6 and the Drawings, as required. The template for preparation of the C-SEPP is attached in Exhibit 11 – Company Supplied Documents.

Contractor shall adhere to the environmental commitments listed in Table 17.4-1 - Commitments for the Labrador-Island Transmission Link in the Environmental Impact Statement at the following link: <http://www.nalcorenergy.com/news-and-publications.asp>.

For Part B – ROW Clearing and Access Works, the P-WEPP shall be utilized in lieu of a C-SEPP.

4.3 Quality

Contractor shall adhere to the quality requirements as stated in Exhibit 7 – Quality Requirements. Exhibit 7 details Contractor’s responsibilities and specific deliverables under the Agreement.

4.4 Interface Management

Refer to Exhibit 3 – Coordination Procedures for interface management requirements, including details on Contractor’s responsibilities and specific deliverables under the Agreement. In general, all activities on the LCP shall be coordinated to maximize efficiency and to ensure that Work can proceed safely. The following are some of the areas where Contractor may be required to interface with Company’s Other Contractors. All interfaces shall be coordinated through Engineer:

- Segment 1’s interfaces include:
 - The converter station at Muskrat Falls, Labrador; and
 - Marshalling yard at HV-GB, Labrador.
- Segment 2’s interfaces include:
 - The transition compound at Forteau, Labrador;
 - The electrode site at L’Anse-au-Diable, Labrador; and
 - Marshalling yard at HV-GB, Labrador.
- Segment 3’s interfaces include:

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- The transition compound at Shoal Cove, Newfoundland
- Segment 4's interfaces include:
 - Marshalling yard at Argentia, Newfoundland; and
 - Any potential existing line modifications required.
- Segment 5's interfaces include:
 - The Converter Station compound at Soldiers Pond;
 - Marshalling yard at Argentia, Newfoundland;
 - Any potential existing line modifications required; and
 - Existing line re-terminations at Soldiers Pond.

4.5 Scheduling and Project Control

Refer to Exhibit 3 – Coordination Procedures for scheduling and project control requirements, including details on Contractor's responsibilities and specific deliverables under the Agreement.

4.5.1 Project Milestones

Refer to Exhibit 9 – Schedule for the required schedule for the Work.

4.6 Muskrat Falls Accommodations Complex

4.6.1 Accommodations

The Accommodation Complex is located approximately ten (10) km from Muskrat Falls. Company will provide room and board free of charge at the Accommodation Complex for the mandatory use by Contractor's Personnel, as authorized by Engineer.

The number of Contractor's Personnel eligible for lodging services is subject to the Acceptance of Engineer. Contractor shall submit to Engineer at least thirty (30) days in advance of each and every required increase in manpower, a written request for such forecasted increase including all reasons for such increase. Engineer shall not be required to Accept such requests, however Engineer may, at its sole discretion and subject to availability, Accept such increase in manpower. Notice of a decrease in manpower shall also be submitted to Engineer at

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least thirty (30) days in advance of each such decrease, in order to manage occupancy in the Accommodation Complex.

Contractor's Personnel are to be provided with an identification card with photograph issued by Engineer on their first day on Site. This will then permit camp registry and room assignment, free access to the camp cafeteria and main gate ingress and egress when required.

4.6.2 Rooms

Contractor's Personnel will be housed in dormitories with rooms for single occupancy. Each dormitory is supplied with heating and indoor and outdoor lighting, and is equipped with washers and dryers placed at the disposal of its occupants. The occupants may not use the washers and dryers for cleaning work clothes. Contractor is responsible for providing washers and dryers for cleaning work clothes of its Personnel.

Company provides free cable service, local phone service, internet service and a television set for each room. No private satellite television antenna is permitted. The costs of long distance telephone shall be the responsibility of each of Contractor's Personnel.

4.6.3 Meals

Two (2) hot meals are served every day in the cafeteria as well as a box lunch during such hours recognized as regular meal periods.

4.6.4 Recreation

Company plans to construct recreation facilities which will be made available to all camp residents.

4.6.5 Site Vehicles

At a minimum, all vehicles entering the Muskrat Falls construction site shall be equipped with a 9kg/20 lbs ABC dry-chemical fire extinguisher, an amber beacon light mounted on the roof the vehicle, a first aid kit — minimum Class 2, a spill kit and buggy whips (minimum 3.6m in height).

4.6.6 Private Vehicles

Private vehicles are not allowed on the Muskrat Falls construction site or Muskrat Falls Accommodation Complex.

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4.6.7 Prohibition of Commercial Trade

Commercial activities are prohibited on the Site.

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5 APPENDICES

5.1 Appendix A1 – Block Descriptions

Block Descriptions

All supplied information is approximate and represents best available information only. Quantities and Site conditions will vary from those stated herein and will be subject to refinement in the field.

Block 1 – 029 + 500 km to 059 + 750 km (Labrador)

Block 1 is approximately 30.25 km long and extends from the converter station at Muskrat Falls along the proposed transmission line route. This area is approximately 181.5 hectares with the majority of hectares exceeding 60 m³/ha in merchantable volume. Mulching is anticipated for approximately 35% of the area.

A 7 m bridge is required to gain access to the ROW at the approximate chainage of 40 + 700 km. Exact location of the bridge is 699 334 E, 5 879 729 N in UTM Zone 20.

Accommodations for this block will be provided at the Muskrat Falls Accommodations Complex.

The breakdown in quantities is described in Table A.1.

Table A.1: Block 1 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	7.2	Includes open water and wetlands
Mulching (0 to 30 m ³ /ha)	ha	9.0	
Mulching (30 to 60 m ³ /ha)	ha	36.9	
Mulching (60 to 90 m ³ /ha)	ha	19.9	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	19.9	
Mechanical Harvesting (>90 m ³ /ha)	ha	60	
Hand cutting (<60 m ³ /ha)	ha	22.6	
Hand cutting (>60 m ³ /ha)	ha	6.0	
Access Road Construction	km	25.6	
Cross drain culverts	Ea.	100	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	18	
Short span bridges (1.5 to 5 m crossings)	Ea.	26	
Long span bridges (>5 m crossings)	Ea.	1	7 m bridge @ 40 + 700 km

Block 2 – 059 + 750 km to 101 + 100 km (Labrador)

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Block 2 is approximately 41.35 km long and extends from chainage 59 + 750 km to 101 + 100 km. This area is approximately 247.9 hectares with the majority of hectares exceeding 60 m³/ha in merchantable volume. Mulching is anticipated for approximately 40% of the area.

A 7 m bridge is required on the ROW at the approximate chainage of 97 + 600 km. Exact location of the bridge is 309 342 E, 5 847 331 N in UTM Zone 21.

Accommodations for this block will be provided at the Muskrat Falls Accommodations Complex and at the Contractor provided camp at the approximate chainage of 140 + 000 km.

The breakdown in quantities is described in Table A.2.

Table A.2: Block 2 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	10.5	Includes open water and wetlands
Mulching (0 to 30 m ³ /ha)	ha	23.8	
Mulching (30 to 60 m ³ /ha)	ha	41.0	
Mulching (60 to 90 m ³ /ha)	ha	41.9	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	41.9	
Mechanical Harvesting (>90 m ³ /ha)	ha	80.0	
Hand cutting (<60 m ³ /ha)	ha	8.0	
Hand cutting (>60 m ³ /ha)	ha	0.8	
Access Road Construction	km	47	
Cross drain culverts	Ea.	180	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	10	
Short span bridges (1.5 to 5 m crossings)	Ea.	11	
Long span bridges (>5 m crossings)	Ea.	1	7 m bridge @ 97 + 600 km

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Block 3 – 101 + 100 km to 143 + 750 km (Labrador)

Block 3 is approximately 42.65 km long and extends from chainage 101 + 100 km to 140 + 000 km. This area is approximately 255.5 hectares with the majority of hectares exceeding 60 m³/ha in merchantable volume. Mulching is anticipated for approximately 50% of the area.

A 12.5 m bridge is required to gain access to the ROW at the approximate chainage of 139 + 700 km. Exact location of the bridge is 341 510 E, 5 824 546 N in UTM Zone 21.

Accommodations for this block will be provided at the Contractor provided camp at the approximate chainage of 140 + 000 km.

The breakdown in quantities is described in Table A.3.

Table A.3: Block 3 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	6	Includes open water and wetlands
Mulching (0 to 30 m ³ /ha)	ha	18.9	
Mulching (30 to 60 m ³ /ha)	ha	55.1	
Mulching (60 to 90 m ³ /ha)	ha	62.0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	62.0	
Mechanical Harvesting (>90 m ³ /ha)	ha	40.0	
Hand cutting (<60 m ³ /ha)	ha	11	
Hand cutting (>60 m ³ /ha)	ha	0.5	
Access Road Construction	km	48.5	
Cross drain culverts	Ea.	190	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	17	
Short span bridges (1.5 to 5 m crossings)	Ea.	18	
Long span bridges (>5 m crossings)	Ea.	1	12.5 m bridge @ 139 + 700 km

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Block 4 – 143 + 750 km to 224 + 500 km (Labrador)

Block 4 is approximately 80.75 km long and extends from chainage 143 + 750 km to 224 + 500 km and represents approximately 484.3 hectares. This area can be generally described as sparsely forested with some wet conditions. Approximately 70% of the area is expected to be mulched. Contractor is expected to generally work from one road heading with a limited number of work fronts.

Three (3) bridges are required in block 4 to gain access to the ROW:

- A 20 m bridge is required to access the ROW at the approximate chainage of 146 + 600 km, exact location of the bridge is 346 225 E, 5 818 951 N in UTM Zone 21.
- A 15 m bridge is required to access the ROW at the approximate chainage of 171 + 200 km, exact location of the bridge is 364 862 E, 5 803 857 N in UTM Zone 21.
- A 20 m bridge is required to access the ROW at the approximate chainage of 180 + 100 km, exact location of the bridge is 372 721 E, 5 800 555 N in UTM Zone 21.

Accommodations for this block will be provided at the Contractor provided camps at the approximate chainage of 140 + 000 km, a secondary camp may be established at 190 + 000 km.

Winter work is expected in November and December.

The breakdown in quantities is described in Table A.4.

Table A.4: Block 4 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	12.7	Includes open water and wetlands
0 m ³ /ha (minimal effort)	ha	8.5	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	88.6	
Mulching (30 to 60 m ³ /ha)	ha	218.2	
Mulching (60 to 90 m ³ /ha)	ha	56.8	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	56.8	
Mechanical Harvesting (>90 m ³ /ha)	ha	20	
Hand cutting (<60 m ³ /ha)	ha	22.3	
Hand cutting (>60 m ³ /ha)	ha	0.4	
Access Road Construction	km	105.0	
Cross drain culverts	Ea.	400	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	173	
Short span bridges (1.5 to 5 m crossings)	Ea.	95	
Long span bridges (>5 m crossings)	Ea.	3	20 m bridge @ 146 + 600 km 15 m bridge @ 171 + 200 km 12.5 m bridge @ 180 + 100 km

Block 5 – 224 + 500 km to 285 + 700 km (Labrador)

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Block 5 is approximately 61.2 km long and extends from chainage 224 + 500 km to 285 + 700 km and represents approximately 366.4 hectares. This area can be generally described as having mostly non-merchantable sparse vegetation with very little harvesting, and approximately 95% of the area is either mulching area or no clearing area.

Five (5) bridges are required in block 5 to gain access to the ROW:

- A 7 m bridge is required to access the ROW at the approximate chainage of 238 + 650 km, exact location of the bridge is 425 486 E, 5 787 191 N in UTM Zone 21.
- A 23 m bridge is required to access the ROW at the approximate chainage of 246 + 690 km, exact location of the bridge is 433 682 E, 5 788 791 N in UTM Zone 21.
- A 28 m bridge is required to access the ROW at the approximate chainage of 247 + 050 km, exact location of the bridge is 433 777 E, 5 788 783 N in UTM Zone 21.
- A 30 m bridge is required to access the ROW at the approximate chainage of 270 + 700 km, exact location of the bridge is 452 697 E, 5 775 742 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 272 + 700 km, exact location of the bridge is 454 801 E, 5 775 108 N in UTM Zone 21.

Accommodations for this block will be provided at the Contractor provided camps at the approximate chainages of 190 + 000 km and possibly at 305 + 000 km.

The breakdown in quantities is described in Table A.5.

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Table A.5: Block 5 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	21.1	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	31.5	<u>very</u> few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	166.4	
Mulching (30 to 60 m ³ /ha)	ha	127.8	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (>90 m ³ /ha)	ha	0	
Hand cutting (<60 m ³ /ha)	ha	19.6	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	105.3	
Cross drain culverts	Ea.	400	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	121	
Short span bridges (1.5 to 5 m crossings)	Ea.	69	
Long span bridges (>5 m crossings)	Ea.	5	7 m bridge @ 238 + 650 km 23 m bridge @ 246 + 950 km 28 m bridge @ 247 + 050 km 30 m bridge @ 270 + 700 km 7 m bridge @ 272 + 700 km

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Block 6 – 285 + 700 km to 359 + 800 km (Labrador)

Block 6 is approximately 74.1 km long and extends from chainage 285 + 700 km to 359 + 800 km and represents approximately 444.2 hectares. This area can be generally described as having mostly non-merchantable sparse vegetation with very little harvesting, and approximately 100% of the area is either mulching area or no clearing area.

Work in this area will start from chainage 359 + 800 km due to no access from chainage 285 + 750 km. The area will also require significant rock work, including blasting. Company reserves the right to separate the blasting work which would be performed by others.

Nine (9) bridges are required in block 5 to gain access to the ROW:

- A 12.5 m bridge is required to access the ROW at the approximate chainage of 285 + 800 km, exact location of the bridge is 463 937 E, 5 766 120 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 286 + 200 km, exact location of the bridge is 464 305 E, 5 766 110 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 315 + 100 km, exact location of the bridge is 491 356 E, 5 765 298 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 316 + 200 km, exact location of the bridge is 492 437 E, 5 764 868 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 316 + 800 km, exact location of the bridge is 493 024 E, 5 765 050 N in UTM Zone 21.
- A 24 m bridge is required to access the ROW at the approximate chainage of 320 + 600 km, exact location of the bridge is 496 013 E, 5 752 996 N in UTM Zone 21.
- A 12.5 m bridge is required to access the ROW at the approximate chainage of 331 + 500 km, exact location of the bridge is 501 818 E, 5 754 071 N in UTM Zone 21.
- A 7 m bridge is required to access the ROW at the approximate chainage of 340 + 100 km, exact location of the bridge is 504 393 E, 5 746 544 N in UTM Zone 21.
- A 32 m bridge is required to access the ROW at the approximate chainage of 357 + 600 km, exact location of the bridge is 508 206 E, 5 731 271 N in UTM Zone 21.

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Accommodations for this block will be provided at the Contractor provided camps at the approximate chainages of 305 + 000 km and 390 + 000 km.

The breakdown in quantities is described in Table A.6.

Table A.6: Block 6 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	35	Includes open water and wetlands
0 m ³ /ha (minimal effort)	ha	37.3	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	250.0	
Mulching (30 to 60 m ³ /ha)	ha	94.8	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (>90 m ³ /ha)	ha	0	
Hand cutting (<60 m ³ /ha)	ha	27.1	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	94.5	
Cross drain culverts	Ea	370	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	229	
Short span bridges (1.5 to 5 m crossings)	Ea.	148	
Long span bridges (>5 m crossings)	Ea.	9	12.5 m bridge @ 285 + 800 km 7 m bridge @ 286 + 200 km 7 m bridge @ 315 + 100 km 7 m bridge @ 316 + 200 km 7 m bridge @ 316 + 800 km 24 m bridge @ 320 + 600 km 12.5 m bridge @ 331 + 500 km 7 m bridge @ 340 + 100 km 32 m bridge @ 357 + 600 km

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Block 7 – 359 + 800 km to 396 + 264 km (Labrador)

Block 7 is approximately 36.264 km long and extends from chainage 360 + 000 km to 396 + 264 km and represents approximately 218 hectares. This area can be generally described as having mostly non-merchantable sparse vegetation with very little harvesting, and approximately 100% of the area is expected to be either mulched or require no intervention.

Work in this area will start from chainage 384 + 000 km and extend in both directions. The area will also require significant rock work, including blasting. Company reserves the right to separate the blasting work which would be performed by others.

A 47 m bridge is required to gain access to the ROW at the approximate chainage of 385 + 800 km. Exact location of the bridge is 501 830 E, 5 706 399 N in UTM Zone 21.

Accommodations for this block will be provided at the Contractor provided camp at the approximate chainage of 390 + 000 km.

This block may be combined with Block 8 – Labrador Electrode line due to their close proximity.

The breakdown in quantities is described in Table A.7.

Table A.7: Block 7 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	75	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	33	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	103.5	
Mulching (30 to 60 m ³ /ha)	ha	0	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (>90 m ³ /ha)	ha	0	
Hand cutting (<60 m ³ /ha)	ha	6.5	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	48.5	
Cross drain culverts	Ea.	190	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	151	
Short span bridges (1.5 to 5 m crossings)	Ea.	40	
Long span bridges (>5 m crossings)	Ea.	1	47 m bridge @ 385 + 800 km

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Block 8 – Labrador Electrode Line

Block 8 is approximately 16.3 km long and represents approximately 22 hectares. This area can be generally described as primarily mulching with some hand cutting.

Work in this area will start from chainage 383 + 200 km, where the electrode line branches off from the ROW.

The Right-of-Way in this area is generally 10 m wide, except in a localized area where the ROW will be 7.5 m wide for approximately 200 m as directed by the Company Representative.

No bridges are required in this block.

The breakdown in quantities is described in Table A.8.

Table A.8: Block 8 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	0	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	1.0	<u>very</u> few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	15	
Mulching (30 to 60 m ³ /ha)	ha	3.6	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (>90 m ³ /ha)	ha	0	
Hand cutting (<60 m ³ /ha)	ha	2	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Construction	km	13.2	Off-road equipment trails only
Cross drain culverts	Ea.	50	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	2	
Short span bridges (1.5 to 5 m crossings)	Ea.	2	
Long span bridges (>5 m crossings)	Ea.	0	

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Block 9 – 000 + 000 km to 086 + 200 km (Island)

Block 9 is approximately 86.2 km long and extends from chainage 0 + 000 km to 86 + 200 km and represents approximately 518 hectares. This area can be generally described as approximately 2/3 non-merchantable vegetation and 1/3 harvesting. Deep bogs must be considered in planning any mechanical clearing operations.

Three (3) bridges are required in Block 9 to gain access to the ROW:

Two (2) bridges are required to gain access to the ROW at the approximate chainage of 16 + 600 km. One 8 m bridge is required at 519 566 E, 5 673 623 N and a 6 m bridge is required at 522 702 E, 5 676 162 N, both are in UTM Zone 21. A 25 m bridge is required to gain access to the ROW at the approximate chainage of 65 + 900 km. Exact location of the bridge is 516 003 E, 5 636 384 N in UTM Zone 21.

Accommodations for this block may be provided at the Contractor provided camp at the approximate chainage of 43 + 000 km on the island.

Some manual cutting and off-road vehicle use is anticipated for clearing in boggy areas where machine use may be restricted. Construction access in boggy areas will be subsequently established during frozen winter conditions.

Access construction, and clearing, in contiguous upland areas shall be completed prior to 15-Apr-2015.

The breakdown in quantities is described in Table A.9.

Table A.9: Block 9 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	14	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	110	Hand cutting may be required in some areas due to boggy conditions.
Mulching (0 to 30 m ³ /ha)	ha	214.3	
Mulching (30 to 60 m ³ /ha)	ha	21.5	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	17.5	
Mechanical Harvesting (>90 m ³ /ha)	ha	140.5	
Hand cutting (<60 m ³ /ha)	ha	0	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	117	
Cross drain culverts	Ea.	470	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	19	
Short span bridges (1.5 to 5 m crossings)	Ea.	18	
Long span bridges (>5 m crossings)	Ea.	3	8 m bridge @ 16 + 600 km 6 m bridge @ 16 +600 km 25 m bridge @ 65 + 900 km

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Block 10 – 086 + 200 km to 114 + 700 km (Island)

Block 10 is approximately 28.5 km long and extends from chainage 86 + 200 km to 114 + 700 km and represents approximately 170 hectares. This area can be generally described as approximately 3/4 non-merchantable vegetation and 1/4 harvesting.

Two (2) bridges are required in block 10 to gain access to the ROW:

- A 16 m bridge is required to access the ROW at the approximate chainage of 98 + 500 km, exact location of the bridge is 499 469 E, 5 601 885 N in UTM Zone 21.
- A 13 m bridge is required to access the ROW at the approximate chainage of 109 + 100 km, exact location of the bridge is 498 157 E, 5 599 286 N in UTM Zone 21.

Accommodations for this block may be provided at the Contractor provided camps at the approximate chainages of 43 + 000 km and 140 + 000 km on the island.

The breakdown in quantities is described in Table A.10.

Table A.10: Block 10 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	2.4	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	19.7	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	89.5	
Mulching (30 to 60 m ³ /ha)	ha	18.5	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	9.0	
Mechanical Harvesting (>90 m ³ /ha)	ha	31.2	
Hand cutting (<60 m ³ /ha)	ha	0	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	30.5	
Cross drain culverts	Ea.	120	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	4	
Short span bridges (1.5 to 5 m crossings)	Ea.	12	
Long span bridges (>5 m crossings)	Ea.	2	16 m bridge @98 + 500 km 13 m bridge @109 + 100 km

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Block 11 – 114 + 700 km to 147 + 500 km (Island)

Block 11 is approximately 32.8 km long and extends from chainage 114 + 700 km to 147 + 500 km and represents approximately 197 hectares. This area can be generally described as approximately 3/4 non-merchantable vegetation and 1/4 harvesting.

No bridges are required in this block.

Accommodations for this block may be provided at the Contractor provided camp at the approximate chainage of 140 + 000 km on the island.

The breakdown in quantities is described in Table A.11.

Table A.11: Block 11 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	1.3	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	14.9	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	71.0	
Mulching (30 to 60 m ³ /ha)	ha	50.5	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	10.9	
Mechanical Harvesting (>90 m ³ /ha)	ha	48.3	
Hand cutting (<60 m ³ /ha)	ha	0	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	30	
Cross drain culverts	Ea.	120	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	8	Estimate only.
Short span bridges (1.5 to 5 m crossings)	Ea.	3	
Long span bridges (>5 m crossings)	Ea.	0	

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Block 12 – 147 + 500 km to 193 + 700 km (Island)

Block 12 is approximately 46.2 km long and extends from chainage 147 + 500 km to 193 + 700 km and represents approximately 277 hectares. This area can be generally described as having 70% non-merchantable sparse vegetation with 30% harvesting.

Four (4) bridges are required in Block 12 on the ROW or to gain access to the ROW:

- A 15 m bridge is required to access the ROW at the approximate chainage of 151 + 500 km, exact location of the bridge is 477 247 E, 5 266 735 N in UTM Zone 21.
- A 15 m bridge is required on the ROW at the approximate chainage of 154 + 400 km, exact location of the bridge is 476 985 E, 5 564 061 N in UTM Zone 21.
- A 10 m bridge is required to access the ROW at the approximate chainage of 155 + 700 km, exact location of the bridge is 477 884 E, 5 563 083 N in UTM Zone 21.
- A 10 m bridge is required on the ROW at the approximate chainage of 159 + 800 km, exact location of the bridge is 479 427 E, 5 559 353 N in UTM Zone 21.

Accommodations for this block may be provided at the Contractor provided camp at the approximate chainage of 140 + 000 km on the island.

The breakdown in quantities is described in Table A.12.

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Table A.12: Block 12 Estimated Quantities

Activity	Unit	Quantity	Other Info
No Clearing	ha	7.1	Includes open water, wetlands, rock
0 m ³ /ha (minimal effort)	ha	41	very few scattered trees
Mulching (0 to 30 m ³ /ha)	ha	126.5	
Mulching (30 to 60 m ³ /ha)	ha	20.5	
Mulching (60 to 90 m ³ /ha)	ha	0	
Mechanical Harvesting (60 to 90 m ³ /ha)	ha	4.50	
Mechanical Harvesting (>90 m ³ /ha)	ha	77.0	
Hand cutting (<60 m ³ /ha)	ha	0	
Hand cutting (>60 m ³ /ha)	ha	0	
Access Road Construction	km	55.0	
Cross drain culverts	Ea.	220	@ +/- 4 per km
Culvert Installation (1.5 m or less crossings)	Ea.	3	
Short span bridges (1.5 to 5 m crossings)	Ea.	4	
Long span bridges (>5 m crossings)	Ea.	4	15 m bridge @ 151 + 500 km 15 m bridge @ 154 +400 km 10 m bridge @ 155 + 700 km 10 m bridge @ 159 + 800 km

Block 13 Onward – 193 + 700 km to Soldier’s Pond (Island)

Details of the quantity of clearing by density and method, access road construction and water crossing requirements beyond Block 12 and extending to the eastern end of the HVdc transmission line at Soldier’s Pond are currently under study.

CT0327-001

CONSTRUCTION OF 350 kV HVdc Transmission Line

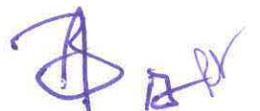
EXHIBIT 1

SCOPE OF WORK

SEE TECHNICAL DOCUMENTATION VOLUME 1, 2 AND 3 PROVIDED SEPERATELY

Exhibit 2
Compensation
Agreement Number: CT0327-001

EXHIBIT 2
COMPENSATION



1.0 GENERAL

- 1.1 Company shall compensate Contractor for the Work, in accordance with the provisions of this Agreement. Subject to any additional compensation pursuant to a Change Order, only those lump sum amounts, unit rates and prices specifically identified in this Exhibit 2 shall be paid by Company to Contractor for the Work and costs not specifically identified in this Exhibit 2 are deemed to be included in such lump sum amounts, unit rates and prices for the Work. Company does not guarantee a minimum or a maximum amount of Work.
- 1.2 All lump sum amounts, unit rates and prices stated in this Exhibit 2 shall be fully inclusive of all amounts, rates and prices for Contractor's performance of the Work and all of its obligations under this Agreement.
- 1.3 No payment in excess of the Contract Price will be made without a formal Change Order to the Agreement.
- 1.4 Invoices shall be issued by Contractor in accordance with Article 12 of the Agreement, Exhibit 2 – Compensation, Exhibit 3 – Coordination Procedures and Exhibit 13 – Provincial Benefits.

2.0 FIXED LUMP SUM

- 2.1 The following provisions in this Section 2 apply only to Work completed on a lump sum basis.
- 2.2 Where applicable, all of the payment items for Work completed on a lump sum basis are stated in Appendix A – Schedule of Price Breakdown of this Exhibit. All such payment items are fixed prices and their aggregate total shall form the fixed lump sum price of this Agreement.
- 2.3 Lump sum items stated in Appendix A – Schedule of Price Breakdown shall include all elements necessary to achieve completion of the item, whether specifically identified, or whether inherent in the Work.
- 2.4 Pursuant to Article 12 of the Agreement, payment for each item shall be on a lump sum basis and shall be made progressively as the Contractor has satisfied the requirements of each payment item.
- 2.5 If required by the Engineer, the Contractor shall submit to the Engineer, before making its application for payment under this Agreement, an Acceptable schedule of values of the various parts of the Work and totalling the full amount of the fixed lump sum price. Such schedule of values shall be a more detailed breakdown of Appendix A - Schedule of Price Breakdown. Subject to the Articles of Agreement and other provisions in this



Exhibit 2, the schedule of values shall be used as a guideline for applications by the Contractor for payment.

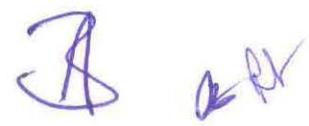
- 2.6 Measurement of any Work items paid on a lump sum basis shall be undertaken on a monthly basis (or as otherwise required by Engineer) by Contractor and submitted to Engineer for Acceptance. Each lump sum price shall be based on Work sub-divided into Payment Milestones, each with its value as specifically identified in this Exhibit 2. Progress achieved against each Payment Milestone and Accepted by Engineer shall form the basis of interim measurement and payment of each lump sum price. Only Accepted lump sum progress or Payment Milestone measurements shall form the basis of invoices of Contractor.

3.0 UNIT PRICES

- 3.1 The following provisions in this Section 3 apply only to Work completed on a unit price basis.
- 3.2 Where applicable, full compensation for unit price Work shall be determined in accordance with the unit prices set forth in Appendix A - Schedule of Price Breakdown of this Exhibit 2, or as otherwise agreed in writing between Company and Contractor (the "Unit Prices").
- 3.3 Any quantities of units estimated are not guaranteed, and payment shall only be for actual quantities of Work installed and not any estimated quantities. There shall be no adjustment of the Unit Prices due to installed quantity variances (increases/decreases) from the estimated quantities.
- 3.4 Measurement of any Work items paid on a unit price basis shall be undertaken on a monthly basis (or as otherwise required by Engineer) by Contractor and Engineer. Such measurement shall form the basis of all progress and final payments for such Work items. Only Accepted unit price measurements shall form the basis of invoices of Contractor.
- 3.5 Unless otherwise specifically stated, all Unit Prices shall be complete and inclusive of all costs required for the Work.

4.0 REIMBURSABLE WORK

- 4.1 The following provisions in this Section 4.0 apply only to Work completed on a reimbursable basis. Contractor shall obtain prior Approval of Company or Engineer before commencing any such Work. Company will not be responsible for any amounts whatsoever in relation to such Work which has not been so Approved prior to its commencement.



- 4.2 Where applicable, full compensation to Contractor for full and complete performance of any Work performed on a reimbursable basis shall be the sum of the following costs (which include mark-ups for all overheads and profit) exclusive of HST:
- (a) Sum of Contractor's Labour Rates, as detailed in Appendix C - Personnel Rate Schedule, multiplied by Accepted hours of Work, detailed on Accepted timesheets;
 - (b) Sum of Contractor's Equipment Rates, as detailed in Appendix D - Equipment Rate Schedule, multiplied by Accepted hours of use, detailed on Accepted timesheets; and
 - (c) pre-Accepted material expenses, travel and mileage expenses, and third party expenses.

Contractor shall advise Engineer in writing when it has expended seventy-five percent (75%) of the total estimated price for such reimbursable Work as stated in this Exhibit 2 or in the absence of a total estimated price for such reimbursable Work, Contractor shall provide monthly reports outlining the costs expended to date.

The labour and equipment rates stated in the Appendices of this Exhibit 2 will not be adjusted for any reason whatsoever except as a result of the issuance of a Change Order by Company.

The Contractor shall not be compensated for any Contractor's Personnel not identified in Appendix C – Personnel Rate Schedule.

- 4.3 When Contractor is requested to purchase materials on a reimbursable basis:
- (a) All actual costs to Contractor for materials supplied for incorporation into the permanent facility to which the Work applies (including those costs related to transportation to the Site) shall be at actual invoiced cost to Contractor (exclusive of HST) as substantiated by invoices certified as paid or by such documentation as may be required by Company, plus a mark-up of nine percent (9%); provided that each consumable, expendable and small tool which costs Contractor less than \$2,000.00 Canadian each, and all consumables, personal protective equipment (PPE), expendables and small tools listed in Appendix C - Personnel Rate Schedule, are included in the rates stated in such Appendix and shall not be further reimbursed by Company.
 - (b) To be eligible for reimbursement, invoicing for third party supplied materials shall be fully supported by Billing Information and any other documentation that Engineer may reasonably require.



- (c) Company reserves the right to provide, at no cost to Contractor, materials, equipment, services, supplies or incidentals required to perform the Work.

4.4 When Contractor is requested to supply equipment on a reimbursable basis:

- (a) All costs of Contractor for Contractor-owned equipment shall be at the rates set forth in Appendix D - Equipment Rate Schedule.
- (b) When Contractor's equipment does not resemble the equipment having rental rates listed in Appendix D - Equipment Rate Schedule, the rate of such equipment shall be determined insofar as it is practical to do so, in accordance with and in the manner provided for in the latest revised edition of the publication of the Government of Newfoundland and Labrador, Department of Works, Services and Transportation, Highway Design Division's Form 1000 entitled "Newfoundland Equipment Rental Schedule" at the time of the Effective Date.
- (c) All costs of Contractor, exclusive of HST, for equipment which is rented from third parties and does not resemble the equipment having rental rates listed in Appendix D - Equipment Rate Schedule must be Accepted prior to rental and shall be at actual cost, including operating and maintenance costs, exclusive of HST, to Contractor, including transportation to the Site, as substantiated by invoices certified paid or by such documentation as may be required by Company, plus a mark-up of nine percent (9%).
- (d) To be eligible for reimbursement, invoicing for third party equipment shall be fully supported by Billing Information and any other documentation that Engineer may reasonably require.
- (e) For reimbursable equipment, Company reserves the right to substitute and provide, at no cost to Contractor, equipment to perform the Work. Contractor shall not be allowed to claim for loss of profit and/or any of its own costs resulting from such substitution by Company.

4.5 When Contractor requires third party services to assist with Work being performed on a reimbursable basis:

- (a) Contractor shall secure pre-Acceptance of any third party services, materials, tools, supplies and consumables that are required for the performance of the Work and are additional to that which is included in Appendix A - Schedule of Price Breakdown, Unit Prices and lump sum amounts, rates and prices outlined herein. Company shall reimburse Contractor for the actual, documented and necessary costs (exclusive of HST) of such materials, tools, supplies, consumables, equipment and/or services.



- (b) All third party services provided by others for performance of the Work which have been previously Accepted shall be at actual cost to Contractor, exclusive of HST, of such third party services plus a mark-up of nine percent (9%).
- (c) Unless otherwise Accepted by Engineer, third party rates plus mark-up shall not exceed Contractor's rates for similar services.
- (d) To be eligible for reimbursement, invoicing for third party services shall be fully supported by Billing Information and any other documentation that Engineer may reasonably require.

4.6 When Contractor requires labour for Work being performed on a reimbursable basis:

- (a) All costs of Contractor for such labour shall be at the rates set forth in Appendix C - Personnel Rate Schedule, which rates include a mark-up for overhead and profit of nine percent (9%). Contractor represents that such rates includes such mark-up.
- (b) All costs of Contractor, exclusive of HST, for labour that does not resemble that which is listed in Appendix C - Personnel Rate Schedule must be Accepted prior to the engagement of such labour and shall be at actual cost, exclusive of HST, to Contractor, as substantiated by Accepted time sheets or by such documentation as may be required by Company, plus a mark-up of nine percent (9%).
- (c) To be eligible for reimbursement, invoicing for such labour shall be fully supported by Billing Information and any other documentation that Engineer may reasonably require.

4.7 In relation to Contractor's unionized employees deployed at the Site under this Agreement, any and all costs, exclusive of HST, relating to Contractor provided:

- (a) air transportation;
- (b) travel allowance; and
- (c) board (but only to the extent that accommodations are not available at Site for such employees);

will be compensated in accordance with the applicable labour agreement between Contractor and its employees relating to the Site, as pass through expenses without any mark-up for administration, overhead and/or profit. Contractor shall not be compensated for any other items, costs or expenses in relation to Contractor's Personnel.

4.8 For all Work carried out on a reimbursable basis, Contractor shall prepare time sheets for all Personnel, equipment, material and third party services assigned to the

performance of the Work which will be provided daily to the Engineer for Acceptance. Copies of time sheets shall accompany all Contractor invoices.

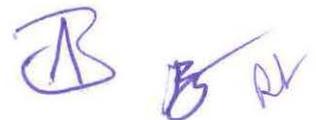
- 4.9 When Contractor uses materials, equipment and/or services of any of its Affiliates or any Person with which Contractor has a non-arm's length relationship (including but not limited to common ownership, subsidiary, strategic partner or licensee) to undertake reimbursable Work, then the Contractor shall be entitled to charge Company the actual documented base cost of such Affiliate or Person (as the case may be) for such materials, equipment and/or services, subject to the removal of any element of overhead and/or profit, plus a mark-up of nine percent (9%).
- 4.10 For all Work carried out on a reimbursable basis and to be performed by third party suppliers or service providers, Contractor shall solicit a minimum of three bids for material purchases of \$25,000.00 Canadian and greater. Contractor shall select the qualified bidder with the lowest bid unless otherwise directed and/or Accepted by Engineer. Contractor's procurement process shall be subject to Acceptance. At Engineer's request, all received bids and bid evaluation information, including Contractor's award recommendation, shall be made available to Engineer prior to award.

5.0 CHANGES

Compensation for a Change shall be determined in accordance with the Articles of Agreement, this Exhibit 2 and Exhibit 3 – Coordination Procedures. Rates and prices outlined in Appendix A - Schedule of Price Breakdown, Appendix C - Personnel Rate Schedule and Appendix D - Equipment Rate Schedule of this Exhibit 2 will apply for both increases and decreases in the Work.

Where any Work relating to a Change is performed without agreement between Company and Contractor on a price for such Work:

- (a) the adjustment to the Contract Price shall be in accordance with the provisions of the Articles of this Agreement; and
- (b) for the purpose of Article 14.10(b)(i) of this Agreement, the allowance referenced therein shall be the total of:
- (i) the percentage amount stated in Section 4.3(a) for purchased materials;
 - (ii) the percentage amount stated in Section 4.4(c) for supplied equipment;
 - (iii) the percentage amount stated in Section 4.5(b) for third party services;
 - (iv) the percentage amount stated in Section 4.6(b) for labour;
- but only if, and to the extent that, purchased materials, supplied equipment, third party services and/or labour are required for such Change Work and Approved by Company.



6.0 STANDBY TIME

When the Work is suspended pursuant to Article 28 or Company requires Contractor to standby pursuant to Article 29.7, or there is a Change that both requires an extension to a Milestone date and results in Contractor's equipment being idle during the length of the extension, the following provisions will apply:

- (a) Where it is necessary to retain the equipment in the Work area at Site for extended periods as Approved by Company, Company will pay Contractor for stand-by time as follows:
 - (i) for equipment, other than rented equipment and operated rented equipment, at fifty percent (50%) of the applicable rate stated in Appendix D - Equipment Rate Schedule; and
 - (ii) for rented equipment and operated rented equipment, at one hundred percent (100%) of the lessor's invoice price.
- (b) Contractor shall prepare daily time sheets for all labour and equipment assigned to the performance of the Work, which will be reviewed, and if Accepted, signed by the Engineer. Copies of time sheets shall accompany all Contractor invoices.
- (c) Payment for such standby will be limited to not more than eight hours in a twenty-four hour day or forty hours in a week.

Notwithstanding the above, no compensation will be allowed for equipment that is inoperable due to breakdown, unavailability or the like. No payment will be allowed for equipment that is not operating because the Work has been delayed or suspended by Contractor for its own reasons.

7.0 MONTHLY PAYMENT FORECAST SCHEDULE

Appendix B - Monthly Payment Forecast Schedule of this Exhibit 2 includes the Monthly Payment Forecast Schedule provided by Contractor. Company will pay the Contractor monthly for actual progress achieved which shall be accompanied by all relevant supporting documentation as Company or Engineer may require to verify completion of the progress.

8.0 PROJECT LABOUR AGREEMENT

Special Project Orders ("SPO's") have been enacted relating to the LCP. A Collective Agreement between the Lower Churchill Transmission Construction Employers' Association Inc. and the International Brotherhood of Electrical Workers, IBEW Local 1620 ("Project Labour Agreement" or "PLA"), is included in Exhibit 11 - Company Supplied Documents, as well as a summary of its key provisions. If there is a conflict between such summary and the PLA, the PLA shall prevail.



The Contractor shall be bound to the terms of the PLA for the duration of its Work under the PLA, become a member of the applicable Project Employers' Association and name at least one (1) staff person to be responsible for daily labour relations matters at the Site. Prior to working at Site, all Contractor's Personnel will be required to attend an LCP Site orientation session that includes: health, safety and environment obligations; human resources policies, including respectful workplace, cultural sensitivity, gender equity and diversity; and labour relations, including PLA overview, Site standards, corrective action and dispute resolution.

9.0 PERFORMANCE SECURITY

Contractor shall provide the following performance security in respect of Contractor's obligations under this Agreement, in the form and with the content set out in Exhibit 14 – Performance Security: the Parent Guarantee and letter of credit in accordance with Article 7 of this Agreement.

10.0 LIQUIDATED DAMAGES

If Contractor fails to deliver that part of the Work to achieve any of the following Milestones (as stated in this Section 10.0) by the date specified for such Milestone as stated in this Section 10.0, Contractor shall pay Company as liquidated damages the full amount stipulated for that Milestone for each day, including any part thereof, of the delay of that Milestone, from the date the delay commenced to the date the Milestone is achieved, subject to the liability limit referred to in Article 26.1 of this Agreement, unless the failure to achieve the Milestone is due to an event of Force Majeure.

- (a) The scheduled date of Substantial Completion is 30 June 2017.
- (b) If Contractor achieves Substantial Completion within 15 days from the scheduled date of Substantial Completion (the "Expiry of the Grace Period"), no liquidated damages will apply.
- (c) If Contractor achieves Substantial Completion between 16 and 45 days inclusive after the scheduled date of Substantial Completion (July 16, 2017 to August 15, 2017 inclusive), Contractor shall pay Company as liquidated damages \$350,000 CDN for each day of such failure after the Expiry of the Grace Period.
- (d) If Contractor achieves Substantial Completion 46 days after the scheduled date of Substantial Completion (August 16, 2017), or later, Contractor shall pay Company as liquidated damages \$750,000 CDN for each day of such failure.

11.0 RIGHT OF WAY (ROW) CLEARING AND ACCESS WORKS – GENERAL

11.1 The Parties agree to work in a collaborative fashion to reduce the overall cost of the Right-of-Way (ROW) Clearing and Access Works (the "ROW Clearing and Access Works" as defined under Section 2.5 of Exhibit 1 - Scope of Work (Part B: ROW Clearing and Access Works), and leverage the respective experience of each Party. Section 2.5 of

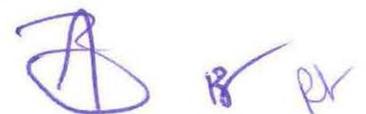


Exhibit 1 – Scope of Work (Part B: ROW Clearing and Access Works) describes the scope of this Work. The contracting approach and commercial model for this Work is further defined herein.

11.2 Scope

The rates, prices and quantities for the ROW Clearing and Access Works are stated in the Appendices of this Exhibit 2. The total amount of such rates and prices constitute the “ROW Clearing and Access Works Baseline Dollar Amount”, and such amount is stated in Section 11.6.6 herein. The ROW Clearing and Access Works Baseline Dollar Amount excludes the Contract Price for Work related to Section 2.4 of Exhibit 1 - Scope of Work (Part A: Line Construction Works). The ROW Clearing and Access Works Baseline Dollar Amount shall be payment for only the ROW Clearing and Access Works.

11.3 Joint Cost Savings Initiative

The Parties agree that there are significant achievable efficiencies and cost savings in the procurement and execution of the ROW Clearing and Access Works, resulting in a reduction of the ROW Clearing and Access Works Baseline Dollar Amount.

Engineer and Contractor will work collaboratively to define the preferred execution approach for ROW Clearing and Access Works, including evaluating all viable options inclusive of Contractor performing the ROW Clearing and Access Works, use of third party clearing and access contractors (the “ROW Clearing and Access Contractors”), or other commercial alternatives in order to reduce the cost of the ROW Clearing and Access Works Baseline Dollar Amount.

Engineer and Contractor will evaluate timber density in order to optimize clearing methods and techniques (i.e. full harvest versus mulch) so as to reduce the aggregate price below the initial estimate of approximately seventeen thousand five hundred Canadian Dollars (\$17,500 CDN) per hectare upon which the ROW Clearing and Access Works Baseline Dollar Amount was determined.

Engineer and Contractor will work to reduce the total amount of fit-for-purpose access road required from the estimate of approximately one thousand one hundred and thirty (1,130) kilometers of Class C1 access road construction and resolve the aggregate price below the initial estimate of eighty thousand seven hundred Canadian Dollars (\$80,700 CDN) per kilometer upon which the ROW Clearing and Access Works Baseline Dollar Amount was determined.

Engineer and Contractor shall share their market knowledge to facilitate the process of selection of the ROW Clearing and Access Contractors and, as required, during project execution in a joint effort of securing the most efficient and cost effective contractors. These ROW Clearing and Access Contractors are Company’s Other Contractors.



As detailed in Section 2.5 of Exhibit 1 – Scope of Work, Contractor shall be responsible for the overall management for fully completing the ROW Clearing and Access Works as required to support the transmission line construction.

Engineer, with Contractor's support, shall be responsible for the issuance of the ROW Clearing and Access Works contracts in Company's name, and contract administration including change orders and payment of Company Approved ROW Clearing and Access Works Contractors' invoices.

ROW Clearing and Access Contractors shall submit their payment certificates for the performance of their work to Engineer. Engineer and Contractor shall review the payment certificates and supporting documentation within the earlier of 10 Business days or within the time specified in the applicable contracts with the ROW Clearing and Access Contractors, and Contractor shall certify the amount payable by Company to the ROW Clearing and Access Contractors based on progress and compliance with the requirements of the ROW Clearing and Access Works contracts.

In order to realize cost savings on the ROW Clearing and Access Works Baseline Dollar Amount which will be shared in accordance with this Exhibit 2, the Parties will cooperate as further set forth in this Exhibit 2 (including on such tasks as design and execution approach optimizations, and responsibility assignment) in order to achieve a target seventy three million Canadian Dollars (\$73,000,000 CDN) cost reduction.

11.4 ROW Clearing and Access Contractor Selection

11.4.1 Optimization of Responsibility of the ROW Clearing and Access Contractors

As set out in Section 2.5 of Exhibit 1 – Scope of Work, Contractor shall perform the duties of a general contractor for ROW Clearing and Access Contractors, synergizing against the planning infrastructure, services, capacity and capability required for the Contractor to perform Part A - Line Construction Works (as described in Section 2.4 of Exhibit 1 - Scope of Work).

The Parties shall agree on the scope of work, including roles and responsibilities, of the ROW Clearing and Access Contractors, which shall be included as part of the request for proposal ("RFP") to be issued to such potential contractors for the ROW Clearing and Access Works.

11.4.2 Form of RFP's for ROW Clearing and Access Works

The Parties shall agree on the form of RFP to be issued to potential contractors for the ROW Clearing and Access Works. The form of agreement included with the RFP shall be in Company's standard form, with any necessary modifications as required by the Parties to reflect the results of optimization of roles and responsibilities of the ROW Clearing and Access Contractors.



Engineer shall issue the agreed RFPs to all such potential contractors that are agreed as pre-qualified by Engineer and Contractor.

11.4.3 Evaluation and Award to ROW Clearing and Access Contractors

Upon receipt of proposals from bidders in response to the RFP for the ROW Clearing and Access Works, the Parties shall jointly evaluate such proposals in accordance with Engineer's protocols and jointly come to an agreement as to which bidder(s) shall be selected as ROW Clearing and Access Contractors.

The Parties shall agree on the preferred bidder for each Block, as described in Exhibit 1 – Scope of Work, relating to the ROW Clearing and Access Works and Engineer shall negotiate, with input from Contractor, the final form of the ROW Clearing and Access Works contract with the preferred bidder.

All ROW Clearing and Access Works contracts shall be reviewed by both Parties prior to execution by Company.

11.4.4 Exercising Option of Contractor Self-Performing ROW Clearing and Access Works

Subject to the results of the joint cost savings initiative referenced in Section 11.3 above, Contractor may propose to Engineer the option to execute portions of the ROW Clearing and Access Works if Contractor believes that such a proposal would assist in achieving the targeted cost reduction of seventy three million Canadian Dollars (\$73,000,000 CDN). For such portion of the ROW Clearing and Access Works, Contractor shall present a proposal to the Engineer for review and discussion, including a proposed compensation framework for the work (i.e. unit rate or reimbursable time and materials, etc.). Engineer shall review Contractor's proposal and have the option to Accept such proposal, however Engineer shall not unreasonably withhold such Acceptance.

In the event such an option is exercised:

- (a) compensation for such work shall be in accordance with the rates and provisions of Appendix C - Personnel Rate Schedule and the Clearing and Access Equipment Rate Schedule contained in Appendix D - Equipment Rate Schedule of this Exhibit 2, or the Parties may otherwise agree to compensation based upon a unit rate or lump sum basis; and
- (b) a Change Order will be issued incorporating such compensation and the applicable Milestone for such work in Exhibit 9 - Schedule.

Contractor's price for any proposal for ROW Clearing and Access Works shall reflect a profit margin of no greater than 9%.




11.5 Post Award Obligations

11.5.1 Company's and Engineer's Obligations On Award of Contracts for ROW Clearing and Access Works

Company shall enter into each contract for the ROW Clearing and Access Works in Company's name in a timely manner and in accordance with any quantities agreed by the Parties during the evaluation of proposals in accordance with Section 11.3 above.

Company shall be solely responsible for the payment of such ROW Clearing and Access Contractors and bear the sole risk and responsibility for the removal of any liens placed upon Company's property by such ROW Clearing and Access Contractors.

Engineer shall assume the overall responsibility for administration of the agreements with the ROW Clearing and Access Contractors, using the field management support of the Contactor.

Engineer will augment Contractor's organization for management and execution of the ROW Clearing and Access Works by providing field supervision and management Personnel under Contractor's direction and control.

11.5.2 Contractor's Obligations On Award of Contracts for ROW Clearing and Access Works

Contractor shall retain the overall responsibility for the management and execution of the ROW Clearing and Access Works in accordance with this Agreement, including safety, environment, cost, schedule and quality control management during construction.

Contractor shall coordinate, manage and supervise all construction activities by ROW Clearing and Access Contractors for the performance of the ROW Clearing and Access Works. Unless otherwise Accepted by Engineer, Contractor will use and follow the contract administration processes and tools for ROW Clearing and Access Works contracts as are used by the Engineer for administration of this Agreement. Contractor shall keep such records and accounts, and furnish such reports and information, relative to the execution of the ROW Clearing and Access Works as Company may reasonably request in accordance with the terms of this Agreement.

Contractor shall ensure that the construction performed by each ROW Clearing and Access Contractor shall be in compliance with:

- (a) Such contractor's scope of work issued by Engineer for the ROW Clearing and Access Works contracts;
- (b) the standards for environmental, health and safety requirements set out in this Agreement and in the ROW Clearing and Access Works contracts; and
- (c) the Technical Requirements and quality requirements of this Agreement.



Compensation for Contractor's Personnel performing management of the ROW Clearing and Access Works shall be in accordance with the rates and provisions of Appendix C - Personnel Rate Schedule of this Exhibit 2.

As described in Exhibit 1 – Scope of Work, Contractor shall provide indirect support services to ROW Clearing and Access Contractors. Compensation for such services shall be in accordance with the rates and provisions of Appendix C - Personnel Rate Schedule and the Clearing and Access Equipment Rate Schedule contained in Appendix D - Equipment Rate Schedule of this Exhibit 2.

11.5.3 Guiding Principles During Execution

The following principles shall provide guidance during execution of the ROW Clearing and Access Works:

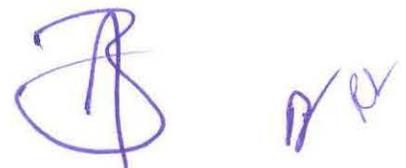
- Adherence to LCP values is mandatory;
- ROW Clearing and Access Works must enable Line Construction Works;
- Parties will be mutually collaborative and supportive;
- Work towards the common good of the LCP (i.e. the LCP comes first);
- Leverage collective team experiences and knowledge base in order to develop solutions to challenges;
- Ownership and accountability is a key responsibility for all team members;
- Respect the organizational structure which is established for management and control of the work;
- Practice real-time field decision making with good follow-up communication;
- A level of field decision authority under clearly established limits of authority is key in order to achieve potential cost savings;
- Field decisions shall have a documented rationale that anchors back to the objectives of the joint cost savings initiative referenced in Section 11.3 above;

11.6 Cost Savings Sharing

11.6.1 Performance Incentive Eligibility

Contractor is eligible to receive a performance incentive ("Performance Incentive") in recognition of positive outcomes of the collaborative efforts to reduce the cost of the ROW Clearing and Access Works Baseline Dollar Amount.

The Performance Incentive payable to Contractor will be calculated as a share of the savings below the ROW Clearing and Access Works Baseline Dollar Amount (as referenced in Section 11.2), once the ROW Clearing and Access Works' final cost ("Final Cost") is calculated.



Conditions of eligibility for payment of a Performance Incentive are:

- (a) Final Cost is less than the ROW Clearing and Access Works Baseline Dollar Amount;
- (b) ROW Clearing and Access Works proceeds with no impact on the completion dates contained in Exhibit 1 - Scope of Work and Exhibit 9- Schedule; and
- (c) No occupational fatalities in performing or managing the ROW Clearing and Access Works for either of Contractor's Personnel, Engineer's Personnel or the Personnel of Company's Other Contractors associated with this Agreement.

11.6.2 Determination of Final Cost and Performance Incentive

Engineer, with Contractor's input and for the purpose of calculating the Performance Incentive, will determine Final Cost at the date of Substantial Completion.

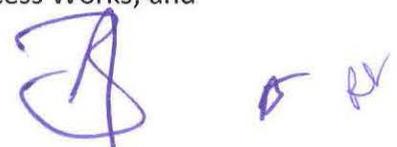
Performance Incentive shall be determined in the following manner:

- (a) Where the Final Cost is determined to be less than the ROW Clearing and Access Works Baseline Dollar Amount stated in Section 11.6.6, Company shall pay Contractor a Performance Incentive equal to twenty-five percent (25%) of such savings.
- (b) Where the Final Cost is determined to equal or exceed the ROW Clearing and Access Works Baseline Dollar Amount stated in Section 11.6.6, there shall be no Performance Incentive paid by Company to Contractor.

11.6.3 Calculation of Final Cost of ROW Clearing and Access Works

The Final Cost shall be the total of:

- (a) the total actual Contract Price and amounts paid by Company for all of the ROW Clearing and Access Works,
- (b) all actual amounts paid by Company to the ROW Clearing and Access Contractors;
- (c) the total of any amounts paid by Company to any Personnel hired or retained by Company after the Effective Date who are required for the ROW Clearing and Access Works and Approved by the Parties;
- (d) All Company Approved costs for Engineer's management staff and field supervision as required for management of the ROW Clearing and Access Works, including overhead, travel, vehicles, and any other associated oversight costs and expenses;
- (e) All Company Approved costs associated with ROW and access survey and field layout by Engineer and/or Company's Other Contractors;
- (f) All Company Approved costs associated with helicopter support provided by Company's Other Contractors for the ROW Clearing and Access Works; and



- (g) All costs associated with bridges, culverts and other temporary infrastructure works purchased by Company specifically for the ROW Clearing and Access Works.

Engineer, with Contractor's input, will collect, consolidate and report to the Parties all of the above costs and amounts associated with the ROW Clearing and Access Works on a monthly basis.

If there is any Dispute regarding eligibility of items for the determination of Final Cost, such Dispute shall be resolved under Article 30 of this Agreement.

11.6.4 Eligibility of Contractor's Final Cost Items in support of ROW Clearing and Access Works

All of Contractor's costs eligible to be included as part of the Final Cost shall be pre-Approved by Company in accordance with the provisions of Section 4.0 (Reimbursable Work) of this Exhibit 2.

For all portions of the ROW Clearing and Access Works performed by Contractor, all Contractor's costs eligible to be included as part of the Final Cost shall be subject to the Acceptance of Engineer in accordance with the other provisions of this Exhibit 2 and reported by Engineer to the Parties on no less than a weekly recurring basis in a format Accepted by Engineer.

11.6.5 Savings Calculated on ROW Clearing and Access Works Baseline Dollar Amount

For the avoidance of doubt, the savings referenced in Section 11.6.2 above shall be calculated on the overall ROW Clearing and Access Works Baseline Dollar Amount and not on an individual contract basis.

11.6.6 ROW Clearing and Access Works Baseline Dollar Amount

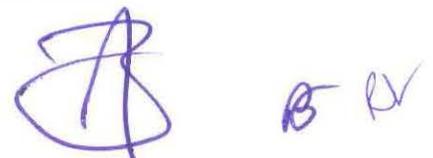
For the purposes of calculating the Performance Incentive, the ROW Clearing and Access Works Baseline Dollar Amount is CDN \$237,646,247.

11.6.7 ROW Clearing and Access Works Baseline Dollar Amount - Inclusions

The following is a summary of the costs of work that comprises the ROW Clearing and Access Works Baseline Dollar Amount.

The ROW Clearing and Access Works Baseline Dollar Amount includes the costs of the following work as detailed in the Agreement:

- (a) Clearing of the approximately one thousand and eighty (1,080) kilometers long, sixty (60) meters wide ROW including all temporary access trails;



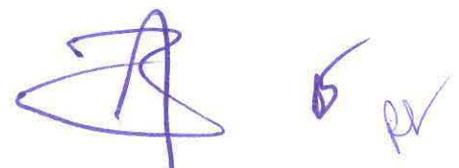
- (b) Construction of approximately one thousand one hundred and thirty (1,130) kilometers of Class C1 access roads to enable transmission line construction;
- (c) Supply, installation and removal (unless notified otherwise by Engineer) of culverts and bridges required for access road construction;
- (d) Supply and operation of all supporting in-direct services including accommodation nights, inclusive of required services fuel dispensing, medical / emergency response services, site offices, telecoms and IT services to ROW Clearing and Access Works contractors;
- (e) Completing of ROW and access survey and flagging;
- (f) Construction management by Contractor, including Personnel costs inclusive of support services (e.g. vehicles, travel, rotational travel, incidentals) and related expenses (including mobilization/demobilization);
- (g) Light vehicle fleet required for construction management of the ROW Clearing and Access Works;
- (h) Incremental costs on Part A – Line Construction Works scope, as required, for the supply and installation of temporary site facilities and utilities for the civil works construction and installation periods for the ROW Clearing and Access Works contractors, including site offices, storage, laydown area, construction power and auxiliary power to temporary facilities, security, communication, water and electricity, and any other associated oversight costs and expenses;
- (i) Fit-for-purpose access road maintenance and snow clearing during access construction;
- (j) Temporary travel and safety signage and flagging; and
- (k) Helicopter costs for field reconnaissance.

11.6.8 ROW Clearing and Access Works Baseline Dollar Amount - Exclusions

The costs of the following work is excluded from the ROW Clearing and Access Works Baseline Dollar Amount and the calculation of the Final Cost.

Contractor shall be responsible for all other activities not specifically identified above including the following:

- (a) Construction of crane pads, laydown areas, and stringing sites required for line construction;
- (b) Camp mobilization and supply and installation of supporting utilities, including set-up, operation, repair, and demobilization;
- (c) Costs associated with acquiring permits for the installation and operation of camp and utilities;
- (d) Mobilization and operation of camp service providers;
- (e) Mobilization costs for emergency response equipment and Personnel;
- (f) Mobilization costs for construction fleet used in support of Scope of Work – Part B – ROW Clearing and Access Works, but otherwise planned for use in Scope of Work – Part A – Line Construction Works; and



- (g) Supply of all furniture, equipment, materials and tools needed for operation of the temporary facilities for Contractor.

12.0 ESCALATION

Each of Part A and Part B of the Contract Price (as identified in Appendix A - Schedule of Price breakdown), as of the Effective Date, shall be subject to escalation as follows:

12.1 General

- (a) "Escalation" means the amount by which Part A Contract Price will be adjusted (either upwards or downwards) for variations in the cost of only Trade Labour and fuel (diesel, gasoline and propane), and means the amount by which the Part B Contract Price will be adjusted (either upwards or downwards) for variations in the cost of only fuel (diesel, gasoline, and propane), as the case may be. Escalation for all other items is already included in the Contract Price.

- (b) "Trade Labour" means labour provided under the Project Labour Agreement.

- (c) Escalation Period:

Escalation will be calculated for each month of the calendar year, hereinafter referred to as the "Escalation Period". For fuel, the first such Escalation Period shall be the calendar month starting on September 1, 2014. In the case of Trade Labour, the first such Escalation Period shall be the calendar month starting on May 1, 2015.

12.2 Escalation Calculation for Trade Labour

Escalation for Trade Labour shall be calculated for a particular Escalation Period using the following formula:

$$EL_L = [MH1 \times (A_{PLA} \times A_{Burdens} \times A_{Mark-up})] + [MH2 \times 1.5 \times (A_{PLA} \times A_{Burdens} \times A_{Mark-up})] + [MH3 \times 2 \times (A_{PLA} \times A_{Burdens} \times A_{Mark-up})]$$

In which:

EL_L = Escalation for Trade Labour, calculated for the particular Escalation Period, expressed in Canadian Dollars.

MH1 = Actual total number of regular time person-hours of Trade Labour expended by Contractor and Contractor's sub-contractors during the particular Escalation Period.

MH2 = Actual total number of overtime person-hours at 1.5 times the regular rate of pay of Trade Labour expended by Contractor and Contractor's sub-contractors during the particular Escalation Period.

MH3 = Actual total number of overtime person-hours at 2 times the regular rate of pay of Trade Labour expended by Contractor and Contractor's sub-contractors during the particular Escalation Period.

A_{PLA} = represents annual total increases in the Gross Hourly Rates (as identified in Schedule "C" - Gross Hourly Packages of the Project Labor Agreement) during the Escalation Period, commencing May 1, 2015, expressed in Canadian Dollars. The increases are as follows:

- May 1, 2015 - \$2.00 over 2014 rates
- May 1, 2016 - \$4.50 over 2014 rates
- May 1, 2017 - \$6.50 over 2014 rates

$A_{Burdens}$ = represents labour cost adjustment for government burdens. This percentage amount shall be determined based on legislative government burdens at the start of each calendar year.

$A_{mark-up}$ = 9.0%, which represents labour cost adjustment for Contractor mark-up. This percentage amount shall be fixed for the Term.

12.3 Escalation of Cost of Fuel)

Escalation for fuel shall be calculated using the following formula:

$$EL_F = [H - (h \times P_b)]$$

In which:

EL_F = Escalation for fuel, calculated for the particular Escalation Period, expressed in Canadian Dollars.

H = Actual total cost of only the fuel purchased by Contractor exclusively for the particular Work during the particular Escalation Period, expressed in Canadian Dollars.

h = actual total number of litres of fuel purchased by Contractor exclusively for the particular Work during the particular Escalation Period.

P_b = Base Index Number for fuel (FOB Contractor's site); for diesel and gasoline = \$CAD 1.37/litre, for propane = \$CAD 0.729/litre, which shall be fixed for the Term.

12.4 Escalation shall not apply after the Milestone Date for Substantial Completion as stated in Exhibit 9 - Schedule.

Exhibit 2 – Appendix A
Schedule of Price Breakdown
Agreement Number CT0327-001

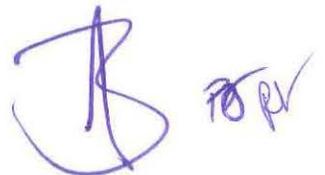
SCHEDULE OF PRICE BREAKDOWN



Exhibit 2 Appendix A
Schedule of Price Breakdown
Agreement Number: CT0327-001

Part A Contract Price Summary

Segments 1 & 2	\$317,708,594.84
Segment 3	\$178,040,088.88
Segments 4 & 5	<u>\$313,499,817.46</u>
Total Contract Price of Part A of this Schedule of Price Breakdown	<u>\$809,248,501.18</u>

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LOWER CHURCHILL PROJECT CT0327 CONSTRUCTION OF 350kV HVdc TRANSMISSION LINE: SEGMENT 1

SEGMENT 1 AND 2

Rev 00, 07 August 2014

SCHEDULE OF PRICE BREAKDOWN

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Manhours(hrs)	Equipment(\$)	Material (\$)	Labour(\$)	Total Unit Price(\$)	Subtotal Price (\$)	
S1-A General Works (S1-Ax)										
Mobilization and Demobilization										
S1-A1	Initial Mobilization	LS	1		\$ -	\$ -	\$ -	\$ 7,480,015.02	\$ 7,480,015.02	
S1-A2	Final Demobilization	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced	
Accommodation Camp										
S1-A3	Accommodation Camp Installation	LS	1		\$ 6,847.39	\$ 1,901,624.10	\$ 5,414,309.76	\$ 2,730,340.67	\$ 10,046,274.53	
S1-A4	Boarding and Lodging for Company/Engineer with 3 meals per day	person-day	24,000		\$ 38,602.29	\$ 1,818,000.00	\$ 775,680.00	\$ 2,729,280.00	\$ 221.79	
S1-A5	Meals for Company/Engineer visitors	meal	2,000		\$ 536.25	\$ 25,260.00	\$ 10,780.00	\$ 37,920.00	\$ 36.98	
Performance Security										
S1-A6	Parent Guarantee Article 7.4	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-A7	Letter Of Credit Article 7.6	LS	1		\$ -	\$ -	\$ -	\$ 1,534,386.86	\$ 1,534,386.86	
S1-A8	Performance Bonding Article 7.1	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-A9	Labour and Materials Bonding Article 7.2	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced	
Survey Cost										
S1-A10	Survey Cost	LS	1		\$ 1,536.95	\$ 1,719,175.75	\$ 85,958.79	\$ 1,060,158.37	\$ 2,865,292.91	
Sub-total (S1-Ax): General Works					45,985.93	\$ 3,744,884.10	\$ 6,200,769.76	\$ 5,497,540.67	\$ 19,060,935.18	\$ 27,322,889.32
S1-B Right-of-Way Clearing - Direct Costs (S1-Bx)										
Right-Of-Way Clearing										
S1-B1	ROW Clearing	Ha	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B2	Removal of selected danger trees	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B3	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B4	Supply and Installation of Bridge - 3 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B5	Supply and Installation of Bridge - 4 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B6	Supply and Installation of Bridge - 5 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B7	Supply and Installation of Bridge - 6 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B8	Supply and Installation of Bridge - 7 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B9	Supply and Installation of Bridge - 8 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B10	Supply and Installation of Bridge - 10 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B11	Supply and Installation of Bridge - 13 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B12	Supply and Installation of Bridge - 14 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B13	Supply and Installation of Bridge - 15 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B14	Supply and Installation of Bridge - 16 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B15	Supply and Installation of Bridge - 25 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B16	Supply and Installation of Bridge - 35 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B17	Supply and Installation of Bridge - 50 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B18	Supply and Installation of Bridge - 60 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B19	Supply and Installation of Bridge - 65 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B20	Installation of Corduroy Road	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B21	Installation of Access Road - Access Class 3	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B22	Installation of Access Road - Access Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B23	Installation of Access Road - Bypass Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B24	Installation of Access Road - Winter	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
Sub-total (S1-Bx) : Right-of-Way Clearing - Direct Costs					-	\$ -	\$ -	\$ -	\$ -	\$ -
S1-B Right-of-Way Clearing for Wood Pole Electrode Line- Direct Costs (S1-Bx)										
Right-Of-Way Clearing										
S1-B25	ROW Clearing	Ha	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B26	Removal of selected danger trees	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B27	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B28	Supply and Installation of Bridge - 3 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B29	Supply and Installation of Bridge - 4 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B30	Supply and Installation of Bridge - 5 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B31	Supply and Installation of Bridge - 6 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B32	Supply and Installation of Bridge - 7 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B33	Supply and Installation of Bridge - 8 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B34	Supply and Installation of Bridge - 10 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B35	Supply and Installation of Bridge - 13 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B36	Supply and Installation of Bridge - 14 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B37	Supply and Installation of Bridge - 15 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B38	Supply and Installation of Bridge - 16 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B39	Supply and Installation of Bridge - 25 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B40	Supply and Installation of Bridge - 35 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B41	Supply and Installation of Bridge - 50 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B42	Supply and Installation of Bridge - 60 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B43	Supply and Installation of Bridge - 65 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B44	Installation of Corduroy Road	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B45	Installation of Access Road - Access Class 3	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B46	Installation of Access Road - Access Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-B47	Installation of Access Road - Bypass Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced	
Sub-total (S1-Bx) : Right-of-Way Clearing for Wood Pole Electrode Line - Direct Costs					-	\$ -	\$ -	\$ -	\$ -	\$ -
S1-C Tower Foundation Construction (S1-Cx)										
Guy Wire Anchors										
S1-C1	Installation of Guy Wire Anchor in soil as per design drawings and technical specification	LM	31,919		\$ 92,549.78	\$ 4,539,520.18	\$ 1,642,870.93	\$ 8,639,196.54	\$ 464.35	
S1-C2	Installation of Guy Wire Anchor in rock as per design drawings and technical specification	LM	30,806		\$ 82,932.78	\$ 4,052,221.24	\$ 1,422,004.96	\$ 7,728,301.22	\$ 428.57	
S1-C2	Testing of Guy Wire Anchor up to 550kN as per design drawings and technical specification	Ea	2,924		\$ 8,293.45	\$ 1,254,980.80	\$ -	\$ 1,890,102.84	\$ 1,075.61	
S1-C2	Testing of Guy Wire Anchor up to 900kN as per design drawings and technical specification	Ea	1,664		\$ 4,719.67	\$ 714,188.80	\$ -	\$ 1,075,626.24	\$ 1,075.61	
Grillage Foundations										
S1-C3	Assembly and Installation of Foundation Types A1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1.	EA	36		\$ 2,293.71	\$ 248,415.12	\$ 4,996.08	\$ 344,046.96	\$ 16,596.06	
S1-C4	Assembly and Installation of Foundation Types A2-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2.	EA	20		\$ 1,900.56	\$ 200,456.40	\$ 4,672.00	\$ 285,817.60	\$ 24,547.30	
S1-C5	Assembly and Installation of Foundation Types A3-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3.	EA	2		\$ 156.71	\$ 16,750.50	\$ 375.70	\$ 23,530.42	\$ 20,328.31	
S1-C6	Assembly and Installation of Foundation Types A4-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4.	EA	0		\$ -	\$ -	\$ -	\$ -	\$ 24,560.00	
S1-C7	Assembly and Installation of Foundation Types B1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1.	EA	2		\$ 216.87	\$ 22,790.28	\$ 536.78	\$ 32,634.00	\$ 27,980.53	
S1-C8	Assembly and Installation of Foundation Types B2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2.	EA	20		\$ 2,009.22	\$ 217,269.20	\$ 4,450.80	\$ 301,477.20	\$ 26,159.86	
S1-C9	Assembly and Installation of Foundation Types A1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1.	EA	197		\$ 9,115.13	\$ 991,085.33	\$ 12,452.37	\$ 1,368,194.55	\$ 12,039.25	
S1-C10	Assembly and Installation of Foundation Types A2-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2.	EA	109		\$ 8,246.40	\$ 900,877.37	\$ 13,408.09	\$ 1,237,414.87	\$ 19,740.37	
S1-C11	Assembly and Installation of Foundation Types A3-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3.	EA	7		\$ 355.35	\$ 38,388.21	\$ 587.65	\$ 53,367.23	\$ 13,191.87	
S1-C12	Assembly and Installation of Foundation Types A4-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4.	EA	0		\$ -	\$ -	\$ -	\$ -	\$ 16,870.00	
S1-C13	Assembly and Installation of Foundation Types B1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1.	EA	7		\$ 474.44	\$ 50,629.18	\$ 921.97	\$ 71,334.83	\$ 17,555.14	
S1-C14	Assembly and Installation of Foundation Types B2-1A (250 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2.	EA	0		\$ -	\$ -	\$ -	\$ -	\$ 26,170.00	
S1-C15	Assembly and Installation of Foundation Types C1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C1.	EA	24		\$ 2,494.49	\$ 270,221.52	\$ 5,635.44	\$ 374,226.24	\$ 27,086.80	
S1-C16	Assembly and Installation of Foundation Types C2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C2.	EA	24		\$ 2,777.13	\$ 298,889.28	\$ 6,903.12	\$ 416,682.72	\$ 30,103.13	
S1-C17	Assembly and Installation of Foundation Types D1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D1.	EA	52		\$ 6,369.98	\$ 685,950.20	\$ 16,177.72	\$ 955,729.32	\$ 31,881.87	
S1-C18	Assembly and Installation of Foundation Types D2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D2.	EA	32		\$ 4,085.56	\$ 438,410.24	\$ 10,900.80	\$ 612,965.76	\$ 33,196.15	
S1-C19	Assembly and Installation of Foundation Types E1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types E1.	EA	20		\$ 2,794.30	\$ 298,178.80	\$ 7,538.00	\$ 419,513.80	\$ 36,261.53	
S1-C20	Uplift testing per leg for Types C1-1, or D2-1, or E1-1 (100 kPa) as per technical specification for Tower Types C1, or D2, or E1.	EA	0		T&M	T&M	T&M	T&M	\$ -	
S1-C21	Downward, uplift, and lateral load testing per leg for Types C1-3, or D2-3, or E1-3 as per technical specification for Tower Types C1, or D2, or E1.	EA	0		T&M	T&M	T&M	T&M	\$ -	
Rock Foundations										
S1-C22	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A1	EA	253		\$ 23,741.31	\$ 2,410,935.67	\$ 297,452.10	\$ 3,524,479.75	\$ 24,635.84	
S1-C23	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A2	EA	140		\$ 15,269.97	\$ 1,533,022.40	\$ 241,199.00	\$ 2,261,796.60	\$ 28,828.70	
S1-C24	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A3	EA	8		\$ 749.64	\$ 76,071.52	\$ 9,405.60	\$ 111,288.48	\$ 24,595.70	
S1-C25	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A4	EA	0		\$ -	\$ -	\$ -	\$ -	\$ 28,960.00	
S1-C26	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type B1	EA	8		\$ 873.84	\$ 87,795.20	\$ 13,782.80	\$ 129,432.16	\$ 28,876.27	
S1-C27	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0074 for Tower Type B2	EA	12		\$ 1,837.09	\$ 177,044.52	\$ 20,635.08	\$ 273,797.88	\$ 39,289.79	

S1-C28	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Weak Surface Rock)	EA	21	\$ 1,405.32	\$ 139,120.59	\$ 26,810.07	\$ 207,780.93	\$ 17,795.79	\$ 373,711.59	
S1-C29	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Weak Surface Rock)	EA	12	\$ 830.09	\$ 81,838.08	\$ 18,778.68	\$ 122,349.72	\$ 18,580.54	\$ 222,966.48	
S1-C30	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Weak Surface Rock)	EA	1	\$ 66.92	\$ 6,625.21	\$ 1,276.67	\$ 9,894.74	\$ 17,796.62	\$ 17,796.62	
S1-C31	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Weak Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 18,590.00	\$ -	
S1-C32	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Weak Surface Rock)	EA	1	\$ 69.97	\$ 6,888.17	\$ 1,667.48	\$ 10,302.04	\$ 18,857.69	\$ 18,857.69	
S1-C33	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Sound Surface Rock)	EA	191	\$ 11,639.59	\$ 1,137,477.58	\$ 243,843.97	\$ 1,718,379.25	\$ 16,228.80	\$ 3,099,700.80	
S1-C34	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Sound Surface Rock)	EA	106	\$ 6,698.37	\$ 651,912.72	\$ 165,878.34	\$ 985,579.52	\$ 17,012.93	\$ 1,803,370.58	
S1-C35	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Sound Surface Rock)	EA	6	\$ 365.65	\$ 35,732.94	\$ 7,660.02	\$ 53,981.10	\$ 16,229.01	\$ 97,374.06	
S1-C36	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Sound Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 17,020.00	\$ -	
S1-C37	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Sound Surface Rock)	EA	5	\$ 319.95	\$ 31,093.80	\$ 8,337.40	\$ 47,022.30	\$ 17,290.70	\$ 86,453.50	
S1-C38	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type B2 (surface rock)	EA	8	\$ 681.31	\$ 65,436.88	\$ 12,024.80	\$ 102,061.52	\$ 22,440.40	\$ 179,523.20	
S1-C39	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C1	EA	32	\$ 4,682.74	\$ 449,756.16	\$ 55,026.88	\$ 697,565.12	\$ 37,573.38	\$ 1,202,348.16	
S1-C40	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C2	EA	28	\$ 4,295.10	\$ 413,710.64	\$ 48,148.52	\$ 640,164.56	\$ 39,357.99	\$ 1,102,023.72	
S1-C41	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D1	EA	60	\$ 8,965.48	\$ 856,535.40	\$ 103,175.40	\$ 1,336,171.80	\$ 38,264.71	\$ 2,295,882.60	
S1-C42	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D2	EA	36	\$ 5,582.57	\$ 536,192.64	\$ 61,905.24	\$ 832,257.00	\$ 39,732.08	\$ 1,430,354.88	
S1-C43	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type E1	EA	16	\$ 2,457.12	\$ 234,764.16	\$ 27,513.44	\$ 366,332.80	\$ 39,288.15	\$ 628,610.40	
S1-C44	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C1 (surface rock)	EA	24	\$ 2,100.10	\$ 200,672.64	\$ 36,074.40	\$ 314,720.64	\$ 22,977.82	\$ 551,467.68	
S1-C45	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C2 (surface rock)	EA	20	\$ 1,841.88	\$ 173,467.40	\$ 32,128.60	\$ 276,227.40	\$ 24,091.17	\$ 481,823.40	
S1-C46	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D1 (surface rock)	EA	56	\$ 5,056.36	\$ 479,494.96	\$ 89,960.08	\$ 757,992.48	\$ 23,704.42	\$ 1,327,447.52	
S1-C47	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D2 (surface rock)	EA	28	\$ 2,772.26	\$ 256,807.32	\$ 56,696.64	\$ 415,936.36	\$ 26,051.44	\$ 729,440.32	
S1-C48	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type E1 (surface rock)	EA	16	\$ 1,541.48	\$ 143,810.08	\$ 32,398.08	\$ 231,170.88	\$ 25,461.19	\$ 407,379.04	
S1-C49	Installation and Testing of 25M Mechanical Rock Anchor as per design drawings and technical specification	LM	10,001	\$ 11,685.40	\$ 968,773.62	\$ 217,016.49	\$ 1,700,129.20	\$ 288.57	\$ 2,885,919.31	
S1-C50	Installation and Testing of 32M Mechanical Rock Anchor as per design drawings and technical specification	LM	1,546	\$ 1,885.88	\$ 157,753.68	\$ 43,601.43	\$ 274,797.24	\$ 307.96	\$ 476,152.35	
S1-C51	Installation and Testing of 35M Mechanical Rock Anchor as per design drawings and technical specification	LM	15,531	\$ 20,761.12	\$ 1,714,489.17	\$ 535,049.84	\$ 3,013,518.74	\$ 338.87	\$ 5,262,980.09	
S1-C52	Installation and Testing of 38M Mechanical Rock Anchor as per design drawings and technical specification	LM	15	\$ 21.58	\$ 1,764.15	\$ 629.02	\$ 3,121.87	\$ 374.00	\$ 5,531.46	
S1-C52	Installation and Testing of 43M Mechanical Rock Anchor as per design drawings and technical specification	LM	5,808	\$ 8,473.59	\$ 692,804.48	\$ 247,023.60	\$ 1,225,999.08	\$ 372.89	\$ 2,165,827.16	
S1-C53	Installation and Testing of 51M Mechanical Rock Anchor as per design drawings and technical specification	LM	271	\$ 438.53	\$ 35,745.70	\$ 16,212.06	\$ 63,310.81	\$ 425.11	\$ 115,268.58	
S1-C54	Installation and Testing of 64M Mechanical Rock Anchor as per design drawings and technical specification	LM	20	\$ 33.93	\$ 2,743.45	\$ 1,374.37	\$ 4,884.76	\$ 460.49	\$ 9,002.58	
H-Pile Foundations										
S1-C55	Design, Assembly and Installation of Foundation Type A1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A1 including supply and installation of steep cap.	EA	8	\$ 1,489.01	\$ 121,151.36	\$ 107,223.84	\$ 134,099.28	\$ 45,309.31	\$ 362,474.48	
S1-C56	Design, Assembly and Installation of Foundation Type A2-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A2 including supply and installation of steep cap.	EA	4	\$ 744.51	\$ 60,575.68	\$ 53,611.92	\$ 67,049.64	\$ 45,309.31	\$ 181,237.24	
S1-C57	Design, Assembly and Installation of Foundation Type A3-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A3 including supply and installation of steep cap.	EA	1	\$ 186.13	\$ 15,143.92	\$ 13,402.98	\$ 16,762.41	\$ 45,320.00	\$ 45,320.00	
S1-C58	Design, Assembly and Installation of Foundation Type A4-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A4 including supply and installation of steep cap.	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 45,320.00	\$ -	
S1-C59	Design, Assembly and Installation of Foundation Type B1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type B1 including supply and installation of steep cap.	EA	2	\$ 372.25	\$ 30,287.84	\$ 26,805.96	\$ 33,524.82	\$ 45,320.00	\$ 90,640.00	
S1-C60	Design, Assembly and Installation of Foundation Type B2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type B2 including supply and installation of steep cap.	EA	8	\$ 7,669.39	\$ 542,246.48	\$ 501,384.80	\$ 599,806.80	\$ 205,440.00	\$ 1,643,520.00	
S1-C61	Design, Assembly and Installation of Foundation Type C1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C1 including supply and installation of steel cap.	EA	8	\$ 7,669.39	\$ 542,246.48	\$ 501,384.80	\$ 599,806.80	\$ 205,440.00	\$ 1,643,520.00	
S1-C62	Design, Assembly and Installation of Foundation Type C2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C2 including supply and installation of steel cap.	EA	4	\$ 3,834.70	\$ 271,123.24	\$ 250,692.40	\$ 299,903.40	\$ 205,440.00	\$ 821,760.00	
S1-C63	Design, Assembly and Installation of Foundation Type D1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D1 including supply and installation of steel cap.	EA	8	\$ 7,669.39	\$ 542,246.48	\$ 501,384.80	\$ 599,806.80	\$ 205,440.00	\$ 1,643,520.00	
S1-C64	Design, Assembly and Installation of Foundation Type D2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D2 including supply and installation of steel cap.	EA	4	\$ 3,834.70	\$ 271,123.24	\$ 250,692.40	\$ 299,903.40	\$ 205,429.76	\$ 821,719.04	
S1-C65	Design, Assembly and Installation of Foundation Type E1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type E1 including supply and installation of steel cap.	EA	8	\$ 7,669.39	\$ 542,246.48	\$ 501,384.80	\$ 599,806.80	\$ 205,440.00	\$ 1,643,520.00	
S1-C66	Rock anchor to be installed with S1-C60 to S1-C65 item above as per the design drawings and technical specifications (length in bog not considered)	LM	2,400	\$ 6,958.85	\$ 341,328.00	\$ 123,528.00	\$ 649,584.00	\$ 464.35	\$ 1,114,440.00	
S1-C67	Supply, and installation of H-Piles, HP 360 x 108, Grade 350AT	LM	3,300	\$ 3,830.78	\$ 390,291.00	\$ 1,034,154.00	\$ 402,798.00	\$ 553.71	\$ 1,827,243.00	
Bog and Poor Soil										
S1-C68	Supply and Installation of Cribs for excavation protection of tower types A1, A2, A3, A4, B1, B2, C1, C2, D1, D2, E1 for any type of Foundation as per Dwg 505573-4622-42DD-0069 and 505573-4622-42DD-0071	M2	10,000	\$ 23,700.00	\$ 2,494,800.00	\$ 2,610,000.00	\$ 3,600,400.00	\$ 870.52	\$ 8,705,200.00	
Earthwork										
S1-C69	Transportation of native backfill	KM	2,000	\$ 444.44	\$ 67,780.00	\$ -	\$ 65,240.00	\$ 66.51	\$ 133,020.00	
S1-C70	Supply and transportation of approved fill from an alternate source/processed material/road gravel	M3 * KM	20,000	\$ 8,472.22	\$ 934,200.00	\$ 1,062,000.00	\$ 915,600.00	\$ 145.59	\$ 2,911,800.00	
S1-C71	Rock blasting/preparation	M3	1,100	\$ 6,600.00	\$ 739,783.00	\$ -	\$ 990,638.00	\$ 1,573.11	\$ 1,730,421.00	
Sub-total (S1-Cx): Tower Foundation Construction				457,061.68	\$ 34,936,907.19	\$ 13,364,769.20	\$ 54,451,610.14	\$ 2,560,142.28	\$ 107,688,524.69	
S1-D Tower Assembly and Erection (S1-Dx)										
Assembly and Erection of Suspension Tower Type "A1"										
S1-D1	Assembly and Erection of Suspension Tower Type "A1 + 0" as per dwg. 505573-4622-43DD-0042	EA	40	\$ 11,219.15	\$ 745,406.00	\$ -	\$ 1,730,287.60	\$ 61,892.34	\$ 2,475,693.60	
S1-D2	Assembly and Erection of Suspension Tower Type "A1 + 1.5" as per dwg. 505573-4622-43DD-0042	EA	24	\$ 6,870.99	\$ 455,577.84	\$ -	\$ 1,059,762.96	\$ 63,139.20	\$ 1,515,340.80	
S1-D3	Assembly and Erection of Suspension Tower Type "A1 + 3" as per dwg. 505573-4622-43DD-0042	EA	36	\$ 10,428.80	\$ 690,674.40	\$ -	\$ 1,608,575.04	\$ 63,868.04	\$ 2,299,249.44	
S1-D4	Assembly and Erection of Suspension Tower Type "A1 + 4.5" as per dwg. 505573-4622-43DD-0042	EA	58	\$ 17,140.71	\$ 1,510,805.46	\$ -	\$ 2,266,207.90	\$ 65,120.92	\$ 3,777,013.36	
S1-D5	Assembly and Erection of Suspension Tower Type "A1 + 6" as per dwg. 505573-4622-43DD-0042	EA	100	\$ 29,651.22	\$ 1,959,305.00	\$ -	\$ 4,573,870.00	\$ 65,331.75	\$ 6,533,175.00	
S1-D6	Assembly and Erection of Suspension Tower Type "A1 + 7.5" as per dwg. 505573-4622-43DD-0042	EA	101	\$ 30,290.89	\$ 1,999,400.04	\$ -	\$ 4,672,719.55	\$ 66,060.59	\$ 6,672,119.59	
S1-D7	Assembly and Erection of Suspension Tower Type "A1 + 9" as per dwg. 505573-4622-43DD-0042	EA	135	\$ 40,950.30	\$ 2,700,094.50	\$ -	\$ 6,317,291.25	\$ 66,795.45	\$ 9,017,385.75	
S1-D8	Assembly and Erection of Suspension Tower Type "A1 + 10.5" as per dwg. 505573-4622-43DD-0042	EA	75	\$ 23,186.10	\$ 2,041,269.00	\$ -	\$ 3,061,903.50	\$ 68,042.30	\$ 5,103,172.50	
S1-D9	Assembly and Erection of Suspension Tower Type "A1 + 12" as per dwg. 505573-4622-43DD-0042	EA	69	\$ 21,565.65	\$ 1,898,083.74	\$ -	\$ 2,847,124.92	\$ 68,771.14	\$ 4,745,208.66	
S1-D10	Assembly and Erection of Suspension Tower Type "A1 + 13.5" as per dwg. 505573-4622-43DD-0042	EA	31	\$ 9,795.11	\$ 643,423.91	\$ -	\$ 1,511,262.40	\$ 69,506.00	\$ 2,154,686.00	
S1-D11	Assembly and Erection of Suspension Tower Type "A1 + 15" as per dwg. 505573-4622-43DD-0042	EA	19	\$ 6,068.01	\$ 398,213.21	\$ -	\$ 936,248.75	\$ 70,235.00	\$ 1,334,465.00	
S1-D12	Assembly and Erection of Suspension Tower Type "A1 + 16.5" as per dwg. 505573-4622-43DD-0042	EA	7	\$ 2,259.37	\$ 148,131.06	\$ -	\$ 348,614.70	\$ 70,970.00	\$ 496,790.00	
S1-D13	Assembly and Erection of Suspension Tower Type "A1 + 18" as per dwg. 505573-4622-43DD-0042	EA	11	\$ 3,588.12	\$ 235,028.75	\$ -	\$ 553,655.30	\$ 71,699.00	\$ 788,689.00	
Assembly and Erection of Suspension Tower Type "A2"										
S1-D14	Assembly and Erection of Suspension Tower Type "A2 + 0" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 84,610.00	\$ -	
S1-D15	Assembly and Erection of Suspension Tower Type "A2 + 1.5" as per dwg. 505573-4622-43DD-0044	EA	1	\$ 395.10	\$ 25,800.08	\$ -	\$ 60,969.29	\$ 86,770.00	\$ 86,770.00	
S1-D16	Assembly and Erection of Suspension Tower Type "A2 + 3" as per dwg. 505573-4622-43DD-0044	EA	7	\$ 2,807.68	\$ 183,087.17	\$ -	\$ 433,288.80	\$ 88,053.71	\$ 616,375.97	
S1-D17	Assembly and Erection of Suspension Tower Type "A2 + 4.5" as per dwg. 505573-4622-43DD-0044	EA	22	\$ 9,047.05	\$ 588,611.54	\$ -	\$ 1,396,276.20	\$ 90,222.17	\$ 1,984,887.74	
S1-D18	Assembly and Erection of Suspension Tower Type "A2 + 6" as per dwg. 505573-4622-43DD-0044	EA	70	\$ 28,918.94	\$ 1,880,719.40	\$ -	\$ 4,463,267.20	\$ 90,628.38	\$ 6,343,986.60	
S1-D19	Assembly and Erection of Suspension Tower Type "A2 + 7.5" as per dwg. 505573-4622-43DD-0044	EA	105	\$ 44,014.41	\$ 2,858,724.75	\$ -	\$ 6,793,365.60	\$ 91,924.67	\$ 9,652,090.35	
S1-D20	Assembly and Erection of Suspension Tower Type "A2 + 9" as per dwg. 505573-4622-43DD-0044	EA	96	\$ 40,992.97	\$ 2,674,241.28	\$ -	\$ 6,325,993.92	\$ 93,752.45	\$ 9,000,235.20	
S1-D21	Assembly and Erection of Suspension Tower Type "A2 + 10.5" as per dwg. 505573-4622-43DD-0044	EA	45	\$ 19,589.35	\$ 1,268,141.85	\$ -	\$ 3,023,844.30	\$ 95,377.47	\$ 4,291,986.15	
S1-D22	Assembly and Erection of Suspension Tower Type "A2 + 12" as per dwg. 505573-4622-43DD-0044	EA	22	\$ 9,708.43	\$ 627,759.22	\$ -	\$ 1,498,669.48	\$ 96,655.85	\$ 2,126,428.70	
S1-D23	Assembly and Erection of Suspension Tower Type "A2 + 13.5" as per dwg. 505573-4622-43DD-0044	EA	16	\$ 7,157.59	\$ 462,288.64	\$ -	\$ 1,104,945.60	\$ 97,952.14	\$ 1,567,234.24	
S1-D24	Assembly and Erection of Suspension Tower Type "A2 + 15" as per dwg. 505573-4622-43DD-0044	EA	4	\$ 1,849.63	\$ 119,896.68	\$ -	\$ 285,377.00	\$ 101,318.42	\$ 405,273.68	
S1-D25	Assembly and Erection of Suspension Tower Type "A2 + 16.5" as per dwg. 505573-4622-43DD-0044	EA	2	\$ 936.87	\$ 60,662.10					

Assembly and Erection of Suspension Tower Type "A3"															
S1-D28	Assembly and Erection of Suspension Tower Type "A3 + 0" as per dwg. 505573-4622-43DD-0050	EA	6	\$	1,906.34	\$	124,078.56	\$	-	\$	293,926.26	\$	69,667.47	\$	418,004.82
S1-D29	Assembly and Erection of Suspension Tower Type "A3 + 1.5" as per dwg. 505573-4622-43DD-0050	EA	1	\$	324.00	\$	21,051.51	\$	-	\$	49,960.05	\$	71,011.56	\$	71,011.56
S1-D30	Assembly and Erection of Suspension Tower Type "A3 + 3" as per dwg. 505573-4622-43DD-0050	EA	1	\$	327.77	\$	21,274.56	\$	-	\$	50,543.45	\$	71,820.00	\$	71,820.00
S1-D31	Assembly and Erection of Suspension Tower Type "A3 + 4.5" as per dwg. 505573-4622-43DD-0050	EA	0	\$	334.05	\$	21,646.31	\$	-	\$	51,515.78	\$	73,162.09	\$	-
S1-D32	Assembly and Erection of Suspension Tower Type "A3 + 6" as per dwg. 505573-4622-43DD-0050	EA	0	\$	335.59	\$	21,737.18	\$	-	\$	51,753.46	\$	73,490.64	\$	-
S1-D33	Assembly and Erection of Suspension Tower Type "A3 + 7.5" as per dwg. 505573-4622-43DD-0050	EA	3	\$	1,022.68	\$	66,153.30	\$	-	\$	157,723.62	\$	74,625.64	\$	223,876.92
S1-D34	Assembly and Erection of Suspension Tower Type "A3 + 9" as per dwg. 505573-4622-43DD-0050	EA	4	\$	1,374.73	\$	88,865.32	\$	-	\$	212,026.76	\$	75,223.02	\$	300,892.08
S1-D35	Assembly and Erection of Suspension Tower Type "A3 + 10.5" as per dwg. 505573-4622-43DD-0050	EA	2	\$	701.88	\$	45,291.80	\$	-	\$	108,260.56	\$	76,776.18	\$	153,552.36
S1-D36	Assembly and Erection of Suspension Tower Type "A3 + 12" as per dwg. 505573-4622-43DD-0050	EA	3	\$	1,060.36	\$	68,383.80	\$	-	\$	163,557.63	\$	77,320.00	\$	231,960.00
S1-D37	Assembly and Erection of Suspension Tower Type "A3 + 13.5" as per dwg. 505573-4622-43DD-0050	EA	2	\$	717.51	\$	46,217.04	\$	-	\$	110,680.58	\$	78,450.00	\$	156,900.00
S1-D38	Assembly and Erection of Suspension Tower Type "A3 + 15" as per dwg. 505573-4622-43DD-0050	EA	3	\$	1,084.64	\$	69,821.25	\$	-	\$	167,317.32	\$	79,046.19	\$	237,138.57
S1-D39	Assembly and Erection of Suspension Tower Type "A3 + 16.5" as per dwg. 505573-4622-43DD-0050	EA	0	\$	366.85	\$	23,587.67	\$	-	\$	56,593.52	\$	80,181.19	\$	-
Assembly and Erection of Suspension Tower Type "A4"															
S1-D40	Assembly and Erection of Suspension Tower Type "A4 + 0" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	82,500.00	\$	-
S1-D41	Assembly and Erection of Suspension Tower Type "A4 + 1.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	84,230.00	\$	-
S1-D42	Assembly and Erection of Suspension Tower Type "A4 + 3" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	85,510.00	\$	-
S1-D43	Assembly and Erection of Suspension Tower Type "A4 + 4.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	87,680.00	\$	-
S1-D44	Assembly and Erection of Suspension Tower Type "A4 + 6" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	88,080.00	\$	-
S1-D45	Assembly and Erection of Suspension Tower Type "A4 + 7.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	89,380.00	\$	-
S1-D46	Assembly and Erection of Suspension Tower Type "A4 + 9" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	90,670.00	\$	-
S1-D47	Assembly and Erection of Suspension Tower Type "A4 + 10.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	92,830.00	\$	-
S1-D48	Assembly and Erection of Suspension Tower Type "A4 + 12" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	94,110.00	\$	-
S1-D49	Assembly and Erection of Suspension Tower Type "A4 + 13.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	95,410.00	\$	-
S1-D50	Assembly and Erection of Suspension Tower Type "A4 + 15" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	96,700.00	\$	-
S1-D51	Assembly and Erection of Suspension Tower Type "A4 + 16.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	97,990.00	\$	-
S1-D52	Assembly and Erection of Suspension Tower Type "A4 + 18" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	99,290.00	\$	-
S1-D53	Assembly and Erection of Suspension Tower Type "A4 + 19.5" as per dwg. 505573-4622-43DD-0056	EA	0	\$	-	\$	-	\$	-	\$	-	\$	101,440.00	\$	-
Assembly and Erection of Suspension Tower Type "B1"															
S1-D54	Assembly and Erection of Suspension Tower Type "B1 + 0" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	106,440.00	\$	-
S1-D55	Assembly and Erection of Suspension Tower Type "B1 + 1.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	109,750.00	\$	-
S1-D56	Assembly and Erection of Suspension Tower Type "B1 + 3" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	111,920.00	\$	-
S1-D57	Assembly and Erection of Suspension Tower Type "B1 + 4.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	115,230.00	\$	-
S1-D58	Assembly and Erection of Suspension Tower Type "B1 + 6" as per dwg. 505573-4622-43DD-0002	EA	1	\$	531.15	\$	33,938.66	\$	-	\$	82,010.53	\$	115,950.00	\$	115,950.00
S1-D59	Assembly and Erection of Suspension Tower Type "B1 + 7.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$	542.38	\$	34,609.69	\$	-	\$	83,748.89	\$	118,358.58	\$	118,358.58
S1-D60	Assembly and Erection of Suspension Tower Type "B1 + 9" as per dwg. 505573-4622-43DD-0002	EA	8	\$	4,377.25	\$	279,159.04	\$	-	\$	675,901.52	\$	119,382.57	\$	955,060.56
S1-D61	Assembly and Erection of Suspension Tower Type "B1 + 10.5" as per dwg. 505573-4622-43DD-0002	EA	4	\$	2,271.74	\$	144,545.16	\$	-	\$	350,814.60	\$	123,839.94	\$	495,359.76
S1-D62	Assembly and Erection of Suspension Tower Type "B1 + 12" as per dwg. 505573-4622-43DD-0002	EA	3	\$	1,726.55	\$	109,767.69	\$	-	\$	266,631.12	\$	125,466.27	\$	376,398.81
S1-D63	Assembly and Erection of Suspension Tower Type "B1 + 13.5" as per dwg. 505573-4622-43DD-0002	EA	5	\$	2,978.74	\$	189,914.30	\$	-	\$	459,813.95	\$	129,945.65	\$	649,728.25
S1-D64	Assembly and Erection of Suspension Tower Type "B1 + 15" as per dwg. 505573-4622-43DD-0002	EA	1	\$	606.98	\$	38,653.89	\$	-	\$	93,701.15	\$	132,360.00	\$	132,360.00
S1-D65	Assembly and Erection of Suspension Tower Type "B1 + 16.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	133,380.00	\$	-
S1-D66	Assembly and Erection of Suspension Tower Type "B1 + 18" as per dwg. 505573-4622-43DD-0002	EA	1	\$	616.53	\$	39,224.27	\$	-	\$	95,178.75	\$	134,410.00	\$	134,410.00
S1-D67	Assembly and Erection of Suspension Tower Type "B1 + 19.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$	640.11	\$	40,633.43	\$	-	\$	98,829.30	\$	139,462.73	\$	139,462.73
S1-D68	Assembly and Erection of Suspension Tower Type "B1 + 21" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	142,560.00	\$	-
S1-D69	Assembly and Erection of Suspension Tower Type "B1 + 22.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	146,360.00	\$	-
S1-D70	Assembly and Erection of Suspension Tower Type "B1 + 24" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	150,140.00	\$	-
S1-D71	Assembly and Erection of Suspension Tower Type "B1 + 25.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$	699.13	\$	44,713.66	\$	-	\$	107,825.80	\$	152,539.46	\$	-
S1-D72	Assembly and Erection of Suspension Tower Type "B1 + 27" as per dwg. 505573-4622-43DD-0002	EA	0	\$	-	\$	-	\$	-	\$	-	\$	153,570.00	\$	-
Assembly and Erection of Medium Angle Tower Type "B2"															
S1-D73	Assembly and Erection of Medium Angle Tower Type "B2" Basic Body as per dwg. 505573-4622-43DD-0058	EA	12	\$	6,881.64	\$	485,884.32	\$	-	\$	1,066,591.32	\$	129,372.97	\$	1,552,475.64
S1-D74	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058	EA	1	\$	172.65	\$	11,724.33	\$	-	\$	26,787.54	\$	38,511.87	\$	38,511.87
S1-D75	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058	EA	2	\$	509.88	\$	34,889.00	\$	-	\$	79,123.10	\$	57,006.05	\$	114,012.10
S1-D76	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	7	\$	73.11	\$	4,964.96	\$	-	\$	11,343.85	\$	2,329.83	\$	16,308.81
S1-D77	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	9	\$	114.63	\$	7,783.92	\$	-	\$	17,784.54	\$	2,840.94	\$	25,568.46
S1-D78	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	8	\$	144.98	\$	9,845.04	\$	-	\$	22,493.84	\$	4,042.36	\$	32,338.88
S1-D79	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	7	\$	172.06	\$	11,583.98	\$	-	\$	26,695.20	\$	5,482.74	\$	38,379.18
S1-D80	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	11	\$	304.75	\$	20,694.41	\$	-	\$	47,282.18	\$	6,179.69	\$	67,976.59
S1-D81	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	5	\$	170.96	\$	11,609.15	\$	-	\$	26,524.40	\$	7,626.71	\$	38,133.55
S1-D82	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	1	\$	46.31	\$	3,277.10	\$	-	\$	7,192.13	\$	10,469.23	\$	10,469.23
Assembly and Erection of Medium Angle Tower Type "C1"															
S1-D83	Assembly and Erection of Medium Angle Tower Type "C1" Basic Body as per dwg. 505573-4622-43DD-0004	EA	22	\$	14,908.38	\$	1,078,231.44	\$	-	\$	2,310,989.56	\$	154,055.50	\$	3,389,221.00
S1-D84	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	0	\$	140.64	\$	9,616.65	\$	-	\$	21,814.38	\$	31,431.03	\$	-
S1-D85	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	1	\$	249.87	\$	17,215.94	\$	-	\$	38,764.44	\$	55,990.00	\$	55,990.00
S1-D86	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	48	\$	485.48	\$	33,196.32	\$	-	\$	75,301.44	\$	2,260.37	\$	108,497.76
S1-D87	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	8	\$	111.32	\$	7,611.52	\$	-	\$	17,265.92	\$	3,109.68	\$	24,877.44
S1-D88	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	8	\$	151.29	\$	10,345.12	\$	-	\$	23,466.72	\$	4,226.48	\$	33,811.84
S1-D89	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	8	\$	204.68	\$	13,995.36	\$	-	\$	31,746.88	\$	5,717.78	\$	45,742.24
S1-D90	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	4	\$	118.86	\$	8,127.12	\$	-	\$	18,435.48	\$	6,640.65	\$	26,562.60
S1-D91	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	11	\$	398.28	\$	27,233.58	\$	-	\$	61,776.55	\$	8,091.83	\$	89,010.13
S1-D92	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	1	\$	42.13	\$	2,880.91	\$	-	\$	6,535.03	\$	9,415.94	\$	9,415.94
Assembly and Erection of Medium Angle Tower Type "C2"															
S1-D93	Assembly and Erection of Medium Angle Tower Type "C2" Basic Body as per dwg. 505573-4622-43DD-0012	EA	19	\$	13,719.88	\$	989,231.39	\$	-</						

S1-D105	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 61,560.00	\$ -	
S1-D106	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	94	\$ 976.05	\$ 66,740.00	\$ -	\$ 151,392.64	\$ 2,320.56	\$ 218,132.64	
S1-D107	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	21	\$ 297.86	\$ 20,366.85	\$ -	\$ 46,200.21	\$ 3,169.86	\$ 66,567.06	
S1-D108	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	27	\$ 560.71	\$ 38,340.00	\$ -	\$ 86,969.97	\$ 4,641.11	\$ 125,309.97	
S1-D109	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	15	\$ 487.46	\$ 33,330.90	\$ -	\$ 75,607.80	\$ 7,262.58	\$ 108,938.70	
S1-D110	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	11	\$ 366.69	\$ 25,072.96	\$ -	\$ 56,875.28	\$ 7,449.84	\$ 81,948.24	
S1-D111	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	8	\$ 315.99	\$ 21,606.80	\$ -	\$ 49,012.80	\$ 8,827.45	\$ 70,619.60	
S1-D112	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	0	\$ 47.73	\$ 3,263.53	\$ -	\$ 7,402.97	\$ 10,666.50	\$ -	
Assembly and Erection of Dead-End Tower Type "D2"										
S1-D113	Assembly and Erection of Dead-End Tower Type "D2" Basic Body as per dwg. 505573-4622-43DD-0045	EA	25	\$ 20,328.75	\$ 1,482,671.00	\$ -	\$ 3,153,395.25	\$ 185,442.65	\$ 4,636,066.25	
S1-D114	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$ 151.20	\$ 10,267.38	\$ -	\$ 23,458.72	\$ 33,726.10	\$ -	
S1-D115	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-D116	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	44	\$ 618.00	\$ 41,966.76	\$ -	\$ 95,884.80	\$ 3,132.99	\$ 137,851.56	
S1-D117	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	24	\$ 489.21	\$ 33,221.04	\$ -	\$ 75,902.64	\$ 4,546.82	\$ 109,123.68	
S1-D118	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	13	\$ 347.39	\$ 23,590.19	\$ -	\$ 53,898.26	\$ 5,960.65	\$ 77,488.45	
S1-D119	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	7	\$ 240.59	\$ 16,337.72	\$ -	\$ 37,328.06	\$ 7,666.54	\$ 53,665.78	
S1-D120	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	6	\$ 248.00	\$ 16,840.86	\$ -	\$ 38,477.70	\$ 9,219.76	\$ 55,318.56	
S1-D121	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	5	\$ 243.71	\$ 16,549.90	\$ -	\$ 37,812.85	\$ 10,872.55	\$ 54,362.75	
S1-D122	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	1	\$ 58.03	\$ 3,940.45	\$ -	\$ 9,003.05	\$ 12,943.50	\$ 12,943.50	
Assembly and Erection of Dead-End Tower Type "E1"										
S1-D123	Assembly and Erection of Dead-End Tower Type "E1" Basic Body as per dwg. 505573-4622-43DD-0007	EA	15	\$ 14,009.32	\$ 998,993.55	\$ -	\$ 2,172,342.00	\$ 211,422.37	\$ 3,171,335.55	
S1-D124	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 57,570.00	\$ -	
S1-D125	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 88,600.00	\$ -	
S1-D126	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	28	\$ 537.93	\$ 36,643.04	\$ -	\$ 83,450.36	\$ 4,289.05	\$ 120,093.40	
S1-D127	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	15	\$ 404.07	\$ 27,525.00	\$ -	\$ 62,684.85	\$ 6,013.99	\$ 90,209.85	
S1-D128	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	5	\$ 163.48	\$ 11,136.00	\$ -	\$ 25,360.90	\$ 7,299.38	\$ 36,496.90	
S1-D129	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	5	\$ 213.75	\$ 14,560.10	\$ -	\$ 33,158.90	\$ 9,543.80	\$ 47,719.00	
S1-D130	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	2	\$ 97.25	\$ 6,624.70	\$ -	\$ 15,086.94	\$ 10,855.82	\$ 21,711.64	
S1-D131	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	2	\$ 117.12	\$ 7,978.08	\$ -	\$ 18,169.12	\$ 13,073.60	\$ 26,147.20	
S1-D132	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	3	\$ 205.75	\$ 14,015.49	\$ -	\$ 31,918.62	\$ 15,311.37	\$ 45,934.11	
Sub-total (S1-Dx) : Tower Assembly & Erection				518,755.70	\$ 36,048,672.54	\$ -	\$ 78,757,949.26	\$ 8,646,162.24	\$ 114,351,529.84	
S1-E Installation of Wires and OPGW (S1-Ex)										
S1-E1	Installation of Counterpoise wire, connection with tower grounding	KM	397	\$ 15,864.86	\$ 1,522,395.75	\$ -	\$ 2,494,851.22	\$ 10,119.01	\$ 4,017,246.97	
S1-E2	Installation of ground rods at crossing obstacles in soil and rock	EA	200	\$ 200.00	\$ 20,166.00	\$ -	\$ 31,506.00	\$ 258.36	\$ 51,672.00	
S1-E3	Tower Footing resistance measurement	EA	397	\$ 397.00	\$ 13,148.64	\$ -	\$ 61,519.12	\$ 188.08	\$ 74,667.76	
S1-E4	S1 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	250	\$ 67,146.74	\$ 8,406,410.00	\$ -	\$ 10,522,092.50	\$ 75,714.01	\$ 18,928,502.50	
S2-E4	S2 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	147	\$ 48,740.74	\$ 6,145,164.48	\$ -	\$ 7,652,129.10	\$ 93,859.14	\$ 13,797,293.58	
S3-E4	S3 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S4-E4	S4 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S5-E4	S5 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E5	Installation of Conductor on Steel Towers - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	285	\$ 46,898.15	\$ 4,862,359.35	\$ -	\$ 7,380,328.65	\$ 42,956.80	\$ 12,242,688.00	
S1-E6	Installation of Conductor on Steel Towers - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	99	\$ 19,378.14	\$ 2,027,272.50	\$ -	\$ 3,048,696.09	\$ 51,272.41	\$ 5,075,968.59	
S1-E7	Installation of Conductor on Wood Poles - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	18	\$ 2,425.14	\$ 219,337.92	\$ -	\$ 369,183.06	\$ 32,695.61	\$ 588,520.98	
S1-E8	Installation of Conductor on Wood Poles - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E9	Installation of ADSS on Wood Poles	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E10	ADSS splicing and tests including loss analysis	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E11	ADSS end to end test	LS	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E12	S1 - Installation of OPGW	KM	250	\$ 19,886.77	\$ 2,580,500.00	\$ -	\$ 3,020,210.00	\$ 22,402.84	\$ 5,600,710.00	
S2-E12	S2 - Installation of OPGW	KM	165	\$ 14,608.17	\$ 1,925,789.25	\$ -	\$ 2,221,018.80	\$ 25,132.17	\$ 4,146,808.05	
S3-E12	S3 - Installation of OPGW	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S4-E12	S4 - Installation of OPGW	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S5-E12	S5 - Installation of OPGW	KM	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
S1-E13	OPGW Continuity tests before and after stringing	LS	2	\$ 3,187.20	\$ 242,715.00	\$ -	\$ 427,724.68	\$ 335,219.84	\$ 670,439.68	
S1-E14	OPGW splicing and tests including loss analysis	EA	89	\$ 3,560.00	\$ 276,335.21	\$ -	\$ 508,269.21	\$ 8,815.78	\$ 784,604.42	
S1-E15	OPGW end to end test	LS	2	\$ 384.00	\$ 29,242.78	\$ -	\$ 51,533.10	\$ 40,387.94	\$ 80,775.88	
Sub-total (S1-Ex) : Installation of Wires and OPGW				242,676.91	\$ 28,270,836.88	\$ -	\$ 37,789,061.53	\$ 739,021.99	\$ 66,059,898.41	
S1-F Miscellaneous Tower Attachments and Accessories (S1-Fx)										
S1-F1	Install 18" Aerial marker cones	EA	15	\$ 60.00	\$ 4,789.65	\$ -	\$ 9,337.80	\$ 941.83	\$ 14,127.45	
Sub-total (S1-Fx) : Miscellaneous Tower Attachment and Accessories				60.00	\$ 4,789.65	\$ -	\$ 9,337.80	\$ 941.83	\$ 14,127.45	
S1-G Framing and Setting of Wood Poles (S1-Gx)										
S1-G1	Framing and Setting of Single Pole Tangent (0 - 1 deg) as per Drawing 505573-4633-4ZDD-0011	EA	125	\$ 6,514.11	\$ 259,885.00	\$ 11,800.00	\$ 768,311.25	\$ 8,319.97	\$ 1,039,996.25	
S1-G2	Framing and Setting of Single Pole Light angle (1 - 10 deg) with Guys as per Drawing 505573-4633-4ZDD-0012	EA	12	\$ 817.69	\$ 41,638.20	\$ 1,132.80	\$ 103,740.36	\$ 12,209.28	\$ 146,511.36	
S1-G3	Framing and Setting of Single Pole Heavy angle (10 - 30 deg) with Guys as per Drawing 505573-4633-4ZDD-0020	EA	5	\$ 605.70	\$ 39,257.30	\$ 472.00	\$ 84,583.10	\$ 24,862.48	\$ 124,312.40	
S1-G4	Framing and Setting of Single Pole Dead-end (30 - 90 deg) with Guys as per Drawing 505573-4633-4ZDD-0021	EA	11	\$ 2,333.55	\$ 165,583.33	\$ 1,038.40	\$ 342,144.11	\$ 46,251.44	\$ 508,765.84	
S1-G5	Framing and Setting of Single Pole Floating Dead-end (0 - 1 deg) with Guys as per Drawing 505573-4633-4ZDD-0013	EA	11	\$ 1,629.55	\$ 104,574.58	\$ 1,038.40	\$ 232,386.44	\$ 30,727.22	\$ 337,999.42	
S1-G6	Framing and Setting of Two Pole Dead-end to tap to HVdc Tower in Labrador as per Drawing 505573-4633-4ZDD-0061	EA	2	\$ 509.70	\$ 38,292.62	\$ 188.80	\$ 75,558.44	\$ 57,019.93	\$ 114,039.86	
Sub-total (S1-Gx) : Framing and Setting of Wood Poles				12,410.29	\$ 649,231.03	\$ 15,670.40	\$ 1,606,723.70	\$ 179,390.32	\$ 2,271,625.13	
S1-I Optional Pricing (S1-Ix)										
S1-I1	Perform Geotechnical Investigation and Identify Foundation Type as per Design Drawings and Technical Specifications	LS	2	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I2	Design and supply of micropile option as replacement for H-pile design	EA	2	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I3	Optional cost for mulching given area instead of salvaging	Ha	2,207	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I4	Installation of Access Road - Alternative	KM	79	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I5	Slack Span Connections - Installation of all Conductor and OPGW from Terminal Tower to the Substation Gantry	LS	2	\$ 472.00	\$ 54,358.44	\$ -	\$ 74,043.14	\$ 64,200.79	\$ 128,401.58	
S1-I6	Slack Span Connections - Installation of all Conductor and OPGW/ADSS from Terminal Wood Pole to the Electrode Compound Gantry	LS	1	\$ 152.00	\$ 13,665.06	\$ -	\$ 23,409.66	\$ 37,074.72	\$ 37,074.72	
S1-I7	Supply and Installation of Culvert - 1000 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I8	Supply and Installation of Culvert - 1200 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I9	Supply and Installation of Culvert - 1600 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I10	Supply and Installation of Culvert - 2000 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I11	Supply and Installation of Culvert - 2400 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I12	Supply and Installation of Culvert - 3000 mm	LM	44	\$ -	\$ -	\$ -	\$ -	Not Priced	Not Priced	
S1-I13	Assembly and Installation of Foundation Type A1-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56	
S1-I14	Assembly and Installation of Foundation Type A2-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I15	Assembly and Installation of Foundation Type A3-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I16	Assembly and Installation of Foundation Type A4-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I17	Assembly and Installation of Foundation Type B1-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56	
S1-I18	Assembly and Installation of Foundation Type B2-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I19	Assembly and Installation of Foundation Type C1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56	
S1-I20	Assembly and Installation of Foundation Type C2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I21	Assembly and Installation of Foundation Type D1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56	
S1-I22	Assembly and Installation of Foundation Type D2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00	
S1-I23	Assembly and Installation of Foundation Type E1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.01	\$ -	\$ 1.76	\$ 2.77	\$ 2.77	
S1-I24	Assembly and Installation of Foundation Type A1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62			

S1-126	Assembly and Installation of Foundation Type A3-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00
S1-127	Assembly and Installation of Foundation Type A4-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00
S1-128	Assembly and Installation of Foundation Type B1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56
S1-129	Assembly and Installation of Foundation Type B2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00
S1-130	Assembly and Installation of Foundation Type C1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56
S1-131	Assembly and Installation of Foundation Type C2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00
S1-132	Assembly and Installation of Foundation Type D1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.94	\$ -	\$ 1.62	\$ 2.56	\$ 2.56
S1-133	Assembly and Installation of Foundation Type D2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.09	\$ -	\$ 1.91	\$ 3.00	\$ 3.00
S1-134	Assembly and Installation of Foundation Type E1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.01	\$ -	\$ 1.76	\$ 2.77	\$ 2.77
S1-135	Assembly and Erection of Tower Type A1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.15	\$ -	\$ 4.00	\$ 6.15	\$ 6.15
S1-136	Assembly and Erection of Tower Type A2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.13	\$ -	\$ 3.98	\$ 6.11	\$ 6.11
S1-137	Assembly and Erection of Tower Type A3, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.13	\$ -	\$ 3.98	\$ 6.11	\$ 6.11
S1-138	Assembly and Erection of Tower Type A4, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.13	\$ -	\$ 3.98	\$ 6.11	\$ 6.11
S1-139	Assembly and Erection of Tower Type B1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.15	\$ -	\$ 4.00	\$ 6.15	\$ 6.15
S1-140	Assembly and Erection of Tower Type B2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.13	\$ -	\$ 3.98	\$ 6.11	\$ 6.11
S1-141	Assembly and Erection of Tower Type C1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.40	\$ -	\$ 4.30	\$ 6.70	\$ 6.70
S1-142	Assembly and Erection of Tower Type C2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.28	\$ 6.65	\$ 6.65
S1-143	Assembly and Erection of Tower Type D1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.40	\$ -	\$ 4.30	\$ 6.70	\$ 6.70
S1-144	Assembly and Erection of Tower Type D2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.28	\$ 6.65	\$ 6.65
S1-145	Assembly and Erection of Tower Type E1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.38	\$ -	\$ 4.29	\$ 6.67	\$ 6.67
S1-146	Two stockbridge dampers per 1" guy wire on A1 and A3 towers, placed at 1.5 m and 2.5 m above the anchor	Per guy	2,924	\$ 4,386.00	\$ 143,995.00	\$ -	\$ 1,136,656.15	\$ 149.12	\$ 436,029.80
S1-147	Two stockbridge dampers per 1.5" guy wire on A2, A4 and B1 towers, placed at 2.5 m and 3.5 m above the anchor	Per guy	1,664	\$ 2,923.62	\$ 50,914.87	\$ -	\$ 400,233.96	\$ 178.95	\$ 297,767.81
Sub-total (S1-1x) : Optional Pricing				7,934.17	\$ 262,980.73	\$ -	\$ 1,634,427.68	\$ 101,735.71	\$ 899,406.04
TOTAL VALUE THIS PROPOSAL (Tax Excluded):									317,708,594.84

Notes:

- 1) Modified per Nalcor file << V Pricing Schedule F1 F2 and F3 kh 30-Jul-2014 for RT Final.xlsx >>
- 2) Items marked T&M shall be performed on a time and Material basis
- 3) Items marked "Not Priced" are assumed to be performed under the Part "B" section of the contract.
- 4) Items marked "No Information" cannot be priced as no drawings were provided.
- 5) Items marked "N/A" are not applicable to this line section.
- 6) Unit Price Based on 2014 Project Labour Agreement. Units to be revised based on Exhibit 2 - Compensation

LOWER CHURCHILL PROJECT CT0327 CONSTRUCTION OF 350kV HVdc TRANSMISSION LINE:
SEGMENT 3

Rev 00, 07 August 2014

SCHEDULE OF PRICE BREAKDOWN

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Manhours(hrs)	Equipment(\$)	Material (\$)	Labour(\$)	Total Unit Price(\$)	Subtotal Price (\$)
S1-A	General Works (S1-Ax)								
	Mobilization and Demobilization								
S1-A1	Initial Mobilization	LS	1		\$ -	\$ -	\$ -	\$ 1,000,000.00	\$ 1,000,000.00
S1-A2	Final Demobilization	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced
	Accommodation Camp								
S1-A3	Accommodation Camp Installation	LS	1		\$ 16,479.06	\$ 1,585,828.31	\$ 603,748.91	\$ 2,094,685.71	\$ 4,284,262.93
S1-A4	Boarding and Lodging for Company/Engineer with 3 meals per day	person-day	12,000		\$ 26,400.00	\$ 916,440.00	\$ 390,960.00	\$ 1,222,440.00	\$ 2,529,840.00
S1-A5	Meals for Company/Engineer visitors	meal	1,000		\$ 366.74	\$ 12,730.00	\$ 5,430.00	\$ 16,980.00	\$ 35,140.00
	Performance Security								
S1-A6	Parent Guarantee Article 7.4	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-A7	Letter Of Credit Article 7.6	LS	1		\$ -	\$ -	\$ -	\$ 929,928.88	\$ 929,928.88
S1-A8	Performance Bonding Article 7.1	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-A9	Labour and Materials Bonding Article 7.2	LS	1		\$ -	\$ -	\$ -	Not Priced	Not Priced
	Survey Cost								
S1-A10	Survey Cost	LS	1		\$ -	\$ 803,290.62	\$ 40,164.53	\$ 495,362.55	\$ 1,338,817.70
	Sub-total (S1-Ax) : General Works				43,245.80	\$ 2,514,998.31	\$ 1,000,138.91	\$ 3,334,105.71	\$ 6,214,437.77
S1-B	Right-of-Way Clearing - Direct Costs (S1-Bx)								
	Right-Of-Way Clearing								
S1-B1	ROW Clearing	Ha	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B2	Removal of selected danger trees	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B3	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B4	Supply and Installation of Bridge - 3 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B5	Supply and Installation of Bridge - 4 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B6	Supply and Installation of Bridge - 5 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B7	Supply and Installation of Bridge - 6 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B8	Supply and Installation of Bridge - 7 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B9	Supply and Installation of Bridge - 8 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B10	Supply and Installation of Bridge - 10 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B11	Supply and Installation of Bridge - 13 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B12	Supply and Installation of Bridge - 14 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B13	Supply and Installation of Bridge - 15 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B14	Supply and Installation of Bridge - 16 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B15	Supply and Installation of Bridge - 25 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B16	Supply and Installation of Bridge - 35 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B17	Supply and Installation of Bridge - 50 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B18	Supply and Installation of Bridge - 60 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B19	Supply and Installation of Bridge - 65 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B20	Installation of Corduroy Road	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B21	Installation of Access Road - Access Class 3	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B22	Installation of Access Road - Access Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B23	Installation of Access Road - Bypass Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B24	Installation of Access Road - Winter	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
	Sub-total (S1-Bx) : Right-of-Way Clearing - Direct Costs				-	\$ -	\$ -	\$ -	\$ -
S1-B	Right-of-Way Clearing for Wood Pole Electrode Line- Direct Costs (S1-Bx)								
	Right-Of-Way Clearing								
S1-B25	ROW Clearing	Ha	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B26	Removal of selected danger trees	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B27	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B28	Supply and Installation of Bridge - 3 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B29	Supply and Installation of Bridge - 4 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B30	Supply and Installation of Bridge - 5 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B31	Supply and Installation of Bridge - 6 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B32	Supply and Installation of Bridge - 7 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B33	Supply and Installation of Bridge - 8 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B34	Supply and Installation of Bridge - 10 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B35	Supply and Installation of Bridge - 13 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B36	Supply and Installation of Bridge - 14 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B37	Supply and Installation of Bridge - 15 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B38	Supply and Installation of Bridge - 16 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B39	Supply and Installation of Bridge - 25 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B40	Supply and Installation of Bridge - 35 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B41	Supply and Installation of Bridge - 50 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B42	Supply and Installation of Bridge - 60 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B43	Supply and Installation of Bridge - 65 m	EA	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B44	Installation of Corduroy Road	LM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B45	Installation of Access Road - Access Class 3	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B46	Installation of Access Road - Access Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
S1-B47	Installation of Access Road - Bypass Trail	KM	0		\$ -	\$ -	\$ -	Not Priced	Not Priced
	al (S1-Bx) : Right-of-Way Clearing for Wood Pole Electrode Line - Direct Costs				-	\$ -	\$ -	\$ -	\$ -
S1-C	Tower Foundation Construction (S1-Cx)								
	Guy Wire Anchors								
S1-C1	Installation of Guy Wire Anchor in soil as per design drawings and technical specification	LM	15,524		\$ 46,390.88	\$ 2,209,432.61	\$ 799,661.84	\$ 4,174,200.67	\$ 7,183,295.12
S1-C2	Installation of Guy Wire Anchor in rock as per design drawings and technical specification	LM	14,574		\$ 40,528.99	\$ 1,918,574.02	\$ 673,337.28	\$ 3,630,337.30	\$ 6,222,248.59
S1-C2	Testing of Guy Wire Anchor up to 550kN as per design drawings and technical specification	Ea	1,408		\$ 3,993.57	\$ 603,665.92	\$ -	\$ 906,414.08	\$ 1,510,080.00
S1-C2	Testing of Guy Wire Anchor up to 900kN as per design drawings and technical specification	Ea	780		\$ 2,212.34	\$ 334,417.20	\$ -	\$ 502,132.80	\$ 836,550.00
	Grillage Foundations								
S1-C3	Assembly and Installation of Foundation Types A1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1	EA	17		\$ 1,017.08	\$ 105,501.83	\$ 2,359.26	\$ 146,460.27	\$ 254,321.36
S1-C4	Assembly and Installation of Foundation Types A2-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2	EA	3		\$ 265.86	\$ 26,826.60	\$ 700.80	\$ 38,395.50	\$ 65,922.90
S1-C5	Assembly and Installation of Foundation Types A3-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3	EA	2		\$ 146.39	\$ 14,984.92	\$ 375.70	\$ 21,105.28	\$ 36,465.90
S1-C6	Assembly and Installation of Foundation Types A4-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4	EA	7		\$ 620.35	\$ 62,595.40	\$ 1,635.20	\$ 89,589.50	\$ 153,820.10
S1-C7	Assembly and Installation of Foundation Types B1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1	EA	1		\$ 100.22	\$ 10,033.55	\$ 268.39	\$ 14,486.29	\$ 24,788.23
S1-C8	Assembly and Installation of Foundation Types B2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2	EA	36		\$ 3,656.71	\$ 384,246.00	\$ 8,011.44	\$ 526,154.76	\$ 918,412.20
S1-C9	Assembly and Installation of Foundation Types A1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1	EA	91		\$ 4,062.73	\$ 425,481.42	\$ 5,752.11	\$ 585,368.42	\$ 1,016,601.95
S1-C10	Assembly and Installation of Foundation Types A2-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2	EA	17		\$ 1,060.46	\$ 108,571.01	\$ 2,091.17	\$ 153,076.33	\$ 263,738.51
S1-C11	Assembly and Installation of Foundation Types A3-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3	EA	7		\$ 346.03	\$ 36,071.07	\$ 587.65	\$ 49,858.62	\$ 86,517.34
S1-C12	Assembly and Installation of Foundation Types A4-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4	EA	34		\$ 2,120.93	\$ 217,142.02	\$ 4,182.34	\$ 306,152.66	\$ 527,477.02
S1-C13	Assembly and Installation of Foundation Types B1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1	EA	3		\$ 192.71	\$ 19,713.66	\$ 395.13	\$ 27,816.66	\$ 47,925.45
S1-C14	Assembly and Installation of Foundation Types B2-1A (250 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2	EA	0		\$ -	\$ -	\$ -	\$ 25,520.00	\$ -
S1-C15	Assembly and Installation of Foundation Types C1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C1	EA	24		\$ 2,506.42	\$ 263,172.00	\$ 5,635.44	\$ 360,635.04	\$ 629,442.48
S1-C16	Assembly and Installation of Foundation Types C2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C2	EA	40		\$ 4,682.77	\$ 489,924.80	\$ 11,505.20	\$ 673,789.60	\$ 1,175,219.60
S1-C17	Assembly and Installation of Foundation Types D1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D1	EA	36		\$ 4,432.53	\$ 462,754.08	\$ 11,199.96	\$ 637,862.76	\$ 1,111,816.80
S1-C18	Assembly and Installation of Foundation Types D2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D2	EA	16		\$ 2,067.50	\$ 215,719.84	\$ 5,450.40	\$ 297,476.16	\$ 518,646.40
S1-C19	Assembly and Installation of Foundation Types E1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types E1	EA	16		\$ 2,259.27	\$ 234,298.24	\$ 6,030.40	\$ 325,294.72	\$ 565,623.36
S1-C20	Uplift testing per leg for Types C1-1, or D2-1, or E1-1 (100 kPa) as per technical specification for Tower Types C1, or D2, or E1	EA	0		T&M	T&M	T&M	T&M	\$ -
S1-C21	Downward, uplift, and lateral load testing per leg for Types C1-3, or D2-3, or E1-3 as per technical specification for Tower Types C1, or D2, or E1	EA	0		T&M	T&M	T&M	T&M	\$ -
	Rock Foundations								
S1-C22	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A1	EA	116		\$ 10,063.85	\$ 970,119.60	\$ 136,381.20	\$ 1,434,787.76	\$ 2,541,288.56
S1-C23	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A2	EA	22		\$ 2,237.07	\$ 213,623.96	\$ 37,902.70	\$ 318,261.46	\$ 569,788.12
S1-C24	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A3	EA	8		\$ 694.06	\$ 66,904.80	\$ 9,405.60	\$ 98,950.88	\$ 175,261.28
S1-C25	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A4	EA	43		\$ 4,389.65	\$ 420,073.88	\$ 74,082.55	\$ 624,476.53	\$ 1,118,632.96
S1-C26	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type B1	EA	4		\$ 408.34	\$ 39,076.64	\$ 6,891.40	\$ 58,090.84	\$ 104,058.88

S1-C27	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type B2	EA	44	\$ 6,762.35	\$ 632,478.88	\$ 75,661.96	\$ 967,361.56	\$ 38,079.60	\$ 1,675,502.40	
S1-C28	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Weak Surface Rock)	EA	10	\$ 669.29	\$ 64,217.50	\$ 12,766.70	\$ 95,059.30	\$ 17,204.35	\$ 172,043.50	
S1-C29	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Weak Surface Rock)	EA	2	\$ 138.43	\$ 13,236.30	\$ 3,129.78	\$ 19,606.76	\$ 17,986.42	\$ 35,972.84	
S1-C30	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Weak Surface Rock)	EA	1	\$ 66.95	\$ 6,424.33	\$ 1,276.67	\$ 9,508.39	\$ 17,209.39	\$ 17,209.39	
S1-C31	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Weak Surface Rock)	EA	4	\$ 276.86	\$ 26,472.60	\$ 6,259.56	\$ 39,213.52	\$ 17,986.42	\$ 71,945.68	
S1-C32	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Weak Surface Rock)	EA	1	\$ 69.99	\$ 6,681.97	\$ 1,667.48	\$ 9,903.43	\$ 18,252.88	\$ 18,252.88	
S1-C33	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Sound Surface Rock)	EA	89	\$ 5,424.62	\$ 513,942.96	\$ 113,623.63	\$ 769,451.28	\$ 15,696.83	\$ 1,397,017.87	
S1-C34	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Sound Surface Rock)	EA	15	\$ 948.54	\$ 89,565.60	\$ 23,473.35	\$ 134,144.55	\$ 16,478.90	\$ 247,183.50	
S1-C35	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Sound Surface Rock)	EA	6	\$ 365.81	\$ 34,663.32	\$ 7,660.02	\$ 51,887.94	\$ 15,701.88	\$ 94,211.28	
S1-C36	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Sound Surface Rock)	EA	32	\$ 2,023.55	\$ 191,073.28	\$ 50,076.48	\$ 286,175.04	\$ 16,478.90	\$ 527,324.80	
S1-C37	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Sound Surface Rock)	EA	3	\$ 192.02	\$ 18,104.58	\$ 5,002.44	\$ 27,129.09	\$ 16,745.37	\$ 50,236.11	
S1-C38	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type B2 (surface rock)	EA	32	\$ 2,735.25	\$ 254,792.96	\$ 48,099.20	\$ 393,105.28	\$ 21,749.92	\$ 695,997.44	
S1-C39	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C1	EA	28	\$ 4,104.46	\$ 382,134.48	\$ 48,148.52	\$ 586,909.40	\$ 36,328.30	\$ 1,017,192.40	
S1-C40	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C2	EA	44	\$ 6,775.92	\$ 633,421.80	\$ 75,661.96	\$ 969,344.64	\$ 38,146.10	\$ 1,678,428.40	
S1-C41	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D1	EA	40	\$ 5,987.63	\$ 554,524.80	\$ 68,783.60	\$ 856,571.20	\$ 36,996.99	\$ 1,479,879.60	
S1-C42	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D2	EA	20	\$ 3,113.81	\$ 290,269.40	\$ 34,391.80	\$ 445,555.60	\$ 38,510.84	\$ 770,216.80	
S1-C43	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type E1	EA	20	\$ 3,022.02	\$ 279,221.20	\$ 34,391.80	\$ 432,406.00	\$ 37,300.95	\$ 746,019.00	
S1-C44	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C1 (surface rock)	EA	20	\$ 1,752.97	\$ 162,262.00	\$ 30,062.00	\$ 252,036.00	\$ 22,218.00	\$ 444,360.00	
S1-C45	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C2 (surface rock)	EA	40	\$ 3,699.18	\$ 338,021.60	\$ 64,257.20	\$ 532,212.00	\$ 23,362.27	\$ 934,490.80	
S1-C46	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D1 (surface rock)	EA	32	\$ 2,894.35	\$ 265,904.32	\$ 51,405.76	\$ 416,276.48	\$ 22,924.58	\$ 733,586.56	
S1-C47	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D2 (surface rock)	EA	20	\$ 1,989.29	\$ 178,870.20	\$ 40,497.60	\$ 286,335.20	\$ 25,285.15	\$ 505,703.00	
S1-C48	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type E1 (surface rock)	EA	16	\$ 1,547.20	\$ 140,024.80	\$ 32,398.08	\$ 222,607.52	\$ 24,689.40	\$ 395,030.40	
S1-C49	Installation and Testing of 25M Mechanical Rock Anchor as per design drawings and technical specification	LM	8,390	\$ 9,803.72	\$ 786,343.60	\$ 182,070.60	\$ 1,367,710.95	\$ 278.43	\$ 2,336,125.15	
S1-C50	Installation and Testing of 29M Mechanical Rock Anchor as per design drawings and technical specification	LM	890	\$ 1,085.50	\$ 87,846.96	\$ 25,096.59	\$ 151,683.08	\$ 297.35	\$ 264,626.63	
S1-C51	Installation and Testing of 32M Mechanical Rock Anchor as per design drawings and technical specification	LM	18,590	\$ 24,850.39	\$ 1,985,635.28	\$ 640,437.56	\$ 3,459,106.42	\$ 327.34	\$ 6,085,272.22	
S1-C52	Installation and Testing of 38M Mechanical Rock Anchor as per design drawings and technical specification	LM	15	\$ 21.58	\$ 1,707.21	#N/A	\$ 2,993.94	\$ 362.00	\$ 5,353.98	
S1-C52	Installation and Testing of 43M Mechanical Rock Anchor as per design drawings and technical specification	LM	2,349	\$ 3,427.53	\$ 271,191.24	\$ 99,919.98	\$ 475,589.04	\$ 360.39	\$ 846,700.27	
S1-C53	Installation and Testing of 57M Mechanical Rock Anchor as per design drawings and technical specification	LM	271	\$ 438.53	\$ 34,598.74	\$ 16,212.06	\$ 60,724.04	\$ 411.34	\$ 111,534.84	
S1-C54	Installation and Testing of 64M Mechanical Rock Anchor as per design drawings and technical specification	LM	10	\$ 17.70	\$ 1,385.47	\$ 717.06	\$ 2,444.53	\$ 445.79	\$ 4,547.06	
H-Pile Foundations										
S1-C55	Design, Assembly and Installation of Foundation Type A1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A1 including supply and installation of steel cap	EA	4	\$ 780.00	\$ 60,469.24	\$ 53,627.52	\$ 65,997.52	\$ 45,023.57	\$ 180,094.28	
S1-C56	Design, Assembly and Installation of Foundation Type A2-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A2 including supply and installation of steel cap	EA	1	\$ 195.00	\$ 15,117.31	\$ 13,406.88	\$ 16,499.38	\$ 45,023.57	\$ 45,023.57	
S1-C57	Design, Assembly and Installation of Foundation Type A3-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A3 including supply and installation of steel cap	EA	1	\$ 195.00	\$ 15,117.31	\$ 13,438.23	\$ 16,499.38	\$ 45,030.00	\$ 45,030.00	
S1-C58	Design, Assembly and Installation of Foundation Type A4-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A4 including supply and installation of steel cap	EA	2	\$ 390.00	\$ 30,234.62	\$ 26,813.76	\$ 32,998.76	\$ 45,023.57	\$ 90,047.14	
S1-C59	Design, Assembly and Installation of Foundation Type B1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type B1 including supply and installation of steel cap	EA	1	\$ 195.00	\$ 15,117.31	\$ 13,438.23	\$ 16,499.38	\$ 45,030.00	\$ 45,030.00	
S1-C60	Design, Assembly and Installation of Foundation Type B2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type B2 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 250,775.60	\$ 295,199.96	\$ 204,270.46	\$ 817,081.84	
S1-C61	Design, Assembly and Installation of Foundation Type C1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C1 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 251,444.40	\$ 295,199.96	\$ 204,280.00	\$ 817,120.00	
S1-C62	Design, Assembly and Installation of Foundation Type C2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C2 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 250,775.60	\$ 295,199.96	\$ 204,270.46	\$ 817,081.84	
S1-C63	Design, Assembly and Installation of Foundation Type D1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D1 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 251,444.40	\$ 295,199.96	\$ 204,280.00	\$ 817,120.00	
S1-C64	Design, Assembly and Installation of Foundation Type D2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D2 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 251,444.40	\$ 295,199.96	\$ 204,280.00	\$ 817,120.00	
S1-C65	Design, Assembly and Installation of Foundation Type E1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type E1 including supply and installation of steel cap	EA	4	\$ 4,024.00	\$ 271,106.28	\$ 250,775.60	\$ 295,199.96	\$ 204,270.46	\$ 817,081.84	
S1-C66	Rock anchor to be installed with S1-C60 to S1-C65 item above as per the design drawings and technical specifications (length in bog not considered)	LM	1,440	\$ 4,303.09	\$ 204,940.80	\$ 74,174.40	\$ 387,187.20	\$ 462.71	\$ 666,302.40	
S1-C67	Supply, and installation of H-Piles, HP 360 x 108, Grade 350AT	LM	1,980	\$ 2,415.60	\$ 234,293.40	\$ 620,551.80	\$ 239,342.40	\$ 552.62	\$ 1,094,187.60	
Bog and Poor Soil										
S1-C68	Supply and Installation of Crib for excavation protection of tower types A1, A2, A3, A4, B1, B2, C1, C2, D1, D2, E1 for any type of Foundation as per Dwg 505573-4622-42DD-0069 and 505573-4622-42DD-0071	M2	6,700	\$ 15,879.00	\$ 1,616,442.00	\$ 1,748,700.00	\$ 2,313,175.00	\$ 847.51	\$ 5,678,317.00	
Earthwork										
S1-C69	Transportation of native backfill	KM	1,000	\$ 222.22	\$ 32,770.00	\$ -	\$ 31,270.00	\$ 64.04	\$ 64,040.00	
S1-C70	Supply and transportation of approved fill from an alternate source/processed material/road gravel	M3 * KM	14,000	\$ 5,930.56	\$ 645,400.00	\$ 743,400.00	\$ 630,980.00	\$ 144.27	\$ 2,019,780.00	
S1-C71	Rock blasting/preparation	M3	1,000	\$ 6,000.00	\$ 650,360.00	\$ -	\$ 863,500.00	\$ 1,513.86	\$ 1,513,860.00	
Sub-total (S1-Cx): Tower Foundation Construction				289,105.69	\$ 22,306,759.00	#N/A	\$ 34,300,828.98	\$ 2,492,570.55	\$ 67,364,225.42	
S1-D Tower Assembly and Erection (S1-Dx)										
Assembly and Erection of Suspension Tower Type "A1"										
S1-D1	Assembly and Erection of Suspension Tower Type "A1 + 0" as per dwg. 505573-4622-43DD-0042	EA	20	\$ 5,437.41	\$ 347,168.40	\$ -	\$ 804,441.80	\$ 57,581.00	\$ 1,151,620.00	
S1-D2	Assembly and Erection of Suspension Tower Type "A1 + 1.5" as per dwg. 505573-4622-43DD-0042	EA	10	\$ 2,776.22	\$ 176,852.00	\$ -	\$ 410,762.60	\$ 58,762.00	\$ 587,620.00	
S1-D3	Assembly and Erection of Suspension Tower Type "A1 + 3" as per dwg. 505573-4622-43DD-0042	EA	13	\$ 3,652.79	\$ 232,390.86	\$ -	\$ 540,482.15	\$ 59,452.00	\$ 772,876.00	
S1-D4	Assembly and Erection of Suspension Tower Type "A1 + 4.5" as per dwg. 505573-4622-43DD-0042	EA	9	\$ 2,580.86	\$ 218,298.33	\$ -	\$ 327,447.45	\$ 60,640.00	\$ 545,760.00	
S1-D5	Assembly and Erection of Suspension Tower Type "A1 + 6" as per dwg. 505573-4622-43DD-0042	EA	27	\$ 7,768.85	\$ 493,015.41	\$ -	\$ 1,149,613.02	\$ 60,838.09	\$ 1,642,628.43	
S1-D6	Assembly and Erection of Suspension Tower Type "A1 + 7.5" as per dwg. 505573-4622-43DD-0042	EA	27	\$ 7,859.62	\$ 498,172.68	\$ -	\$ 1,163,094.12	\$ 61,528.40	\$ 1,661,266.80	
S1-D7	Assembly and Erection of Suspension Tower Type "A1 + 9" as per dwg. 505573-4622-43DD-0042	EA	42	\$ 12,368.44	\$ 783,024.48	\$ -	\$ 1,830,401.16	\$ 62,224.42	\$ 2,613,425.64	
S1-D8	Assembly and Erection of Suspension Tower Type "A1 + 10.5" as per dwg. 505573-4622-43DD-0042	EA	13	\$ 3,903.09	\$ 329,707.82	\$ -	\$ 494,561.73	\$ 63,405.35	\$ 824,269.55	
S1-D9	Assembly and Erection of Suspension Tower Type "A1 + 12" as per dwg. 505573-4622-43DD-0042	EA	35	\$ 10,625.99	\$ 897,339.45	\$ -	\$ 1,346,009.00	\$ 64,095.67	\$ 2,243,348.45	
S1-D10	Assembly and Erection of Suspension Tower Type "A1 + 13.5" as per dwg. 505573-4622-43DD-0042	EA	33	\$ 10,130.65	\$ 638,676.39	\$ -	\$ 1,499,449.38	\$ 64,791.69	\$ 2,138,125.77	
S1-D11	Assembly and Erection of Suspension Tower Type "A1 + 15" as per dwg. 505573-4622-43DD-0042	EA	27	\$ 8,379.48	\$ 527,710.68	\$ -	\$ 1,240,303.05	\$ 65,481.99	\$ 1,768,013.73	
S1-D12	Assembly and Erection of Suspension Tower Type "A1 + 16.5" as per dwg. 505573-4622-43DD-0042	EA	29	\$ 9,097.68	\$ 572,339.94	\$ -	\$ 1,346,656.76	\$ 66,172.30	\$ 1,918,996.70	
S1-D13	Assembly and Erection of Suspension Tower Type "A1 + 18" as per dwg. 505573-4622-43DD-0042	EA	42	\$ 13,318.31	\$ 836,994.90	\$ -	\$ 1,971,474.12	\$ 66,868.31	\$ 2,808,469.02	
Assembly and Erection of Suspension Tower Type "A2"										
S1-D14	Assembly and Erection of Suspension Tower Type "A2 + 0" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 78,510.00	\$ -	
S1-D15	Assembly and Erection of Suspension Tower Type "A2 + 1.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 80,580.00	\$ -	
S1-D16	Assembly and Erection of Suspension Tower Type "A2 + 3" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 81,800.00	\$ -	
S1-D17	Assembly and Erection of Suspension Tower Type "A2 + 4.5" as per dwg. 505573-4622-43DD-0044	EA	1	\$ 397.78	\$ 24,988.00	\$ -	\$ 58,881.31	\$ 83,870.00	\$ 83,870.00	
S1-D18	Assembly and Erection of Suspension Tower Type "A2 + 6" as per dwg. 505573-4622-43DD-0044	EA	8	\$ 3,197.37	\$ 200,762.80	\$ -	\$ 473,295.20	\$ 84,257.25	\$ 674,058.00	
S1-D19	Assembly and Erection of Suspension Tower Type "A2 + 7.5" as per dwg. 505573-4622-43DD-0044	EA	2	\$ 811.40	\$ 50,875.84	\$ -	\$ 120,114.66	\$ 85,495.25	\$ 170,990.50	
S1-D20	Assembly and Erection of Suspension Tower Type "A2 + 9" as per dwg. 505573-4622-43DD-0044	EA	4	\$ 1,646.80	\$ 103,115.60	\$ -	\$ 243,794.52	\$ 86,727.53	\$ 346,910.12	

S1-D21	Assembly and Erection of Suspension Tower Type "A2 + 10.5" as per dwg. 505573-4622-43DD-0044	EA	9	\$ 3,795.83	\$ 237,153.33	\$ -	\$ 561,981.51	\$ 88,792.76	\$ 799,134.84	
S1-D22	Assembly and Erection of Suspension Tower Type "A2 + 12" as per dwg. 505573-4622-43DD-0044	EA	18	\$ 7,698.68	\$ 480,387.60	\$ -	\$ 1,139,857.74	\$ 90,013.63	\$ 1,620,245.34	
S1-D23	Assembly and Erection of Suspension Tower Type "A2 + 13.5" as per dwg. 505573-4622-43DD-0044	EA	8	\$ 3,469.87	\$ 216,246.16	\$ -	\$ 513,766.88	\$ 91,251.63	\$ 730,013.04	
S1-D24	Assembly and Erection of Suspension Tower Type "A2 + 15" as per dwg. 505573-4622-43DD-0044	EA	5	\$ 2,243.81	\$ 140,360.60	\$ -	\$ 332,040.90	\$ 94,480.30	\$ 472,401.50	
S1-D25	Assembly and Erection of Suspension Tower Type "A2 + 16.5" as per dwg. 505573-4622-43DD-0044	EA	2	\$ 909.53	\$ 56,826.20	\$ -	\$ 134,598.96	\$ 95,712.58	\$ 191,425.16	
S1-D26	Assembly and Erection of Suspension Tower Type "A2 + 18" as per dwg. 505573-4622-43DD-0044	EA	2	\$ 921.53	\$ 57,508.18	\$ -	\$ 136,381.56	\$ 96,944.87	\$ 193,889.74	
S1-D27	Assembly and Erection of Suspension Tower Type "A2 + 19.5" as per dwg. 505573-4622-43DD-0044	EA	1	\$ 470.77	\$ 29,322.40	\$ -	\$ 69,676.29	\$ 99,000.00	\$ 99,000.00	
Assembly and Erection of Suspension Tower Type "A3"										
S1-D28	Assembly and Erection of Suspension Tower Type "A3 + 0" as per dwg. 505573-4622-43DD-0050	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 66,690.00	\$ -	
S1-D29	Assembly and Erection of Suspension Tower Type "A3 + 1.5" as per dwg. 505573-4622-43DD-0050	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 67,980.00	\$ -	
S1-D30	Assembly and Erection of Suspension Tower Type "A3 + 3" as per dwg. 505573-4622-43DD-0050	EA	3	\$ 980.15	\$ 61,251.96	\$ -	\$ 144,973.86	\$ 68,741.94	\$ 206,225.82	
S1-D31	Assembly and Erection of Suspension Tower Type "A3 + 4.5" as per dwg. 505573-4622-43DD-0050	EA	2	\$ 665.93	\$ 41,545.04	\$ -	\$ 98,506.12	\$ 70,025.58	\$ 140,051.16	
S1-D32	Assembly and Erection of Suspension Tower Type "A3 + 6" as per dwg. 505573-4622-43DD-0050	EA	3	\$ 1,003.49	\$ 62,578.05	\$ -	\$ 148,440.03	\$ 70,339.36	\$ 211,018.08	
S1-D33	Assembly and Erection of Suspension Tower Type "A3 + 7.5" as per dwg. 505573-4622-43DD-0050	EA	3	\$ 1,019.32	\$ 63,477.87	\$ -	\$ 150,792.09	\$ 71,423.32	\$ 214,269.96	
S1-D34	Assembly and Erection of Suspension Tower Type "A3 + 9" as per dwg. 505573-4622-43DD-0050	EA	2	\$ 685.10	\$ 42,634.30	\$ -	\$ 101,353.34	\$ 71,993.82	\$ 143,987.64	
S1-D35	Assembly and Erection of Suspension Tower Type "A3 + 10.5" as per dwg. 505573-4622-43DD-0050	EA	4	\$ 1,399.10	\$ 86,910.40	\$ -	\$ 206,998.12	\$ 73,477.13	\$ 293,908.52	
S1-D36	Assembly and Erection of Suspension Tower Type "A3 + 12" as per dwg. 505573-4622-43DD-0050	EA	2	\$ 704.55	\$ 43,739.36	\$ -	\$ 104,241.82	\$ 73,990.59	\$ 147,981.18	
S1-D37	Assembly and Erection of Suspension Tower Type "A3 + 13.5" as per dwg. 505573-4622-43DD-0050	EA	1	\$ 357.56	\$ 22,169.62	\$ -	\$ 52,904.92	\$ 75,074.54	\$ 75,074.54	
S1-D38	Assembly and Erection of Suspension Tower Type "A3 + 15" as per dwg. 505573-4622-43DD-0050	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 75,650.00	\$ -	
S1-D39	Assembly and Erection of Suspension Tower Type "A3 + 16.5" as per dwg. 505573-4622-43DD-0050	EA	2	\$ 731.23	\$ 45,254.86	\$ -	\$ 108,203.16	\$ 76,729.01	\$ 153,458.02	
Assembly and Erection of Suspension Tower Type "A4"										
S1-D40	Assembly and Erection of Suspension Tower Type "A4 + 0" as per dwg. 505573-4622-43DD-0056	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 78,970.00	\$ -	
S1-D41	Assembly and Erection of Suspension Tower Type "A4 + 1.5" as per dwg. 505573-4622-43DD-0056	EA	6	\$ 2,300.02	\$ 143,129.82	\$ -	\$ 340,514.58	\$ 80,610.00	\$ 483,660.00	
S1-D42	Assembly and Erection of Suspension Tower Type "A4 + 3" as per dwg. 505573-4622-43DD-0056	EA	5	\$ 1,946.55	\$ 120,971.90	\$ -	\$ 288,198.00	\$ 81,840.00	\$ 409,200.00	
S1-D43	Assembly and Erection of Suspension Tower Type "A4 + 4.5" as per dwg. 505573-4622-43DD-0056	EA	8	\$ 3,195.16	\$ 198,139.44	\$ -	\$ 473,099.84	\$ 83,910.00	\$ 671,280.00	
S1-D44	Assembly and Erection of Suspension Tower Type "A4 + 6" as per dwg. 505573-4622-43DD-0056	EA	12	\$ 4,815.41	\$ 298,497.24	\$ -	\$ 713,016.96	\$ 84,292.85	\$ 1,011,514.20	
S1-D45	Assembly and Erection of Suspension Tower Type "A4 + 7.5" as per dwg. 505573-4622-43DD-0056	EA	12	\$ 4,887.76	\$ 302,608.08	\$ -	\$ 723,762.00	\$ 85,530.84	\$ 1,026,370.08	
S1-D46	Assembly and Erection of Suspension Tower Type "A4 + 9" as per dwg. 505573-4622-43DD-0056	EA	17	\$ 7,026.35	\$ 434,491.61	\$ -	\$ 1,040,481.77	\$ 86,763.14	\$ 1,474,973.38	
S1-D47	Assembly and Erection of Suspension Tower Type "A4 + 10.5" as per dwg. 505573-4622-43DD-0056	EA	17	\$ 7,197.33	\$ 444,206.60	\$ -	\$ 1,065,875.52	\$ 88,828.36	\$ 1,510,082.12	
S1-D48	Assembly and Erection of Suspension Tower Type "A4 + 12" as per dwg. 505573-4622-43DD-0056	EA	14	\$ 6,010.45	\$ 370,546.82	\$ -	\$ 890,142.54	\$ 90,049.24	\$ 1,260,689.36	
S1-D49	Assembly and Erection of Suspension Tower Type "A4 + 13.5" as per dwg. 505573-4622-43DD-0056	EA	12	\$ 5,224.17	\$ 321,722.28	\$ -	\$ 773,724.48	\$ 91,287.23	\$ 1,095,446.76	
S1-D50	Assembly and Erection of Suspension Tower Type "A4 + 15" as per dwg. 505573-4622-43DD-0056	EA	4	\$ 1,765.51	\$ 108,611.04	\$ -	\$ 261,489.88	\$ 92,525.23	\$ 370,100.92	
S1-D51	Assembly and Erection of Suspension Tower Type "A4 + 16.5" as per dwg. 505573-4622-43DD-0056	EA	6	\$ 2,684.27	\$ 164,962.50	\$ -	\$ 397,582.62	\$ 93,757.52	\$ 562,545.12	
S1-D52	Assembly and Erection of Suspension Tower Type "A4 + 18" as per dwg. 505573-4622-43DD-0056	EA	1	\$ 453.38	\$ 27,834.73	\$ -	\$ 67,155.07	\$ 94,989.80	\$ 94,989.80	
S1-D53	Assembly and Erection of Suspension Tower Type "A4 + 19.5" as per dwg. 505573-4622-43DD-0056	EA	8	\$ 3,707.05	\$ 227,224.40	\$ -	\$ 549,124.56	\$ 97,043.62	\$ 776,348.96	
Assembly and Erection of Suspension Tower Type "B1"										
S1-D54	Assembly and Erection of Suspension Tower Type "B1 + 0" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 99,290.00	\$ -	
S1-D55	Assembly and Erection of Suspension Tower Type "B1 + 1.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 102,430.00	\$ -	
S1-D56	Assembly and Erection of Suspension Tower Type "B1 + 3" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 104,480.00	\$ -	
S1-D57	Assembly and Erection of Suspension Tower Type "B1 + 4.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 514.11	\$ 31,460.75	\$ -	\$ 76,155.70	\$ 107,620.00	\$ 107,620.00	
S1-D58	Assembly and Erection of Suspension Tower Type "B1 + 6" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 108,310.00	\$ -	
S1-D59	Assembly and Erection of Suspension Tower Type "B1 + 7.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 528.56	\$ 32,281.65	\$ -	\$ 78,301.43	\$ 110,590.00	\$ 110,590.00	
S1-D60	Assembly and Erection of Suspension Tower Type "B1 + 9" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 111,560.00	\$ -	
S1-D61	Assembly and Erection of Suspension Tower Type "B1 + 10.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 115,780.00	\$ -	
S1-D62	Assembly and Erection of Suspension Tower Type "B1 + 12" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 561.34	\$ 34,144.45	\$ -	\$ 83,170.57	\$ 117,315.02	\$ 117,315.02	
S1-D63	Assembly and Erection of Suspension Tower Type "B1 + 13.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 581.46	\$ 35,474.69	\$ -	\$ 86,113.02	\$ 121,587.71	\$ -	
S1-D64	Assembly and Erection of Suspension Tower Type "B1 + 15" as per dwg. 505573-4622-43DD-0002	EA	3	\$ 1,777.72	\$ 108,318.42	\$ -	\$ 263,290.74	\$ 123,869.72	\$ 371,609.16	
S1-D65	Assembly and Erection of Suspension Tower Type "B1 + 16.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 597.30	\$ 36,374.51	\$ -	\$ 88,465.07	\$ 124,839.58	\$ 124,839.58	
S1-D66	Assembly and Erection of Suspension Tower Type "B1 + 18" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 125,810.00	\$ -	
S1-D67	Assembly and Erection of Suspension Tower Type "B1 + 19.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 625.36	\$ 37,968.95	\$ -	\$ 92,632.73	\$ 130,610.00	\$ 130,610.00	
S1-D68	Assembly and Erection of Suspension Tower Type "B1 + 21" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 639.08	\$ 38,936.09	\$ -	\$ 94,626.11	\$ 133,562.20	\$ -	
S1-D69	Assembly and Erection of Suspension Tower Type "B1 + 22.5" as per dwg. 505573-4622-43DD-0002	EA	2	\$ 1,313.17	\$ 79,861.28	\$ -	\$ 194,451.46	\$ 137,160.00	\$ 274,320.00	
S1-D70	Assembly and Erection of Suspension Tower Type "B1 + 24" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 672.92	\$ 41,233.48	\$ -	\$ 99,561.93	\$ 140,795.41	\$ -	
S1-D71	Assembly and Erection of Suspension Tower Type "B1 + 25.5" as per dwg. 505573-4622-43DD-0002	EA	2	\$ 1,368.06	\$ 83,729.88	\$ -	\$ 202,424.98	\$ 143,080.00	\$ 286,160.00	
S1-D72	Assembly and Erection of Suspension Tower Type "B1 + 27" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 688.75	\$ 42,133.31	\$ -	\$ 101,913.98	\$ 144,047.29	\$ 144,047.29	
Assembly and Erection of Medium Angle Tower Type "B2"										
S1-D73	Assembly and Erection of Medium Angle Tower Type "B2" Basic Body as per dwg. 505573-4622-43DD-0058	EA	29	\$ 16,175.11	\$ 1,100,455.46	\$ -	\$ 2,404,856.90	\$ 120,872.84	\$ 3,505,312.36	
S1-D74	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058	EA	7	\$ 1,203.30	\$ 78,588.86	\$ -	\$ 179,101.72	\$ 36,812.94	\$ 257,690.58	
S1-D75	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058	EA	10	\$ 2,538.48	\$ 167,086.30	\$ -	\$ 377,898.20	\$ 54,498.45	\$ 544,984.50	
S1-D76	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	7	\$ 72.80	\$ 4,754.40	\$ -	\$ 10,835.02	\$ 2,227.06	\$ 15,589.42	
S1-D77	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	7	\$ 88.76	\$ 5,797.33	\$ -	\$ 13,211.94	\$ 2,715.61	\$ 19,009.27	
S1-D78	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	8	\$ 144.35	\$ 9,427.44	\$ -	\$ 21,484.80	\$ 3,864.03	\$ 30,912.24	
S1-D79	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	18	\$ 440.51	\$ 28,769.94	\$ -	\$ 65,565.72	\$ 5,240.87	\$ 94,335.66	
S1-D80	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	39	\$ 1,075.76	\$ 70,258.89	\$ -	\$ 160,117.62	\$ 5,907.09	\$ 230,376.51	
S1-D81	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	18	\$ 612.76	\$ 40,020.12	\$ -	\$ 91,204.56	\$ 7,290.26	\$ 131,224.68	
S1-D82	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	19	\$ 876.42	\$ 59,702.18	\$ -	\$ 130,574.84	\$ 10,014.58	\$ 190,277.02	
Assembly and Erection of Medium Angle Tower Type "C1"										
S1-D83	Assembly and Erection of Medium Angle Tower Type "C1" Basic Body as per dwg. 505573-4622-43DD-0004	EA	19	\$ 12,567.26	\$ 871,986.57	\$ -	\$ 1,869,159.39	\$ 144,270.84	\$ 2,741,145.96	
S1-D84	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	1	\$ 139.25	\$ 9,094.59	\$ -	\$ 20,726.30	\$ 29,820.89	\$ 29,820.89	
S1-D85	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	2	\$ 494.90	\$ 32,581.34	\$ -	\$ 73,674.60	\$ 53,127.97	\$ 106,255.94	
S1-D86	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	28	\$ 280.40	\$ 18,313.12	\$ -	\$ 41,734.84	\$ 2,145.00	\$ 60,060.00	
S1-D87	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	16	\$ 220.43	\$ 14,396.64	\$ -	\$ 32,809.44	\$ 2,951.00	\$ 47,216.00	
S1-D88	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	14	\$ 262.15	\$ 17,121.16	\$ -	\$ 39,018.42	\$ 4,009.97	\$ 56,139.58	
S1-D89	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	4	\$ 101.33	\$ 6,617.76	\$ -	\$ 15,081.72	\$ 5,424.87	\$ 21,699.48	
S1-D90	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	6	\$ 176.52	\$ 11,528.88	\$ -	\$ 26,273.94	\$ 6,300.47	\$ 37,802.82	
S1-D91	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	1	\$ 35.85	\$ 2,341.38	\$ -	\$ 5,335.92	\$ 7,677.30	\$ 7,677.30	
S1-D92	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	7	\$ 292.01	\$ 19,071.57	\$ -	\$ 43,463.56	\$ 8,933.59	\$ 62,535.13	
Assembly and Erection of Medium Angle Tower Type "C2"										
S1-D93	Assembly and Erection of Medium Angle Tower Type "C2" Basic Body as per dwg. 505573-4622-43DD-0012	EA	32	\$ 22,375.71	\$ 1,556,877.12	\$ -	\$ 3,327,669.12	\$ 152,642.07	\$ 4,884,546.24	
S1-D94	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012	EA	11	\$ 1,905.90	\$ 124,475.89	\$ -	\$ 283,676.91	\$ 37,104.80	\$ 408,152.80	
S1-D95	Assembly and Erection of +10.									

S1-D99	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	26	\$	767.24	\$	50,109.28	\$	-	\$	114,197.72	\$	6,319.50	\$	164,307.00
S1-D100	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	33	\$	1,141.00	\$	74,519.61	\$	-	\$	169,827.90	\$	7,404.47	\$	244,347.51
S1-D101	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	14	\$	595.22	\$	38,874.64	\$	-	\$	88,593.96	\$	9,104.90	\$	127,468.60
S1-D102	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	9	\$	464.51	\$	30,337.29	\$	-	\$	69,137.73	\$	11,052.78	\$	99,475.02
Assembly and Erection of Dead-End Tower Type "D1"															
S1-D103	Assembly and Erection of Dead-End Tower Type "D1" Basic Body as per dwg. 505573-4622-43DD-0043	EA	28	\$	19,850.84	\$	1,379,523.60	\$	-	\$	2,952,677.56	\$	154,721.47	\$	4,332,201.16
S1-D104	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043	EA	1	\$	146.72	\$	9,582.21	\$	-	\$	21,837.59	\$	31,419.80	\$	31,419.80
S1-D105	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043	EA	1	\$	272.72	\$	17,811.84	\$	-	\$	40,592.68	\$	58,404.52	\$	58,404.52
S1-D106	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	56	\$	575.73	\$	37,601.76	\$	-	\$	85,692.32	\$	2,202.00	\$	123,312.00
S1-D107	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	19	\$	266.83	\$	17,426.80	\$	-	\$	39,715.13	\$	3,008.00	\$	57,152.00
S1-D108	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	14	\$	287.86	\$	18,800.74	\$	-	\$	42,846.16	\$	4,403.35	\$	61,646.90
S1-D109	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	11	\$	353.93	\$	23,115.73	\$	-	\$	52,680.10	\$	6,890.53	\$	75,795.83
S1-D110	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	4	\$	132.02	\$	8,622.44	\$	-	\$	19,650.32	\$	7,068.19	\$	28,272.76
S1-D111	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	4	\$	156.43	\$	10,216.92	\$	-	\$	23,284.04	\$	8,375.24	\$	33,500.96
S1-D112	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	4	\$	189.03	\$	12,345.44	\$	-	\$	28,134.88	\$	10,120.08	\$	40,480.32
Assembly and Erection of Dead-End Tower Type "D2"															
S1-D113	Assembly and Erection of Dead-End Tower Type "D2" Basic Body as per dwg. 505573-4622-43DD-0045	EA	15	\$	11,806.35	\$	831,402.75	\$	-	\$	1,756,785.15	\$	172,545.86	\$	2,588,187.90
S1-D114	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$	150.54	\$	9,831.83	\$	-	\$	22,406.46	\$	32,238.29	\$	-
S1-D115	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-D116	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	19	\$	265.70	\$	17,353.27	\$	-	\$	39,547.55	\$	2,994.78	\$	56,900.82
S1-D117	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	13	\$	263.84	\$	17,231.37	\$	-	\$	39,269.75	\$	4,346.24	\$	56,501.12
S1-D118	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	16	\$	425.69	\$	27,802.40	\$	-	\$	63,360.80	\$	5,697.70	\$	91,163.20
S1-D119	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	5	\$	171.10	\$	11,174.75	\$	-	\$	25,466.90	\$	7,328.33	\$	36,641.65
S1-D120	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	3	\$	123.46	\$	8,063.22	\$	-	\$	18,375.87	\$	8,813.03	\$	26,439.09
S1-D121	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	48.53	\$	3,169.56	\$	-	\$	7,223.34	\$	10,392.90	\$	-
S1-D122	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	4	\$	231.10	\$	15,093.16	\$	-	\$	34,396.84	\$	12,372.50	\$	49,490.00
Assembly and Erection of Dead-End Tower Type "E1"															
S1-D123	Assembly and Erection of Dead-End Tower Type "E1" Basic Body as per dwg. 505573-4622-43DD-0007	EA	14	\$	12,592.93	\$	863,979.20	\$	-	\$	1,873,375.42	\$	195,525.33	\$	2,737,354.62
S1-D124	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	3	\$	768.22	\$	50,173.08	\$	-	\$	114,343.05	\$	54,838.71	\$	164,516.13
S1-D125	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	1	\$	394.11	\$	25,739.61	\$	-	\$	58,659.84	\$	84,399.45	\$	84,399.45
S1-D126	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	12	\$	228.96	\$	14,953.92	\$	-	\$	34,079.40	\$	4,086.11	\$	49,033.32
S1-D127	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	3	\$	80.26	\$	5,241.99	\$	-	\$	11,946.30	\$	5,729.43	\$	17,188.29
S1-D128	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	6	\$	194.83	\$	12,724.68	\$	-	\$	28,999.20	\$	6,960.00	\$	41,760.00
S1-D129	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	17	\$	721.76	\$	47,138.96	\$	-	\$	107,428.44	\$	9,092.20	\$	154,567.40
S1-D130	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	16	\$	772.69	\$	50,465.28	\$	-	\$	115,008.96	\$	10,342.14	\$	165,474.24
S1-D131	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	2	\$	116.32	\$	7,596.88	\$	-	\$	17,313.08	\$	12,454.98	\$	24,909.96
S1-D132	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	0	\$	68.11	\$	4,448.61	\$	-	\$	10,138.25	\$	14,586.86	\$	-
Sub-total (S1-Dx) : Tower Assembly & Erection					309,650.20	\$	20,441,259.59	\$	-	\$	45,558,537.96	\$	8,135,580.07	\$	65,546,883.95
S1-E Installation of Wires and OPGW (S1-Ex)															
S1-E1	Installation of Counterpoise wire, connection with tower grounding	KM	227	\$	10,736.01	\$	1,004,098.18	\$	-	\$	1,619,862.92	\$	11,559.30	\$	2,623,961.10
S1-E2	Installation of ground rods at crossing obstacles in soil and rock	EA	120	\$	120.00	\$	11,701.20	\$	-	\$	18,133.20	\$	248.62	\$	29,834.40
S1-E3	Tower Footing resistance measurement	EA	227	\$	227.00	\$	7,270.81	\$	-	\$	33,736.74	\$	180.65	\$	41,007.55
S1-E4	S1 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S2-E4	S2 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S3-E4	S3 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	227	\$	89,738.46	\$	12,763,224.82	\$	-	\$	13,445,915.97	\$	115,458.77	\$	26,209,140.79
S4-E4	S4 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S5-E4	S5 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E5	Installation of Conductor on Steel Towers - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E6	Installation of Conductor on Steel Towers - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E7	Installation of Conductor on Wood Poles - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E8	Installation of Conductor on Wood Poles - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E9	Installation of ADSS on Wood Poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	16,160.00	\$	-
S1-E10	ADSS splicing and tests including loss analysis	EA	0	\$	-	\$	-	\$	-	\$	-	\$	7,510.00	\$	-
S1-E11	ADSS end to end test	LS	0	\$	-	\$	-	\$	-	\$	-	\$	9,710.00	\$	-
S1-E12	S1 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S2-E12	S2 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S3-E12	S3 - Installation of OPGW	KM	227	\$	20,010.83	\$	2,551,171.28	\$	-	\$	2,917,923.83	\$	24,092.93	\$	5,469,095.11
S4-E12	S4 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S5-E12	S5 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-E13	OPGW Continuity tests before and after stringing	LS	1	\$	844.80	\$	62,213.30	\$	-	\$	108,594.53	\$	170,807.83	\$	170,807.83
S1-E14	OPGW splicing and tests including loss analysis	EA	50	\$	2,000.00	\$	150,127.00	\$	-	\$	273,667.00	\$	8,475.88	\$	423,794.00
S1-E15	OPGW end to end test	LS	1	\$	192.00	\$	14,139.39	\$	-	\$	24,680.58	\$	38,819.97	\$	38,819.97
Sub-total (S1-Ex) : Installation of Wires and OPGW					123,869.10	\$	16,563,945.98	\$	-	\$	18,442,514.77	\$	403,023.95	\$	35,006,460.75
S1-F Miscellaneous Tower Attachments and Accessories (S1-Fx)															
S1-F1	Install 18" Aerial marker cones	EA	5	\$	20.00	\$	1,543.90	\$	-	\$	2,985.35	\$	905.85	\$	4,529.25
Sub-total (S1-Fx) : Miscellaneous Tower Attachment and Accessories					20.00	\$	1,543.90	\$	-	\$	2,985.35	\$	905.85	\$	4,529.25
S1-G Framing and Setting of Wood Poles (S1-Gx)															
S1-G1	Framing and Setting of Single Pole Tangent (0 - 1 deg) as per Drawing 505573-4633-4ZDD-0011	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-G2	Framing and Setting of Single Pole Light angle (1 - 10 deg) with Guys as per Drawing 505573-4633-4ZDD-0012	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-G3	Framing and Setting of Single Pole Heavy angle (10 - 30 deg) with Guys as per Drawing 505573-4633-4ZDD-0020	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-G4	Framing and Setting of Single Pole Dead-end (30 - 90 deg) with Guys as per Drawing 505573-4633-4ZDD-0021	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-G5	Framing and Setting of Single Pole Floating Dead-end (0 - 1 deg) with Guys as per Drawing 505573-4633-4ZDD-0013	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
S1-G6	Framing and Setting of Two Pole Dead-end to tap to HVdc Tower in Labrador as per Drawing 505573-4633-4ZDD-0061	EA	0	\$	-	\$	-	\$	-	\$	-	Not Priced	Not Priced	Not Priced	Not Priced
Sub-total (S1-Gx) : Framing and Setting of Wood Poles					-	\$	-	\$	-	\$	-	\$	-	\$	-

S1-118	Assembly and Installation of Foundation Type B2-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-119	Assembly and Installation of Foundation Type C1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-120	Assembly and Installation of Foundation Type C2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-121	Assembly and Installation of Foundation Type D1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-122	Assembly and Installation of Foundation Type D2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-123	Assembly and Installation of Foundation Type E1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-124	Assembly and Installation of Foundation Type A1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-125	Assembly and Installation of Foundation Type A2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-126	Assembly and Installation of Foundation Type A3-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-127	Assembly and Installation of Foundation Type A4-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-128	Assembly and Installation of Foundation Type B1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-129	Assembly and Installation of Foundation Type B2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-130	Assembly and Installation of Foundation Type C1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-131	Assembly and Installation of Foundation Type C2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-132	Assembly and Installation of Foundation Type D1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-133	Assembly and Installation of Foundation Type D2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-134	Assembly and Installation of Foundation Type E1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 1.11	\$ -	\$ 1.88	\$ 2.99	\$ 2.99
S1-135	Assembly and Erection of Tower Type A1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.14	\$ -	\$ 3.89	\$ 6.03	\$ 6.03
S1-136	Assembly and Erection of Tower Type A2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.14	\$ -	\$ 3.89	\$ 6.03	\$ 6.03
S1-137	Assembly and Erection of Tower Type A3, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.14	\$ -	\$ 3.89	\$ 6.03	\$ 6.03
S1-138	Assembly and Erection of Tower Type A4, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.14	\$ -	\$ 3.89	\$ 6.03	\$ 6.03
S1-139	Assembly and Erection of Tower Type B1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.14	\$ -	\$ 3.89	\$ 6.03	\$ 6.03
S1-140	Assembly and Erection of Tower Type B2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.16	\$ -	\$ 3.91	\$ 6.07	\$ 6.07
S1-141	Assembly and Erection of Tower Type C1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.18	\$ 6.55	\$ 6.55
S1-142	Assembly and Erection of Tower Type C2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.18	\$ 6.55	\$ 6.55
S1-143	Assembly and Erection of Tower Type D1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.18	\$ 6.55	\$ 6.55
S1-144	Assembly and Erection of Tower Type D2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.18	\$ 6.55	\$ 6.55
S1-145	Assembly and Erection of Tower Type E1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.37	\$ -	\$ 4.18	\$ 6.55	\$ 6.55
S1-146	Two stockbridge dampers per 1" guy wire on A1 and A3 towers, placed at 1.5 m and 2.5 m above the anchor	Per guy	1,396	\$ 2,094.00	\$ 143,995.00	\$ -	\$ 1,136,656.15	\$ 149.12	\$ 208,172.92
S1-147	Two stockbridge dampers per 1.5" guy wire on A2, A4 and B1 towers, placed at 2.5 m and 3.5 m above the anchor	Per guy	780	\$ 1,370.45	\$ 50,914.87	\$ -	\$ 400,233.96	\$ 178.95	\$ 139,578.66
Sub-total (S1-1x) : Optional Pricing				3,701.03	\$ 221,242.25	\$ -	\$ 1,572,486.08	\$ 62,256.42	\$ 409,679.93
TOTAL VALUE THIS PROPOSAL (Tax Excluded):									178,040,088.88

Notes:
 1) Modified per Nalcor file << VPrising Schedule F1 F2 and F3 kh 30-Jul-2014 for RT Final.xlsx >>
 2) Items marked T&M shall be performed on a time and Material basis
 3) Items marked "Not Priced" are assumed to be performed under the Part "B" section of the contract.
 4) Items marked "No Information" cannot be priced as no drawings were provided.
 5) Items marked "N/A" are not applicable to this line section.
 6) Unit Price Based on 2014 Project Labour Agreement. Units to be revised based on Exhibit 2 - Compensation.

LOWER CHURCHILL PROJECT CT0327 CONSTRUCTION OF 350kV HVdc TRANSMISSION LINE:
SEGMENTS 4 and 5

Rev 00, 07 August 2014
SCHEDULE OF PRICE BREAKDOWN

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Manhours(hrs)	Equipment(\$)	Material (\$)	Labour(\$)	Total Unit Price(\$)	Subtotal Price (\$)
S1-A	General Works (S1-Ax)								
	Mobilization and Demobilization								
S1-A1	Initial Mobilization	LS	1					\$ 8,508,934.81	\$ 8,508,934.81
S1-A2	Final Demobilization	LS	1					Not Priced	Not Priced
	Accommodation Camp								
S1-A3	Accommodation Camp Installation	LS	1	39,482.07	3,871,993.19	1,131,842.96	4,936,615.91	9,940,452.06	9,940,452.06
S1-A4	Boarding and Lodging for Company/Engineer with 3 meals per day	person-day	24,000	52,800.00	1,950,480.00	832,080.00	2,601,840.00	224.35	5,384,400.00
S1-A5	Meals for Company/Engineer visitors	meal	2,000	733.48	27,100.00	11,560.00	36,140.00	37.40	74,800.00
	Performance Security								
S1-A6	Parent Guarantee Article 7.4	LS	1					Not Priced	Not Priced
S1-A7	Letter Of Credit Article 7.6	LS	1					1,518,444.26	1,518,444.26
S1-A8	Performance Bonding Article 7.1	LS	1					Not Priced	Not Priced
S1-A9	Labour and Materials Bonding Article 7.2	LS	1					Not Priced	Not Priced
	Survey Cost								
S1-A10	Survey Cost	LS	1	247,385.79	1,573,373.63	78,668.69	970,247.07	2,622,289.39	2,622,289.39
	Sub-total (S1-Ax): General Works			93,015.55	5,849,573.19	1,975,482.96	7,574,595.91	19,968,092.88	28,049,320.52
S1-B	Right-of-Way Clearing - Direct Costs (S1-Bx)								
	Right-Of-Way Clearing								
S1-B1	ROW Clearing	Ha	0					Not Priced	Not Priced
S1-B2	Removal of selected danger trees	EA	0					Not Priced	Not Priced
S1-B3	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0					Not Priced	Not Priced
S1-B4	Supply and Installation of Bridge - 3 m	EA	0					Not Priced	Not Priced
S1-B5	Supply and Installation of Bridge - 4 m	EA	0					Not Priced	Not Priced
S1-B6	Supply and Installation of Bridge - 5 m	EA	0					Not Priced	Not Priced
S1-B7	Supply and Installation of Bridge - 6 m	EA	0					Not Priced	Not Priced
S1-B8	Supply and Installation of Bridge - 7 m	EA	0					Not Priced	Not Priced
S1-B9	Supply and Installation of Bridge - 8 m	EA	0					Not Priced	Not Priced
S1-B10	Supply and Installation of Bridge - 10 m	EA	0					Not Priced	Not Priced
S1-B11	Supply and Installation of Bridge - 13 m	EA	0					Not Priced	Not Priced
S1-B12	Supply and Installation of Bridge - 14 m	EA	0					Not Priced	Not Priced
S1-B13	Supply and Installation of Bridge - 15 m	EA	0					Not Priced	Not Priced
S1-B14	Supply and Installation of Bridge - 16 m	EA	0					Not Priced	Not Priced
S1-B15	Supply and Installation of Bridge - 25 m	EA	0					Not Priced	Not Priced
S1-B16	Supply and Installation of Bridge - 35 m	EA	0					Not Priced	Not Priced
S1-B17	Supply and Installation of Bridge - 50 m	EA	0					Not Priced	Not Priced
S1-B18	Supply and Installation of Bridge - 60 m	EA	0					Not Priced	Not Priced
S1-B19	Supply and Installation of Bridge - 65 m	EA	0					Not Priced	Not Priced
S1-B20	Installation of Corduroy Road	LM	0					Not Priced	Not Priced
S1-B21	Installation of Access Road - Access Class 3	KM	0					Not Priced	Not Priced
S1-B22	Installation of Access Road - Access Trail	KM	0					Not Priced	Not Priced
S1-B23	Installation of Access Road - Bypass Trail	KM	0					Not Priced	Not Priced
S1-B24	Installation of Access Road - Winter	KM	0					Not Priced	Not Priced
	Sub-total (S1-Bx) : Right-of-Way Clearing - Direct Costs								
S1-B	Right-of-Way Clearing for Wood Pole Electrode Line- Direct Costs (S1-Bx)								
	Right-Of-Way Clearing								
S1-B25	ROW Clearing	Ha	0					Not Priced	Not Priced
S1-B26	Removal of selected danger trees	EA	0					Not Priced	Not Priced
S1-B27	Supply and Installation of Culvert - 600 mm x 1.6 mm thick aluminized type 2	LM	0					Not Priced	Not Priced
S1-B28	Supply and Installation of Bridge - 3 m	EA	0					Not Priced	Not Priced
S1-B29	Supply and Installation of Bridge - 4 m	EA	0					Not Priced	Not Priced
S1-B30	Supply and Installation of Bridge - 5 m	EA	0					Not Priced	Not Priced
S1-B31	Supply and Installation of Bridge - 6 m	EA	0					Not Priced	Not Priced
S1-B32	Supply and Installation of Bridge - 7 m	EA	0					Not Priced	Not Priced
S1-B33	Supply and Installation of Bridge - 8 m	EA	0					Not Priced	Not Priced
S1-B34	Supply and Installation of Bridge - 10 m	EA	0					Not Priced	Not Priced
S1-B35	Supply and Installation of Bridge - 13 m	EA	0					Not Priced	Not Priced
S1-B36	Supply and Installation of Bridge - 14 m	EA	0					Not Priced	Not Priced
S1-B37	Supply and Installation of Bridge - 15 m	EA	0					Not Priced	Not Priced
S1-B38	Supply and Installation of Bridge - 16 m	EA	0					Not Priced	Not Priced
S1-B39	Supply and Installation of Bridge - 25 m	EA	0					Not Priced	Not Priced
S1-B40	Supply and Installation of Bridge - 35 m	EA	0					Not Priced	Not Priced
S1-B41	Supply and Installation of Bridge - 50 m	EA	0					Not Priced	Not Priced
S1-B42	Supply and Installation of Bridge - 60 m	EA	0					Not Priced	Not Priced
S1-B43	Supply and Installation of Bridge - 65 m	EA	0					Not Priced	Not Priced
S1-B44	Installation of Corduroy Road	LM	0					Not Priced	Not Priced
S1-B45	Installation of Access Road - Access Class 3	KM	0					Not Priced	Not Priced
S1-B46	Installation of Access Road - Access Trail	KM	0					Not Priced	Not Priced
S1-B47	Installation of Access Road - Bypass Trail	KM	0					Not Priced	Not Priced
	Sub-total (S1-Bx) : Right-of-Way Clearing for Wood Pole Electrode Line - Direct Costs								
S1-C	Tower Foundation Construction (S1-Cx)								
	Guy Wire Anchors								
S1-C1	Installation of Guy Wire Anchor in soil as per design drawings and technical specification	LM	31,617	94,481.13	4,522,880.93	1,638,417.96	8,532,293.94	464.73	14,693,592.83
S1-C2	Installation of Guy Wire Anchor in rock as per design drawings and technical specification	LM	28,892	80,345.09	3,824,492.78	1,343,787.56	7,225,133.41	428.95	12,393,413.75
S1-C2	Testing of Guy Wire Anchor up to 550kN as per design drawings and technical specification	Ea	4,256	12,071.46	1,827,568.96		2,755,717.44	1,076.90	4,583,286.40
S1-C2	Testing of Guy Wire Anchor up to 900kN as per design drawings and technical specification	Ea	88	249.60	37,788.08		56,979.12	1,076.90	94,767.20
	Grillage Foundations								
S1-C3	Assembly and Installation of Foundation Types A1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1	EA	30	1,444.45	150,581.40	4,163.40	221,155.20	12,530.00	375,900.00
S1-C4	Assembly and Installation of Foundation Types A2-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2	EA	0					19,180.00	
S1-C5	Assembly and Installation of Foundation Types A3-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3	EA	25	1,490.68	152,058.75	4,696.25	228,552.50	15,412.30	385,307.50
S1-C6	Assembly and Installation of Foundation Types A4-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4	EA	0					21,750.00	
S1-C7	Assembly and Installation of Foundation Types B1-1 (100 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1	EA	2	172.64	17,407.96	536.78	26,517.66	22,231.20	44,462.40
S1-C8	Assembly and Installation of Foundation Types B2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2	EA	32	3,259.22	367,372.80	7,121.28	496,262.40	27,212.00	870,784.00
S1-C9	Assembly and Installation of Foundation Types A1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A1	EA	168	5,745.30	598,814.16	10,619.28	880,904.64	8,871.06	1,490,338.08
S1-C10	Assembly and Installation of Foundation Types A2-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A2	EA	0					17,170.00	
S1-C11	Assembly and Installation of Foundation Types A3-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A3	EA	129	4,767.97	488,356.59	10,829.55	731,882.79	9,543.17	1,231,068.93
S1-C12	Assembly and Installation of Foundation Types A4-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types A4	EA	0					12,720.00	
S1-C13	Assembly and Installation of Foundation Types B1-1A (250 kPa) as per Dwg 505573-4622-42DD-0084 for Tower Types B1	EA	6	309.11	31,445.76	790.26	47,479.50	13,285.92	79,715.52
S1-C14	Assembly and Installation of Foundation Types B2-1A (250 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types B2	EA	0					28,820.00	
S1-C15	Assembly and Installation of Foundation Types C1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C1	EA	56	4,876.83	534,529.52	13,149.36	743,056.72	23,048.85	1,290,735.60
S1-C16	Assembly and Installation of Foundation Types C2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types C2	EA	0					33,310.00	
S1-C17	Assembly and Installation of Foundation Types D1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D1	EA	108	12,121.05	1,303,238.16	33,599.88	1,850,697.72	29,514.22	3,187,535.76
S1-C18	Assembly and Installation of Foundation Types D2-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types D2	EA	0					36,830.00	
S1-C19	Assembly and Installation of Foundation Types E1-1 (100 kPa) as per Dwg 505573-4622-42DD-0003 for Tower Types E1	EA	16	2,108.58	228,185.44	6,030.40	321,654.08	34,741.87	555,869.92
S1-C20	Uplift testing per leg for Types C1-1, or D2-1, or E1-1 (100 kPa) as per technical specification for Tower Types C1, or D2, or E1	EA	0		T&M	T&M	T&M		
S1-C21	Downward, uplift, and lateral load testing per leg for Types C1-3, or D2-3, or E1-3 as per technical specification for Tower Types C1, or D2, or E1	EA	0		T&M	T&M	T&M		
	Rock Foundations								
S1-C22	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A1	EA	215	17,541.26	1,795,624.10	252,775.50	2,642,681.10	21,818.98	4,691,080.70
S1-C23	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A2	EA	0					26,390.00	
S1-C24	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A3	EA	166	13,461.93	1,373,772.84	195,166.20	2,028,226.18	21,669.67	3,597,165.22
S1-C25	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0074 for Tower Type A4	EA	0					26,510.00	
S1-C26	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0074 for Tower Type B1	EA	7	672.20	67,780.93	12,059.95	101,020.50	25,837.34	180,811.38

S1-C27	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type B2	EA	40	\$ 6,114.48	\$ 611,633.20	\$ 68,783.60	\$ 924,995.60	\$ 40,136.00	\$ 1,605,440.00	
S1-C28	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Weak Surface Rock)	EA	18	\$ 1,129.42	\$ 115,841.70	\$ 22,980.06	\$ 169,251.48	\$ 17,115.18	\$ 308,073.24	
S1-C29	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Weak Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 17,980.00	\$ -	
S1-C30	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Weak Surface Rock)	EA	14	\$ 878.03	\$ 90,035.12	\$ 17,873.38	\$ 131,578.44	\$ 17,106.21	\$ 239,486.94	
S1-C31	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Weak Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 17,980.00	\$ -	
S1-C32	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Weak Surface Rock)	EA	1	\$ 65.76	\$ 6,694.99	\$ 1,667.48	\$ 9,809.40	\$ 18,171.87	\$ 18,171.87	
S1-C33	Assembly and Installation of Foundation Type A1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A1 (Sound Surface Rock)	EA	162	\$ 9,196.86	\$ 932,669.64	\$ 206,820.54	\$ 1,375,561.44	\$ 15,525.01	\$ 2,515,051.62	
S1-C34	Assembly and Installation of Foundation Type A2-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A2 (Sound Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 16,400.00	\$ -	
S1-C35	Assembly and Installation of Foundation Type A3-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A3 (Sound Surface Rock)	EA	125	\$ 7,091.70	\$ 718,933.75	\$ 159,583.75	\$ 1,060,697.50	\$ 15,513.72	\$ 1,939,215.00	
S1-C36	Assembly and Installation of Foundation Type A4-2 as per Dwg 505573-4622-42DD-0058 for Tower Type A4 (Sound Surface Rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 16,400.00	\$ -	
S1-C37	Assembly and Installation of Foundation Type B1-2 as per Dwg 505573-4622-42DD-0058 for Tower Type B1 (Sound Surface Rock)	EA	4	\$ 239.10	\$ 24,062.72	\$ 6,669.92	\$ 35,587.20	\$ 16,579.96	\$ 66,319.84	
S1-C38	Assembly and Installation of Foundation Type B2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type B2 (surface rock)	EA	32	\$ 2,657.34	\$ 266,691.52	\$ 48,099.20	\$ 403,962.24	\$ 22,462.00	\$ 718,784.00	
S1-C39	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C1	EA	64	\$ 9,085.29	\$ 892,161.28	\$ 110,053.76	\$ 1,374,170.88	\$ 37,131.03	\$ 2,376,385.92	
S1-C40	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type C2	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 40,220.00	\$ -	
S1-C41	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D1	EA	116	\$ 16,857.50	\$ 1,647,979.52	\$ 199,472.44	\$ 2,550,964.12	\$ 37,917.38	\$ 4,398,416.08	
S1-C42	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0026 for Tower Type D2	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 40,640.00	\$ -	
S1-C43	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0026 for Tower Type E1	EA	20	\$ 2,929.70	\$ 285,419.60	\$ 34,391.80	\$ 443,446.60	\$ 38,162.90	\$ 763,258.00	
S1-C44	Assembly and Installation of Foundation Type C1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C1 (surface rock)	EA	52	\$ 4,326.53	\$ 425,422.40	\$ 78,161.20	\$ 658,320.52	\$ 22,344.31	\$ 1,161,904.12	
S1-C45	Assembly and Installation of Foundation Type C2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type C2 (surface rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 24,110.00	\$ -	
S1-C46	Assembly and Installation of Foundation Type D1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D1 (surface rock)	EA	100	\$ 8,583.30	\$ 838,498.00	\$ 150,310.00	\$ 1,306,650.00	\$ 22,954.58	\$ 2,295,458.00	
S1-C47	Assembly and Installation of Foundation Type D2-2 as per Dwg 505573-4622-42DD-0085 for Tower Type D2 (surface rock)	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 25,970.00	\$ -	
S1-C48	Assembly and Installation of Foundation Type E1-2 as per Dwg 505573-4622-42DD-0085 for Tower Type E1 (surface rock)	EA	16	\$ 1,463.03	\$ 140,535.36	\$ 28,315.68	\$ 222,860.64	\$ 24,481.98	\$ 391,711.68	
S1-C49	Installation and Testing of 25M Mechanical Rock Anchor as per design drawings and technical specification	LM	13,658	\$ 15,959.27	\$ 1,342,082.24	\$ 296,389.02	\$ 2,360,185.34	\$ 292.76	\$ 3,998,656.60	
S1-C50	Installation and Testing of 32M Mechanical Rock Anchor as per design drawings and technical specification	LM	429	\$ 523.15	\$ 44,387.90	\$ 12,095.26	\$ 77,482.59	\$ 312.34	\$ 133,965.75	
S1-C51	Installation and Testing of 35M Mechanical Rock Anchor as per design drawings and technical specification	LM	20,867	\$ 27,893.89	\$ 2,336,287.23	\$ 718,873.66	\$ 4,115,421.30	\$ 343.64	\$ 7,170,686.53	
S1-C52	Installation and Testing of 38M Mechanical Rock Anchor as per design drawings and technical specification	LM	303	\$ 442.33	\$ 36,680.53	\$ 12,894.88	\$ 65,050.49	\$ 378.20	\$ 114,668.35	
S1-C52	Installation and Testing of 43M Mechanical Rock Anchor as per design drawings and technical specification	LM	5,808	\$ 8,473.59	\$ 702,678.46	\$ 247,023.60	\$ 1,246,153.60	\$ 378.06	\$ 2,195,855.65	
S1-C53	Installation and Testing of 51M Mechanical Rock Anchor as per design drawings and technical specification	LM	0	\$ -	\$ -	\$ -	\$ -	\$ 440.00	\$ -	
S1-C54	Installation and Testing of 64M Mechanical Rock Anchor as per design drawings and technical specification	LM	37	\$ 64.91	\$ 5,322.39	\$ 2,629.22	\$ 9,497.36	\$ 468.00	\$ 17,503.20	
H-Pile Foundations										
S1-C55	Design, Assembly and Installation of Foundation Type A1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A1 including supply and installation of steep cap.	EA	6	\$ 1,170.00	\$ 91,455.30	\$ 80,629.38	\$ 100,304.70	\$ 45,398.23	\$ 272,389.38	
S1-C56	Design, Assembly and Installation of Foundation Type A2-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A2 including supply and installation of steep cap.	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 45,400.00	\$ -	
S1-C57	Design, Assembly and Installation of Foundation Type A3-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A3 including supply and installation of steep cap.	EA	6	\$ 1,170.00	\$ 91,455.30	\$ 80,629.38	\$ 100,304.70	\$ 45,398.23	\$ 272,389.38	
S1-C58	Design, Assembly and Installation of Foundation Type A4-3 as per Dwg 505573-4622-42DD-0037 for Tower Type A4 including supply and installation of steep cap.	EA	2	\$ 390.00	\$ 30,485.10	\$ 26,876.46	\$ 33,434.90	\$ 45,400.00	\$ 90,800.00	
S1-C59	Design, Assembly and Installation of Foundation Type B1-3 as per Dwg 505573-4622-42DD-0037 for Tower Type B1 including supply and installation of steep cap.	EA	8	\$ 1,560.00	\$ 121,940.40	\$ 107,505.84	\$ 133,739.60	\$ 45,398.23	\$ 363,185.84	
S1-C60	Design, Assembly and Installation of Foundation Type B2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type B2 including supply and installation of steep cap.	EA	8	\$ 8,048.00	\$ 545,969.12	\$ 502,888.80	\$ 597,153.92	\$ 205,770.00	\$ 1,646,160.00	
S1-C61	Design, Assembly and Installation of Foundation Type C1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C1 including supply and installation of steep cap.	EA	8	\$ 8,048.00	\$ 545,969.12	\$ 502,888.80	\$ 597,153.92	\$ 205,751.48	\$ 1,646,011.84	
S1-C62	Design, Assembly and Installation of Foundation Type C2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type C2 including supply and installation of steep cap.	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 205,770.00	\$ -	
S1-C63	Design, Assembly and Installation of Foundation Type D1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D1 including supply and installation of steep cap.	EA	8	\$ 8,048.00	\$ 545,969.12	\$ 502,888.80	\$ 597,153.92	\$ 205,751.48	\$ 1,646,011.84	
S1-C64	Design, Assembly and Installation of Foundation Type D2-3 as per Dwg 505573-4622-42DD-0046 for Tower Type D2 including supply and installation of steep cap.	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 205,770.00	\$ -	
S1-C65	Design, Assembly and Installation of Foundation Type E1-3 as per Dwg 505573-4622-42DD-0046 for Tower Type E1 including supply and installation of steep cap.	EA	8	\$ 8,048.00	\$ 545,969.12	\$ 502,888.80	\$ 597,153.92	\$ 205,770.00	\$ 1,646,160.00	
S1-C66	Rock anchor to be installed with S1-C60 to S1-C65 item above as per the design drawings and technical specifications (length in bog not considered)	LM	1,920	\$ 5,737.45	\$ 274,656.00	\$ 99,494.40	\$ 518,131.20	\$ 464.73	\$ 892,281.60	
S1-C67	Supply, and installation of H-Piles, HP 360 x 108, Grade 350AT	LM	3,240	\$ 3,952.80	\$ 384,976.80	\$ 1,016,128.80	\$ 393,757.20	\$ 553.97	\$ 1,794,862.80	
Bog and Poor Soil										
S1-C68	Supply and Installation of Crib for excavation protection of tower types A1, A2, A3, A4, B1, B2, C1, C2, D1, D2, E1 for any type of Foundation as per Dwg 505573-4622-42DD-0069 and 505573-4622-42DD-0071	MZ	10,700	\$ 25,359.00	\$ 2,708,277.00	\$ 2,792,700.00	\$ 3,915,986.00	\$ 880.09	\$ 9,416,963.00	
Earthwork										
S1-C69	Transportation of native backfill	KM	2,000	\$ 444.44	\$ 68,760.00	\$ -	\$ 66,320.00	\$ 67.54	\$ 135,080.00	
S1-C70	Supply and transportation of approved fill from an alternate source/processed material/road gravel	M3 * KM	21,000	\$ 8,895.83	\$ 986,580.00	\$ 1,115,100.00	\$ 967,470.00	\$ 146.15	\$ 3,069,150.00	
S1-C71	Rock blasting/preparation	M3	1,100	\$ 6,600.00	\$ 750,530.00	\$ -	\$ 1,007,028.00	\$ 1,597.78	\$ 1,757,558.00	
Sub-total (S1-Cx): Tower Foundation Construction				454,244.13	\$ 34,613,552.05	\$ 13,287,451.52	\$ 54,244,257.05	\$ 2,504,647.10	\$ 106,823,901.26	
S1-D Tower Assembly and Erection (S1-Dx)										
Assembly and Erection of Suspension Tower Type "A1"										
S1-D1	Assembly and Erection of Suspension Tower Type "A1 + 0" as per dwg. 505573-4622-43DD-0042	EA	18	\$ 4,952.69	\$ 336,927.06	\$ -	\$ 776,165.22	\$ 61,839.00	\$ 1,113,102.00	
S1-D2	Assembly and Erection of Suspension Tower Type "A1 + 1.5" as per dwg. 505573-4622-43DD-0042	EA	10	\$ 2,810.10	\$ 190,778.70	\$ -	\$ 440,418.60	\$ 63,120.00	\$ 631,200.00	
S1-D3	Assembly and Erection of Suspension Tower Type "A1 + 3" as per dwg. 505573-4622-43DD-0042	EA	17	\$ 4,835.40	\$ 327,898.21	\$ -	\$ 757,869.35	\$ 63,869.00	\$ 1,085,773.00	
S1-D4	Assembly and Erection of Suspension Tower Type "A1 + 4.5" as per dwg. 505573-4622-43DD-0042	EA	11	\$ 3,193.56	\$ 286,686.95	\$ -	\$ 430,030.48	\$ 65,157.00	\$ 716,727.00	
S1-D5	Assembly and Erection of Suspension Tower Type "A1 + 6" as per dwg. 505573-4622-43DD-0042	EA	27	\$ 7,865.50	\$ 532,180.53	\$ -	\$ 1,232,884.26	\$ 65,372.77	\$ 1,765,064.79	
S1-D6	Assembly and Erection of Suspension Tower Type "A1 + 7.5" as per dwg. 505573-4622-43DD-0042	EA	44	\$ 12,968.58	\$ 876,508.60	\$ -	\$ 2,032,847.08	\$ 66,121.72	\$ 2,909,355.68	
S1-D7	Assembly and Erection of Suspension Tower Type "A1 + 9" as per dwg. 505573-4622-43DD-0042	EA	55	\$ 16,400.68	\$ 1,107,295.75	\$ -	\$ 2,570,931.55	\$ 66,876.86	\$ 3,678,227.30	
S1-D8	Assembly and Erection of Suspension Tower Type "A1 + 10.5" as per dwg. 505573-4622-43DD-0042	EA	52	\$ 15,810.84	\$ 1,417,689.00	\$ -	\$ 2,126,533.76	\$ 68,158.13	\$ 3,544,222.76	
S1-D9	Assembly and Erection of Suspension Tower Type "A1 + 12" as per dwg. 505573-4622-43DD-0042	EA	59	\$ 18,141.33	\$ 1,626,206.97	\$ -	\$ 2,439,310.75	\$ 68,907.08	\$ 4,065,517.72	
S1-D10	Assembly and Erection of Suspension Tower Type "A1 + 13.5" as per dwg. 505573-4622-43DD-0042	EA	53	\$ 16,479.51	\$ 1,108,474.86	\$ -	\$ 2,583,623.33	\$ 69,662.23	\$ 3,692,098.19	
S1-D11	Assembly and Erection of Suspension Tower Type "A1 + 15" as per dwg. 505573-4622-43DD-0042	EA	58	\$ 18,232.86	\$ 1,225,243.04	\$ -	\$ 2,858,605.40	\$ 70,411.18	\$ 4,083,848.44	
S1-D12	Assembly and Erection of Suspension Tower Type "A1 + 16.5" as per dwg. 505573-4622-43DD-0042	EA	78	\$ 24,787.25	\$ 1,664,140.92	\$ -	\$ 3,886,349.22	\$ 71,160.13	\$ 5,550,490.14	
S1-D13	Assembly and Erection of Suspension Tower Type "A1 + 18" as per dwg. 505573-4622-43DD-0042	EA	117	\$ 37,584.98	\$ 2,521,015.38	\$ -	\$ 5,893,071.21	\$ 71,915.27	\$ 8,414,086.59	
Assembly and Erection of Suspension Tower Type "A2"										
S1-D14	Assembly and Erection of Suspension Tower Type "A2 + 0" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 88,190.00	\$ -	
S1-D15	Assembly and Erection of Suspension Tower Type "A2 + 1.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 90,590.00	\$ -	
S1-D16	Assembly and Erection of Suspension Tower Type "A2 + 3" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 92,010.00	\$ -	
S1-D17	Assembly and Erection of Suspension Tower Type "A2 + 4.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 94,420.00	\$ -	
S1-D18	Assembly and Erection of Suspension Tower Type "A2 + 6" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 94,860.00	\$ -	
S1-D19	Assembly and Erection of Suspension Tower Type "A2 + 7.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 96,300.00	\$ -	
S1-D20	Assembly and Erection of Suspension Tower Type "A2 + 9" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 97,730.00	\$ -	

S1-D21	Assembly and Erection of Suspension Tower Type "A2 + 10.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,120.00	\$ -
S1-D22	Assembly and Erection of Suspension Tower Type "A2 + 12" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 101,540.00	\$ -
S1-D23	Assembly and Erection of Suspension Tower Type "A2 + 13.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 102,980.00	\$ -
S1-D24	Assembly and Erection of Suspension Tower Type "A2 + 15" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 106,520.00	\$ -
S1-D25	Assembly and Erection of Suspension Tower Type "A2 + 16.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 107,940.00	\$ -
S1-D26	Assembly and Erection of Suspension Tower Type "A2 + 18" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 109,370.00	\$ -
S1-D27	Assembly and Erection of Suspension Tower Type "A2 + 19.5" as per dwg. 505573-4622-43DD-0044	EA	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 111,760.00	\$ -
Assembly and Erection of Suspension Tower Type "A3"										
S1-D28	Assembly and Erection of Suspension Tower Type "A3 + 0" as per dwg. 505573-4622-43DD-005C	EA	129	\$ 40,773.46	\$ 2,673,505.65	\$ -	\$ 6,391,831.32	\$ 70,273.93	\$ 9,065,336.97	\$ -
S1-D29	Assembly and Erection of Suspension Tower Type "A3 + 1.5" as per dwg. 505573-4622-43DD-005C	EA	19	\$ 6,123.82	\$ 400,798.16	\$ -	\$ 960,076.27	\$ 71,624.97	\$ 1,360,874.43	\$ -
S1-D30	Assembly and Erection of Suspension Tower Type "A3 + 3" as per dwg. 505573-4622-43DD-005C	EA	29	\$ 9,455.33	\$ 618,178.79	\$ -	\$ 1,482,453.32	\$ 72,435.59	\$ 2,100,632.11	\$ -
S1-D31	Assembly and Erection of Suspension Tower Type "A3 + 4.5" as per dwg. 505573-4622-43DD-005C	EA	30	\$ 9,968.36	\$ 650,588.70	\$ -	\$ 1,563,009.90	\$ 73,786.62	\$ 2,213,598.60	\$ -
S1-D32	Assembly and Erection of Suspension Tower Type "A3 + 6" as per dwg. 505573-4622-43DD-005C	EA	34	\$ 11,349.28	\$ 740,407.12	\$ -	\$ 1,779,566.46	\$ 74,116.87	\$ 2,519,973.58	\$ -
S1-D33	Assembly and Erection of Suspension Tower Type "A3 + 7.5" as per dwg. 505573-4622-43DD-005C	EA	50	\$ 16,953.29	\$ 1,104,447.00	\$ -	\$ 2,658,440.00	\$ 75,257.74	\$ 3,762,887.00	\$ -
S1-D34	Assembly and Erection of Suspension Tower Type "A3 + 9" as per dwg. 505573-4622-43DD-005C	EA	44	\$ 15,040.78	\$ 979,144.76	\$ -	\$ 2,358,616.04	\$ 75,858.20	\$ 3,337,760.80	\$ -
S1-D35	Assembly and Erection of Suspension Tower Type "A3 + 10.5" as per dwg. 505573-4622-43DD-005C	EA	28	\$ 9,773.07	\$ 635,056.80	\$ -	\$ 1,532,686.68	\$ 77,419.41	\$ 2,167,743.48	\$ -
S1-D36	Assembly and Erection of Suspension Tower Type "A3 + 12" as per dwg. 505573-4622-43DD-005C	EA	42	\$ 14,764.32	\$ 958,797.42	\$ -	\$ 2,315,515.02	\$ 77,959.82	\$ 3,274,312.44	\$ -
S1-D37	Assembly and Erection of Suspension Tower Type "A3 + 13.5" as per dwg. 505573-4622-43DD-005C	EA	17	\$ 6,065.51	\$ 393,393.09	\$ -	\$ 951,318.64	\$ 79,100.69	\$ 1,344,711.73	\$ -
S1-D38	Assembly and Erection of Suspension Tower Type "A3 + 15" as per dwg. 505573-4622-43DD-005C	EA	22	\$ 7,910.43	\$ 512,712.64	\$ -	\$ 1,240,712.66	\$ 79,701.15	\$ 1,753,425.30	\$ -
S1-D39	Assembly and Erection of Suspension Tower Type "A3 + 16.5" as per dwg. 505573-4622-43DD-005C	EA	21	\$ 7,661.39	\$ 495,964.98	\$ -	\$ 1,201,717.44	\$ 80,842.02	\$ 1,697,682.42	\$ -
Assembly and Erection of Suspension Tower Type "A4"										
S1-D40	Assembly and Erection of Suspension Tower Type "A4 + 0" as per dwg. 505573-4622-43DD-005E	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 88,940.00	\$ -	\$ -
S1-D41	Assembly and Erection of Suspension Tower Type "A4 + 1.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 90,890.00	\$ -	\$ -
S1-D42	Assembly and Erection of Suspension Tower Type "A4 + 3" as per dwg. 505573-4622-43DD-005E	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 92,310.00	\$ -	\$ -
S1-D43	Assembly and Erection of Suspension Tower Type "A4 + 4.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 94,710.00	\$ -	\$ -
S1-D44	Assembly and Erection of Suspension Tower Type "A4 + 6" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 421.30	\$ 29,192.86	\$ -	\$ 65,962.82	\$ 95,155.68	\$ -	\$ -
S1-D45	Assembly and Erection of Suspension Tower Type "A4 + 7.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 427.75	\$ 29,617.06	\$ -	\$ 66,974.36	\$ 96,591.42	\$ -	\$ -
S1-D46	Assembly and Erection of Suspension Tower Type "A4 + 9" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 434.17	\$ 30,039.31	\$ -	\$ 67,981.23	\$ 98,020.54	\$ -	\$ -
S1-D47	Assembly and Erection of Suspension Tower Type "A4 + 10.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 444.92	\$ 30,746.97	\$ -	\$ 69,668.67	\$ 100,415.64	\$ -	\$ -
S1-D48	Assembly and Erection of Suspension Tower Type "A4 + 12" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 451.28	\$ 31,165.31	\$ -	\$ 70,666.22	\$ 101,831.53	\$ -	\$ -
S1-D49	Assembly and Erection of Suspension Tower Type "A4 + 13.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 457.73	\$ 31,589.51	\$ -	\$ 71,677.76	\$ 103,267.27	\$ -	\$ -
S1-D50	Assembly and Erection of Suspension Tower Type "A4 + 15" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 464.18	\$ 32,013.71	\$ -	\$ 72,689.29	\$ 104,703.00	\$ -	\$ -
S1-D51	Assembly and Erection of Suspension Tower Type "A4 + 16.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 470.60	\$ 32,435.96	\$ -	\$ 73,696.17	\$ 106,132.13	\$ -	\$ -
S1-D52	Assembly and Erection of Suspension Tower Type "A4 + 18" as per dwg. 505573-4622-43DD-005E	EA	0	\$ 477.01	\$ 32,858.21	\$ -	\$ 74,703.04	\$ 107,561.25	\$ -	\$ -
S1-D53	Assembly and Erection of Suspension Tower Type "A4 + 19.5" as per dwg. 505573-4622-43DD-005E	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 109,950.00	\$ -	\$ -
Assembly and Erection of Suspension Tower Type "B1"										
S1-D54	Assembly and Erection of Suspension Tower Type "B1 + 0" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 105,180.00	\$ -	\$ -
S1-D55	Assembly and Erection of Suspension Tower Type "B1 + 1.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 489.73	\$ 31,637.41	\$ -	\$ 76,869.73	\$ 108,510.00	\$ 108,510.00	\$ -
S1-D56	Assembly and Erection of Suspension Tower Type "B1 + 3" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 110,690.00	\$ -	\$ -
S1-D57	Assembly and Erection of Suspension Tower Type "B1 + 4.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$ -	\$ -	\$ -	\$ -	\$ 114,020.00	\$ -	\$ -
S1-D58	Assembly and Erection of Suspension Tower Type "B1 + 6" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 518.41	\$ 33,354.08	\$ -	\$ 81,384.71	\$ 114,740.00	\$ 114,740.00	\$ -
S1-D59	Assembly and Erection of Suspension Tower Type "B1 + 7.5" as per dwg. 505573-4622-43DD-0002	EA	2	\$ 1,059.11	\$ 68,041.48	\$ -	\$ 166,276.22	\$ 117,160.00	\$ 234,320.00	\$ -
S1-D60	Assembly and Erection of Suspension Tower Type "B1 + 9" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 534.29	\$ 34,304.08	\$ -	\$ 83,883.30	\$ 118,190.00	\$ 118,190.00	\$ -
S1-D61	Assembly and Erection of Suspension Tower Type "B1 + 10.5" as per dwg. 505573-4622-43DD-0002	EA	3	\$ 1,664.69	\$ 106,612.23	\$ -	\$ 261,381.21	\$ 122,670.00	\$ 368,010.00	\$ -
S1-D62	Assembly and Erection of Suspension Tower Type "B1 + 12" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 562.42	\$ 35,987.41	\$ -	\$ 88,310.61	\$ 124,298.02	\$ 124,298.02	\$ -
S1-D63	Assembly and Erection of Suspension Tower Type "B1 + 13.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 582.56	\$ 37,387.18	\$ -	\$ 91,433.70	\$ 128,820.88	\$ 128,820.88	\$ -
S1-D64	Assembly and Erection of Suspension Tower Type "B1 + 15" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 593.70	\$ 38,053.85	\$ -	\$ 93,187.09	\$ 131,240.94	\$ 131,240.94	\$ -
S1-D65	Assembly and Erection of Suspension Tower Type "B1 + 16.5" as per dwg. 505573-4622-43DD-0002	EA	2	\$ 1,196.87	\$ 76,674.36	\$ -	\$ 187,864.56	\$ 132,269.46	\$ 264,538.92	\$ -
S1-D66	Assembly and Erection of Suspension Tower Type "B1 + 18" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 603.17	\$ 38,620.52	\$ -	\$ 94,677.47	\$ 133,297.99	\$ -	\$ -
S1-D67	Assembly and Erection of Suspension Tower Type "B1 + 19.5" as per dwg. 505573-4622-43DD-0002	EA	6	\$ 3,759.38	\$ 240,123.12	\$ -	\$ 590,157.60	\$ 138,380.12	\$ 830,280.72	\$ -
S1-D68	Assembly and Erection of Suspension Tower Type "B1 + 21" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 640.30	\$ 41,036.95	\$ -	\$ 100,474.48	\$ 141,511.43	\$ 141,511.43	\$ -
S1-D69	Assembly and Erection of Suspension Tower Type "B1 + 22.5" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 657.85	\$ 42,086.95	\$ -	\$ 103,236.07	\$ 145,323.02	\$ 145,323.02	\$ -
S1-D70	Assembly and Erection of Suspension Tower Type "B1 + 24" as per dwg. 505573-4622-43DD-0002	EA	1	\$ 674.17	\$ 43,453.15	\$ -	\$ 105,712.45	\$ 149,165.60	\$ 149,165.60	\$ -
S1-D71	Assembly and Erection of Suspension Tower Type "B1 + 25.5" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 685.31	\$ 44,119.82	\$ -	\$ 107,465.84	\$ 151,585.66	\$ -	\$ -
S1-D72	Assembly and Erection of Suspension Tower Type "B1 + 27" as per dwg. 505573-4622-43DD-0002	EA	0	\$ 690.05	\$ 44,403.15	\$ -	\$ 108,211.03	\$ 152,614.18	\$ -	\$ -
Assembly and Erection of Medium Angle Tower Type "B2"										
S1-D73	Assembly and Erection of Medium Angle Tower Type "B2" Basic Body as per dwg. 505573-4622-43DD-005E	EA	28	\$ 16,521.94	\$ 1,254,630.16	\$ -	\$ 2,595,849.48	\$ 137,517.13	\$ 3,850,479.64	\$ -
S1-D74	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-005E	EA	8	\$ 1,464.82	\$ 108,090.40	\$ -	\$ 230,305.44	\$ 42,299.48	\$ 338,395.84	\$ -
S1-D75	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058	EA	13	\$ 3,511.26	\$ 260,557.96	\$ -	\$ 552,177.08	\$ 62,518.08	\$ 812,735.04	\$ -
S1-D76	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	2	\$ 22.15	\$ 1,634.78	\$ -	\$ 3,483.18	\$ 2,558.98	\$ 5,117.96	\$ -
S1-D77	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	2	\$ 27.01	\$ 1,993.40	\$ -	\$ 4,247.28	\$ 3,130.00	\$ 6,260.00	\$ -
S1-D78	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	2	\$ 38.44	\$ 2,836.40	\$ -	\$ 6,043.44	\$ 4,439.92	\$ 8,879.84	\$ -
S1-D79	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	31	\$ 808.09	\$ 59,629.74	\$ -	\$ 127,051.33	\$ 6,021.97	\$ 186,681.07	\$ -
S1-D80	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	43	\$ 1,263.38	\$ 93,226.15	\$ -	\$ 198,634.63	\$ 6,787.46	\$ 291,860.78	\$ -
S1-D81	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	16	\$ 580.17	\$ 42,811.52	\$ -	\$ 91,217.28	\$ 8,376.80	\$ 134,028.80	\$ -
S1-D82	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "B2" as per dwg. 505573-4622-43DD-0058, per leg	EA	16	\$ 781.44	\$ 59,459.04	\$ -	\$ 123,011.20	\$ 11,404.39	\$ 182,470.24	\$ -
Assembly and Erection of Medium Angle Tower Type "C1"										
S1-D83	Assembly and Erection of Medium Angle Tower Type "C1" Basic Body as per dwg. 505573-4622-43DD-0004	EA	45	\$ 29,821.53	\$ 2,175,476.40	\$ -	\$ 4,700,343.60	\$ 152,796.00	\$ 6,875,820.00	\$ -
S1-D84	Assembly and Erection of +4.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	5	\$ 697.93	\$ 47,964.85	\$ -	\$ 110,080.85	\$ 31,609.14	\$ 158,045.70	\$ -
S1-D85	Assembly and Erection of +10.5 m body extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004	EA	2	\$ 496.06	\$ 34,361.96	\$ -	\$ 78,256.22	\$ 56,309.09	\$ 112,618.18	\$ -
S1-D86	Assembly and Erection of +0 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	48	\$ 481.84	\$ 33,114.24	\$ -	\$ 75,998.40	\$ 2,274.00	\$ 109,152.00	\$ -
S1-D87	Assembly and Erection of +1.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	35	\$ 483.35	\$ 33,218.50	\$ -	\$ 76,237.00	\$ 3,128.00	\$ 109,480.00	\$ -
S1-D88	Assembly and Erection of +3 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	22	\$ 412.93	\$ 28,378.90	\$ -	\$ 65,130.56	\$ 4,250.43	\$ 93,509.46	\$ -
S1-D89	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	11	\$ 279.32	\$ 19,196.21	\$ -	\$ 44,055.77	\$ 5,750.18	\$ 63,251.98	\$ -
S1-D90	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	8	\$ 235.93	\$ 16,214.16	\$ -	\$ 37,212.08	\$ 6,678.28	\$ 53,426.24	\$ -
S1-D91	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	28	\$ 1,006.20	\$ 69,151.04	\$ -	\$ 158,704.00	\$ 8,137.68	\$ 227,855.04	\$ -
S1-D92	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "C1" as per dwg. 505573-4622-43DD-0004, per leg	EA	28	\$ 1,170.85	\$ 80,466.68	\$ -	\$ 184,673.72	\$ 9,469.30	\$ 265,140.40	\$ -
Assembly and Erection of Medium Angle Tower Type "C2"										
S1-D93	Assembly and Erection of Medium Angle Tower Type "C2" Basic Body as per dwg. 505573-									

S1-D99	Assembly and Erection of +4.5 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	0	\$	-	\$	-	\$	-	\$	7,270.00	\$	-		
S1-D100	Assembly and Erection of +6 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	0	\$	-	\$	-	\$	-	\$	8,510.00	\$	-		
S1-D101	Assembly and Erection of +7.5 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	0	\$	-	\$	-	\$	-	\$	10,470.00	\$	-		
S1-D102	Assembly and Erection of +9 m leg extension for Medium Angle Tower Type "C2" as per dwg. 505573-4622-43DD-0012, per leg	EA	0	\$	-	\$	-	\$	-	\$	12,710.00	\$	-		
Assembly and Erection of Dead-End Tower Type "D1"															
S1-D103	Assembly and Erection of Dead-End Tower Type "D1" Basic Body as per dwg. 505573-4622-43DD-0043	EA	83	\$	59,164.16	\$	4,339,738.83	\$	-	\$	9,324,119.57	\$	164,624.80	\$	13,663,858.40
S1-D104	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043	EA	12	\$	1,772.77	\$	122,516.04	\$	-	\$	279,544.08	\$	33,505.01	\$	402,060.12
S1-D105	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043	EA	20	\$	5,492.18	\$	379,563.80	\$	-	\$	866,048.60	\$	62,280.62	\$	1,245,612.40
S1-D106	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	45	\$	465.84	\$	32,193.90	\$	-	\$	73,456.65	\$	2,348.00	\$	105,660.00
S1-D107	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	30	\$	424.22	\$	29,317.80	\$	-	\$	66,894.30	\$	3,208.00	\$	96,240.00
S1-D108	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	56	\$	1,159.41	\$	80,127.04	\$	-	\$	182,825.44	\$	4,695.58	\$	262,952.48
S1-D109	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	42	\$	1,360.72	\$	94,039.68	\$	-	\$	214,569.60	\$	7,347.84	\$	308,609.28
S1-D110	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	58	\$	1,927.54	\$	133,212.66	\$	-	\$	303,950.16	\$	7,537.29	\$	437,162.82
S1-D111	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	47	\$	1,850.81	\$	127,909.56	\$	-	\$	291,850.73	\$	8,931.07	\$	419,760.29
S1-D112	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D1" as per dwg. 505573-4622-43DD-0043, per leg	EA	54	\$	2,569.48	\$	177,576.84	\$	-	\$	405,175.50	\$	10,791.71	\$	582,752.34
Assembly and Erection of Dead-End Tower Type "D2"															
S1-D113	Assembly and Erection of Dead-End Tower Type "D2" Basic Body as per dwg. 505573-4622-43DD-0045	EA	0	\$	-	\$	-	\$	-	\$	-	\$	194,110.00	\$	-
S1-D114	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$	-	\$	-	\$	-	\$	-	\$	37,050.00	\$	-
S1-D115	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-D116	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	3,450.00	\$	-
S1-D117	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	5,000.00	\$	-
S1-D118	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	6,550.00	\$	-
S1-D119	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	8,430.00	\$	-
S1-D120	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	10,130.00	\$	-
S1-D121	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	11,950.00	\$	-
S1-D122	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "D2" as per dwg. 505573-4622-43DD-0045, per leg	EA	0	\$	-	\$	-	\$	-	\$	-	\$	14,220.00	\$	-
Assembly and Erection of Dead-End Tower Type "E1"															
S1-D123	Assembly and Erection of Dead-End Tower Type "E1" Basic Body as per dwg. 505573-4622-43DD-0007	EA	15	\$	13,527.70	\$	976,612.65	\$	-	\$	2,132,546.10	\$	207,277.25	\$	3,109,158.75
S1-D124	Assembly and Erection of +4.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	0	\$	256.88	\$	17,670.04	\$	-	\$	40,514.49	\$	58,184.53	\$	-
S1-D125	Assembly and Erection of +10.5 m body extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007	EA	5	\$	1,976.73	\$	135,975.25	\$	-	\$	311,768.90	\$	89,548.83	\$	447,744.15
S1-D126	Assembly and Erection of +0 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	12	\$	229.68	\$	15,799.44	\$	-	\$	36,225.48	\$	4,336.00	\$	52,032.00
S1-D127	Assembly and Erection of +1.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	6	\$	161.03	\$	11,076.78	\$	-	\$	25,397.16	\$	6,080.00	\$	36,480.00
S1-D128	Assembly and Erection of +3 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	2	\$	65.15	\$	4,481.40	\$	-	\$	10,275.12	\$	7,380.00	\$	14,760.00
S1-D129	Assembly and Erection of +4.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	12	\$	511.08	\$	35,156.16	\$	-	\$	80,607.12	\$	9,646.94	\$	115,763.28
S1-D130	Assembly and Erection of +6 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	10	\$	484.45	\$	33,324.30	\$	-	\$	76,407.10	\$	10,973.14	\$	109,731.40
S1-D131	Assembly and Erection of +7.5 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	14	\$	816.79	\$	56,185.22	\$	-	\$	128,823.24	\$	13,214.89	\$	185,008.46
S1-D132	Assembly and Erection of +9 m leg extension for Dead-End Tower Type "E1" as per dwg. 505573-4622-43DD-0007, per leg	EA	4	\$	273.31	\$	18,800.64	\$	-	\$	43,106.72	\$	15,476.84	\$	61,907.36
Sub-total (S1-Dx) : Tower Assembly & Erection					513,457.83	\$	35,863,286.24	\$	-	\$	79,795,948.19	\$	8,856,577.79	\$	114,250,063.74
S1-E Installation of Wires and OPGW (S1-Ex)															
S1-E1	Installation of Counterpoise wire, connection with tower grounding	KM	470	\$	18,782.08	\$	1,828,520.90	\$	-	\$	3,002,190.80	\$	10,278.11	\$	4,830,711.70
S1-E2	Installation of ground rods at crossing obstacles in soil and rock	EA	460	\$	460.00	\$	47,053.40	\$	-	\$	73,655.20	\$	262.41	\$	120,708.60
S1-E3	Tower Footing resistance measurement	EA	470	\$	470.00	\$	15,792.00	\$	-	\$	74,029.70	\$	191.11	\$	89,821.70
S1-E4	S1 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S2-E4	S2 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S3-E4	S3 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S4-E4	S4 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	290	\$	91,408.29	\$	13,402,729.90	\$	-	\$	14,475,863.30	\$	96,133.08	\$	27,878,593.20
S5-E4	S5 - Installation of Conductor on Steel Towers - 3633.0 kcmil 110/7 ACSR Conductor, complete for both poles	KM	180	\$	59,684.54	\$	8,815,518.00	\$	-	\$	9,469,159.20	\$	101,581.54	\$	18,284,677.20
S1-E5	Installation of Conductor on Steel Towers - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-E6	Installation of Conductor on Steel Towers - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-E7	Installation of Conductor on Wood Poles - 1192.5 kcmil 54/19 ACSR Grackle Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-E8	Installation of Conductor on Wood Poles - 1590.0 kcmil 54/19 ACSR Falcon Conductor, complete for both electrodes	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-E9	Installation of ADSS on Wood Poles	KM	0	\$	-	\$	-	\$	-	\$	-	\$	17,060.00	\$	-
S1-E10	ADSS splicing and tests including loss analysis	EA	0	\$	-	\$	-	\$	-	\$	-	\$	7,940.00	\$	-
S1-E11	ADSS end to end test	LS	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-E12	S1 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S2-E12	S2 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S3-E12	S3 - Installation of OPGW	KM	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S4-E12	S4 - Installation of OPGW	KM	290	\$	25,433.77	\$	3,431,764.30	\$	-	\$	3,926,878.40	\$	25,374.63	\$	7,358,642.70
S5-E12	S5 - Installation of OPGW	KM	180	\$	15,464.19	\$	2,087,407.80	\$	-	\$	2,389,284.00	\$	24,870.51	\$	4,476,691.80
S1-E13	OPGW Continuity tests before and after stringing	LS	1	\$	1,804.80	\$	139,437.98	\$	-	\$	246,269.54	\$	385,707.52	\$	385,707.52
S1-E14	OPGW splicing and tests including loss analysis	EA	100	\$	4,000.00	\$	315,000.00	\$	-	\$	580,594.00	\$	8,955.94	\$	895,594.00
S1-E15	OPGW end to end test	LS	1	\$	192.00	\$	14,833.83	\$	-	\$	26,198.89	\$	41,032.72	\$	41,032.72
Sub-total (S1-Ex) : Installation of Wires and OPGW					217,699.67	\$	30,098,058.11	\$	-	\$	34,264,123.03	\$	719,387.57	\$	64,362,181.14
S1-F Miscellaneous Tower Attachments and Accessories (S1-Fx)															
S1-F1	Install 18" Aerial marker cones	EA	15	\$	60.00	\$	4,859.25	\$	-	\$	9,491.55	\$	956.72	\$	14,350.80
Sub-total (S1-Fx) : Miscellaneous Tower Attachment and Accessories					60.00	\$	4,859.25	\$	-	\$	9,491.55	\$	956.72	\$	14,350.80
S1-G Framing and Setting of Wood Poles (S1-Gx)															
S1-G1	Framing and Setting of Single Pole Tangent (0 - 1 deg) as per Drawing 505573-4633-4ZDD-0011	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-G2	Framing and Setting of Single Pole Light angle (1 - 10 deg) with Guys as per Drawing 505573-4633-4ZDD-0012	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-G3	Framing and Setting of Single Pole Heavy angle (10 - 30 deg) with Guys as per Drawing 505573-4633-4ZDD-0020	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-G4	Framing and Setting of Single Pole Dead-end (30 - 90 deg) with Guys as per Drawing 505573-4633-4ZDD-0021	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-G5	Framing and Setting of Single Pole Floating Dead-end (0 - 1 deg) with Guys as per Drawing 505573-4633-4ZDD-0013	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-G6	Framing and Setting of Two Pole Dead-end to tap to HVdc Tower in Labrador as per Drawing 505573-4633-4ZDD-0061	EA	0	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
Sub-total (S1-Gx) : Framing and Setting of Wood Poles					-	\$	-	\$	-	\$	-	\$	-	\$	-
S1-I Optional Pricing (S1-Ix)															
S1-I1	Perform Geotechnical Investigation and Identify Foundation Type as per Design Drawings and Technical Specifications	LS	2	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	Not Priced
S1-I2	Design and supply of micropile option as replacement for H-pile design	EA	2	\$	-	\$	-	\$	-	\$	-	\$	Not Priced	\$	

S1-118	Assembly and Installation of Foundation Type B2-1/1A, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-119	Assembly and Installation of Foundation Type C1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.72	\$ -	\$ 1.26	\$ 1.98	\$ 1.98
S1-120	Assembly and Installation of Foundation Type C2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-121	Assembly and Installation of Foundation Type D1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.74	\$ -	\$ 1.27	\$ 2.01	\$ 2.01
S1-122	Assembly and Installation of Foundation Type D2-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-123	Assembly and Installation of Foundation Type E1-1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.73	\$ -	\$ 1.26	\$ 1.99	\$ 1.99
S1-124	Assembly and Installation of Foundation Type A1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.78	\$ -	\$ 1.31	\$ 2.09	\$ 2.09
S1-125	Assembly and Installation of Foundation Type A2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-126	Assembly and Installation of Foundation Type A3-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.71	\$ -	\$ 1.24	\$ 1.95	\$ 1.95
S1-127	Assembly and Installation of Foundation Type A4-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-128	Assembly and Installation of Foundation Type B1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.72	\$ -	\$ 1.26	\$ 1.98	\$ 1.98
S1-129	Assembly and Installation of Foundation Type B2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-130	Assembly and Installation of Foundation Type C1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.72	\$ -	\$ 1.26	\$ 1.98	\$ 1.98
S1-131	Assembly and Installation of Foundation Type C2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-132	Assembly and Installation of Foundation Type D1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.74	\$ -	\$ 1.27	\$ 2.01	\$ 2.01
S1-133	Assembly and Installation of Foundation Type D2-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.95	\$ -	\$ 1.47	\$ 2.42	\$ 2.42
S1-134	Assembly and Installation of Foundation Type E1-2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.01	\$ 0.73	\$ -	\$ 1.26	\$ 1.99	\$ 1.99
S1-135	Assembly and Erection of Tower Type A1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.71	\$ -	\$ 3.17	\$ 4.88	\$ 4.88
S1-136	Assembly and Erection of Tower Type A2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.88	\$ -	\$ 3.33	\$ 5.21	\$ 5.21
S1-137	Assembly and Erection of Tower Type A3, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.64	\$ -	\$ 3.10	\$ 4.74	\$ 4.74
S1-138	Assembly and Erection of Tower Type A4, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.64	\$ -	\$ 3.10	\$ 4.74	\$ 4.74
S1-139	Assembly and Erection of Tower Type B1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.66	\$ -	\$ 3.11	\$ 4.77	\$ 4.77
S1-140	Assembly and Erection of Tower Type B2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.88	\$ -	\$ 3.33	\$ 5.21	\$ 5.21
S1-141	Assembly and Erection of Tower Type C1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.85	\$ -	\$ 3.35	\$ 5.20	\$ 5.20
S1-142	Assembly and Erection of Tower Type C2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.07	\$ -	\$ 3.56	\$ 5.63	\$ 5.63
S1-143	Assembly and Erection of Tower Type D1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.87	\$ -	\$ 3.37	\$ 5.24	\$ 5.24
S1-144	Assembly and Erection of Tower Type D2, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 2.07	\$ -	\$ 3.56	\$ 5.63	\$ 5.63
S1-145	Assembly and Erection of Tower Type E1, per kg, to be used for weight increases or decreases	KG	1	\$ 0.03	\$ 1.85	\$ -	\$ 3.35	\$ 5.20	\$ 5.20
S1-146	Two stockbridge dampers per 1" guy wire on A1 and A3 towers, placed at 1.5 m and 2.5 m above the anchor	Per guy	4,256	\$ 6,384.00	\$ 143,995.00	\$ -	\$ 1,136,656.15	\$ 149.12	\$ 634,658.98
S1-147	Two stockbridge dampers per 1.5" guy wire on A2, A4 and B1 towers, placed at 2.5 m and 3.5 m above the anchor	Per guy	88	\$ 154.61	\$ 50,914.87	\$ -	\$ 400,233.96	\$ 178.95	\$ 15,747.34
Sub-total (S1-ix) : Optional Pricing				6,927.16	\$ 236,386.02	\$ -	\$ 1,598,382.74	\$ 103,296.85	\$ 715,715.80
TOTAL VALUE THIS PROPOSAL (Tax Excluded):									313,499,817.46

- Notes:
- 1) Modified per Nalcor file << Vpricing Schedule F1 F2 and F3 kh 30-Jul-2014 for RT Final.xlsx >>
 - 2) Items marked T&M shall be performed on a time and Material basis
 - 3) Items marked "Not Priced" are assumed to be performed under the Part "B" section of the contract.
 - 4) Items marked "No Information" cannot be priced as no drawings were provided.
 - 5) Items marked "N/A" are not applicable to this line section.
 - 6) Unit Price Based on 2014 Project Labour Agreement. Units to be revised based on Exhibit 2 - Compensation

Exhibit 2 Schedule of Price Breakdown
 Appendix A
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A change order will be issued after the Effective Date for the following unit items at the unit price indicated below.

S1-C Tower Foundation Construction (S1-CX)
Guy Wire Anchors

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Manhours (Hrs)	Equipment \$	Material \$	Labour \$	Total Unit Price \$
S1-C2a	Installation of Guy Wire Anchor in rock with 115mm hole as per design drawing and technical specification Front 1	LM	1	3.10	\$151.27	\$53.08	\$288.50	\$492.86
S1-C2a	Installation of Guy Wire Anchor in rock with 115mm hole as per design drawing and technical specification Front 1	LM	1	3.20	\$151.39	\$53.13	\$286.45	\$490.97
S1-C2a	Installation of Guy Wire Anchor in rock with 115mm hole as per design drawing and technical specification Front 1	LM	1	3.20	\$152.23	\$53.49	\$287.58	\$493.29

Exhibit 2
Attachment 1 - Basis of Payment
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Attachment 1

Basis of Payment

HVdc Line Construction Section 1 and 2 - Segments 1, 2, 3, 4 and 5

1. GENERAL INFORMATION

This Attachment 1 shall be used in conjunction with Appendix A – Schedule of Price Breakdown of Exhibit 2. This Attachment 1 covers the requirements for each pay item referenced in Appendix A – Schedule of Price Breakdown.

The Contract Price shall include all items that are not expressly stated in Appendix A - Schedule of Price Breakdown, but that are required for the performance of the Work. These items include, but are not limited to, indirect costs, travel, tools, operating costs, consumables, costs associated with quality assurance, quality control, environmental compliance, environmental ground truthing, permitting, re-sequencing of the Work due to environmental constraints, logistics, material management, health and safety compliance, medical services, management oversight, meetings, reporting, scheduling, monitoring, auditing, Site access, security, surveying, staking, transportation, accommodations, labour relations, commissioning, start-up, insurance, costs associated with all types of summer and winter weather conditions (including severe summer and winter conditions), or anything else required to complete the Work.

2. GENERAL WORKS

Initial Mobilization S1-A1/S2-A1/S3-A1/S4-A1/S5-A1 (as identified in Appendix A – Schedule of Price Breakdown)

The Contractor is to be paid a lump-sum amount to mobilize to the Site in accordance with Appendix A – Schedule of Price Breakdown. Mobilization shall be considered complete when the following has occurred and been Accepted by the Engineer:

- There is a presence on Site of sufficient equipment and workforce to perform the required Work according to the Technical Requirements and the Construction Schedule.
- All necessary documentation related to procedures, scheduling, quality and compliance with health/safety/environmental requirements has been provided and is Accepted by the Engineer.

Contractor shall be paid 30% of the total mobilization cost for a Segment when the clearing/access crew starts work for such Segment, and the remaining balance shall be payable once the foundation construction crew starts work for such Segment.



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Final Demobilization S1-A2/S2-A2/S3-A2/S4-A2/S5-A2 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor costs of demobilization and clearance of Site on Completion as per the requirements of Exhibit 1 – Scope of Work are not eligible for payment as a separate pay item, rather are included in the other pay items contained in Appendix A – Schedule of Price Breakdown of Exhibit 2.

Accommodation Camp Installation S1-A3/S2-A3/S3-A3/S4-A3/S5-A3 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor is to be paid a lump-sum amount to design, supply and install camp(s) for its workforce and for Company Group Personnel. This includes all office space, equipment servicing facilities and communication systems as defined in Exhibit 1 – Scope of Work. The camp(s) shall be considered complete when the following has occurred and been Accepted by Engineer:

- The camp(s) identified in the Execution Plan (as described in Exhibit 3 - Coordination Procedures) for the Segment are of adequate size to meet all requirements under this Agreement;
- Occupancy permit has been received and conditions complied with;
- All services including power, water, sewage, HVAC, IT and telecommunication systems are fully operational; and
- Office space for Engineer is ready for use.

Where there is one camp for a Segment, Contractor will be paid 50% of the total Accommodation cost upon arrival of the camp to the Site and the remaining balance to be paid when the occupancy permit has been received and conditions complied with.

Where there will be two camps for a Segment, Contractor will be paid 60% of the total Accommodation cost of such Segment for completion of the first camp and 40% of the total Accommodation cost of such Segment for the second camp. For each individual camp, Contractor will be paid 50% of the total allowable Accommodation cost upon arrival of the camp to the Site and the remaining balance to be paid to the Contractor when the occupancy permit has been received and conditions complied with.

Where there will be three camps for a Segment, Contractor will be paid 40% of the total Accommodation cost of such Segment for completion of the first camp, 40% of the total Accommodation cost of such Segment for completion of the second camp and 20% of the total Accommodation cost of such Segment for completion of the third camp. For each individual camp, Contractor will be paid 50% of the total allowable Accommodation cost upon arrival of the camp to the Site and the remaining balance to be paid when the occupancy permit has been received and conditions complied with.

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Operational costs associated with the accommodation and travel for Contractor's Personnel shall be all inclusive and are deemed to be included in the Contract Price.

Operational costs associated with the provision of office space for Personnel of Engineer and Company, shall be all inclusive and are deemed to be included in the Contract Price.

Boarding and Lodging for Company Group Personnel S1-A4/S2-A4/S3-A4/S4-A4/S5-A4 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor shall be paid a daily rate to provide lodging and meals for Company Group Personnel. The daily rate shall include a private room and three (3) meals as per the requirements of Exhibit 1 – Scope of Work.

Engineer and Contractor shall use an agreed-upon method to document when Company Group Personnel stay at Contractor's camp(s). Contractor's invoice shall show the total days that these Personnel were housed at the camp with back-up details showing names and dates of occupancy at the camp(s).

Meals for Visitors Sponsored by Company Group S1-A5/S2-A5/S3-A5/S4-A5/S5-A5 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor shall be paid a single rate for meals provided to Site visitors sponsored by Company Group.

Engineer and Contractor shall use an agreed-upon method to verify and record guests of Company Group that have a meal at the camp facilities. Contractor shall include on the invoice the number of individual meals provided with back-up details showing names and dates.

3. TOWER FOUNDATION CONSTRUCTION

Foundation prices shall include all necessary soils characterization, QA/QC work for foundation selection, Site preparation/levelling, and installation, including any applicable supply of concrete, grout and rebar. For self-supporting towers, in the event that rock and soil foundations are required, Contractor shall be paid based on the type (combination) of foundations installed. No payment shall be made for obtaining suitable backfill material that is within fifty (50) metres of the location of the foundation; and any excess backfill/spoil material shall be spread along the ROW, in accordance with the direction of Engineer, and shall be deemed to be included in the applicable Unit Price

In the event that imported backfill is required (i.e. processed material / road gravel), the installation cost is deemed to be included in the price associated with the respective foundation

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type. The unit of measurement for the supply and transportation of the imported backfill is covered in the Earthwork Measurement of Payment section below.

Guy Wire Anchors Measurement of Payment for S1-C1/S2-C1/S3-C1/S4-C1/S5-C1 and S1-C2/S2-C2/S3-C2/S4-C2/S5-C2 (as identified in Appendix A – Schedule of Price Breakdown)

Installation of the anchors for tower guys shall be paid by the metre of grouted anchor rod that is installed below the ground. Separate rates for installing anchor rods in rock and in soil are provided in Appendix A – Schedule of Price Breakdown. In many cases, anchors will be installed in terrain consisting of both rock and soil. Contractor shall be responsible for measuring the length of anchor installed in rock and the length installed in soil, including those situations where the anchor is installed in both materials.

All anchors shall be tested by Contractor. No payment shall be provided for an anchor or pull test that fails due to workmanship. No payment shall be made for length above ground.

Installation of an anchor shall be considered complete when the following has occurred and has been Accepted by the Engineer:

- The anchor has been properly installed; and
- All installation quality control reports have been submitted, including installation observations and grout tests.

As per the Technical Specification – Part A – Line Construction, pull tests shall be completed on each guy anchor installed after sufficient time has passed to allow the grout to properly set. The testing shall be paid on a unit rate basis for each anchor tested. No payment shall be made for any failed test.

Testing of a guy anchor shall be considered complete when the following has occurred and has been Accepted by the Engineer:

- The test equipment has been set up and a successful test has been completed according to established procedures; and
- A quality control report documenting the test has been submitted.

Grillage Foundations Measurement of Payment for S1-C3 to S1-C19/S2-C3 to S2-C19/S3-C3 to S3-C19/S4-C3 to S4-C19/S5-C3 to S5-C19 (as identified in Appendix A – Schedule of Price Breakdown)

Installation of single foundations for each guyed tower or each of the individual foundations for self-supporting towers shall be paid on a unit rate basis for each foundation installed, regardless of frost depth. Grillage foundations are classified by their rated bearing strength and by the type of tower(s) for which they are intended.

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Installation of grillage foundations shall be considered complete when the following has occurred and has been Accepted by the Engineer:

- All necessary assembly, survey, staking, transportation, excavation, slope control, heating and hoarding, dewatering / water flow control, installation and backfill has been completed as per the Drawings;
- All required foundation selection reports (reference Section 2.4.9 of Exhibit 1 – Scope of Work) have been completed and have been submitted to Engineer; and
- All installation quality control reports have been submitted, including foundation assembly inspections, by appropriate bearing capacity tests as per Technical Specification, as-built x-y-z coordinates of the foundations, and installation observations.

Rock Foundations Measurement of Payment for S1-C22 to S1-C54/S2-C22 to S2-C54/S3-C22 to S3-C54/S4-C22 to S4-C54/S5-C22 to S5-C54 (as identified in Appendix A – Schedule of Price Breakdown)

Installation of single foundations for each guyed tower or each of the individual foundations for self-supporting towers shall be paid on a unit rate basis for each foundation installed. The rock foundations are classified by the type of tower and whether they are installed in rock at or below the surface, and in some cases, sound versus weak rock. The stub leg shall be cut to an appropriate length and field galvanized. Installation of rock anchors shall be paid on a linear metre basis depending on the size.

Installation of single foundations shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All necessary assembly, survey, staking, transportation, excavation, drilling, slope control, installation of grout, concrete, rebar, dewatering / water flow control, and heating and hoarding of backfill Work has been completed as per the Drawings;
- All required foundation selection reports (reference Section 2.4.9 of Exhibit 1 – Scope of Work) have been completed and have been submitted to Engineer; and
- All installation quality control reports have been submitted, including installation observations and as-built x-y-z coordinates of the foundation.

H-Pile Foundations

Contractor's Work includes the design and test plan of the foundation, procurement of material and installation.

Measurement of Payment for S1-C55 to S1-C65/S2-C55 to S2-C65/S3-C55 to S3-C65/S4-C55 to S4-C65/S5-C55 to S5-C65 (as identified in Appendix A – Schedule of Price Breakdown)

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A piled foundation shall be considered complete when the following has occurred and has been Accepted by Engineer:

- A design and test plan for the entire foundation has been completed, reviewed and Accepted by Engineer and stamped by Contractor's PEG NL professional engineer;
- All required foundation selection reports (referenced in Section 2.4.9 of Exhibit 1 – Scope of Work) have been completed and have been submitted to Engineer;
- All necessary Site preparation has been completed;
- All materials, including piling, bracing, anti-uplift rock anchors and pile caps have been supplied and installed in accordance with the Drawings; and
- All installation quality control reports, including piling logs, welding inspections and as-built x-y-z coordinates of the foundation have been submitted.

Measurement of Payment for S1-C66/S2-C66/S3-C66/S4-C66/S5-C66 for Rock Anchors (as identified in Appendix A – Schedule of Price Breakdown)

Contractor shall install anti-uplift rock anchors per the design Drawings and Technical Specifications. Contractor shall be paid per linear metre of material installed; excess material such as joint lengths, waste material, and so forth shall not be paid.

Installation of rock anchors for H-Pile foundations shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All necessary Site preparation has been completed;
- All material has been transported and installed in accordance with the Drawings;
- The test equipment has been set up and a successful test has been completed in accordance with established procedures; and
- A quality control report documenting the test has been submitted.

Measurement of Payment for S1-C67/S2-C67/S3-C67/S4-C67/S5-C67 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor shall supply and install H-Piles. Contractor shall be paid based on the unit length of material installed. Excess material such as joint lengths, waste material and so forth shall not be paid. The exact H-Pile shall be based on the design agreed between Contractor and Engineer.

Bog and Poor Soil Measurement of Payment for S1-C68/S2-C68/S3-C68/S4-C68/S5-C68 (as identified in Appendix A – Schedule of Price Breakdown)

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Unless otherwise Accepted, cribbing material shall be provided as corrugated plates that can be assembled into cribs of a defined diameter and height. The cribbing shall be paid for on a unit rate (per square metre) of material installed.

The supply and installation of cribbing shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to procure, transport and assemble the cribbing material has been completed;
- Installation of the crib has been completed, including excavation; and
- All Work associated with the installation of the foundation, including the pumping of water, installation of the footing steel and backfill has been completed. The cost of installing the foundations and backfill shall be included under their respective items.

Earthwork Measurement of Payment for S1-C69 to C70/S2-C69 to C70/S3-C69 to C70/S4-C69 to C70/S5-C69 to C70 (as identified in Appendix A – Schedule of Price Breakdown)

Contractor shall source and transport processed material to individual tower sites to be used to backfill foundations where the excavated native material is deemed unsuitable. The processed material shall be paid for on a unit rate (per cubic metre) of material required. The amount of material required shall be calculated using the dimensions shown on the tower foundation Drawings where excavations are required. Where cribbing is used, the volume inside the cribbing shall equal the amount of backfill material provided.

Backfill material requirements shall be defined as dry unit weights as per Drawings and Technical Specifications (i.e. kg/m^3), depending on the application. Unit rates for native backfill outside of 50 metres from foundation site shall only be paid for on a per cubic metre basis, within 10 km of the tower location.

Cost of engineered fill and transportation will be paid at cost plus nine percent (9%).

The delivery of the backfill material shall be considered completed when the following has occurred and has been Accepted by Engineer:

- All Work to procure and transport the backfill material has been completed;
- Installation of the backfill material is completed. The price of installation and compaction of the backfill material shall be included in the price of the installation of the foundations; and
- A quality control report verifying the delivery of suitable material has been provided.

Blasting Measurement of Payment for S1-C71/S2-C71/S3-C71/S4-C71/S5-C71 (as identified in Appendix A – Schedule of Price Breakdown)

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At some tower locations, some blasting will be required as agreed upon by Contractor and Engineer. Where it is necessary to blast material to facilitate Site preparation, Engineer and Contractor shall agree on the amount of material that needs to be blasted and removed. Blasting shall be paid based on the volume (cubic metre) of material removed due to blasting Work.

The blasting Work, defined in terms of the volume of material removed, shall be considered complete when the following has occurred and been Accepted by Engineer:

- Blasting has been safely completed; and
- The required volume of material has been removed allowing for further Work to be completed.

4. TOWER ASSEMBLY AND ERECTION

Measurement of Payment for S1-D1 to S1-D132/S2-D1 to S2-D132/S3-D1 to S3-D132/S4-D1 to S4-D132/S5-D1 to S5-D132 (as identified in Appendix A - Schedule of Price Breakdown)

Suspension-type tower construction shall be paid as a unit price for each tower type for all available heights, considering all guy wires and components required to erect that height in accordance with the applicable items of Appendix A - Schedule of Price Breakdown.

Example:

- An A1+10.5 tower assembly and erection price must take into consideration the basic A1-tower, a +7.5 Mast Extension, and a +3 Mast Extension, along with any bracing required to connect the extensions.

Self-supporting tower construction shall be paid as a unit price for the basic body, and a separate unit price for body or leg extensions, in accordance with the applicable items of Appendix A - Schedule of Price Breakdown;

Example:

- An E1+10.5 tower assembly and erection would include a line item for basic E-tower, a line item for +4.5 Body Extension, and a line item for the +6 Leg Extensions.

70% of the payment shall be paid to Contractor when the following has occurred and has been Accepted by Engineer:

- All Work to transport and assemble the tower has been completed; and
- All related quality control reports and inspection reports have been submitted and Accepted as per the applicable Inspection Test Plan ("ITP").

The remaining 30% of the payment shall be paid to Contractor when all of the following has occurred and been Accepted by Engineer:

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- All Work to erect the tower has been completed, including the installation of guy wires, plumbing and any installation of a tower accessory (line number, signage, plates, etc.). Engineer supplied tower accessories must be available at time tower is erected.
- All related installation quality control reports, including pre-setting assembly inspections, post-setting inspections and tightening inspections, have been submitted and Accepted as per the applicable ITP.
- If Contractor cannot complete tasks due to missing parts or deficient parts, payment cannot be withheld from Contractor.

5. INSTALLATION OF WIRES AND OPGW

Measurement of Payment for S1-E1/S2-E1/S3-E1/S4-E1/S5-E1 (as identified in Appendix A – Schedule of Price Breakdown)

Structure location measurements noted on the structure lists shall be used to track the segments of completed Work. Installation of the counterpoise shall be paid per kilometre that is completed. This measurement shall be the direct distance along the centre-line and not the minor deviations that may occur while trenching the counterpoise along variable terrain. In addition, this measurement shall not include any loops necessary for tower connection, but shall solely be the linear distance along the center-line.

The installation of counterpoise shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport material, trench in counterpoise, and connections to the tower have been completed;
- All quality control reports, including tower footing resistance measurements, have been submitted; and
- All documentation relating to counterpoise routing have been submitted.

Measurement of Payment for S1-E2 to S1-E3/S2-E2 to S2-E3/S3-E2 to S3-E3/S4-E2 to S4-E3/S5-E2 to S5-E3 (as identified in Appendix A – Schedule of Price Breakdown)

The Work shall include the installation of ground rods at each tower site and at barriers (water bodies, surface rock, roads, etc.) where gaps in the counterpoise are required. Barriers that result in gaps of greater than 200 metres shall be deducted from the installed quantity. Contractor shall be paid based on the number of properly installed ground rods.

The installation of ground rods shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport material, install ground rods and install connections has been completed;

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- All quality control reports, including tower footing resistance measurements, have been submitted; and
- All documentation relating to ground rod locations have been submitted.

Measurement of Payment for S1-E4 to S1-E8/S2-E4 to S2-E8/S3-E4 to S3-E8/S4-E4 to S4-E8/S5-E4 to S5-E8 (as identified in Appendix A – Schedule of Price Breakdown):

Contractor shall be paid per kilometre of properly installed conductor, complete for both poles / electrodes where applicable. Structure location measurements noted on the structure list shall be used to track the segments of completed Work.

The installation of a segment of line shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport material (including storing hylugs and connectors, conductor, insulators, hardware and hardware accessories), string, sag, dead-end, splice, clip-in and install conductor dampers has been completed; and
- All quality control reports, including stringing information, sagging records, splicing records, tower attachment inspections / punch lists, and final Acceptance, have been submitted.

Measurement of Payment for S1-E12/S2-E12/S3-E12/S4-E12/S5-E12 (as identified in Appendix A – Schedule of Price Breakdown):

Contractor shall be paid per kilometre of properly installed Optical Ground Wire (OPGW) (applicable for any size). Station measurements noted on the structure list (in Exhibit 1 - Scope of Work) shall be used to track the segments of completed Work.

The installation of a segment of line shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport material, string, sag, dead-end, downlead, clip-in and install dampers, has been completed; and
- All quality control reports, including stringing information and sagging records, have been submitted.

Measurement of Payment for S1-E13 to E15/S2-E13 to E15/S3-E13 to E15/S4-E13 to E15/S5-E13 to E15 (as identified in Appendix A – Schedule of Price Breakdown):

Testing of OPGW reels delivered to the Contractor shall be paid as a single lump sum amount. Each splice of the OPGW and associated testing shall be paid at a unit rate per splice. End to end testing (including pre-commissioning) of the installed OPGW system shall be paid as a single lump sum amount.

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Each series of tests shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All specified testing has been completed according to the established procedures; and
- All quality control reports and test results have been submitted and Accepted by Engineer

6. MISCELLANEOUS TOWER ATTACHMENTS AND ACCESSORIES

Measurement of Payment for S1-F1/S2-F1/S3-F1/S4-F1/S5-F1 (as identified in Appendix A - Schedule of Price Breakdown):

Each marker cone installed shall be paid on a unit rate basis.

The installation of a marker cone shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All marker cones defined by the Drawings for a particular span have been properly installed in the correct positions in the span; and
- A quality control report documenting the proper installation of the set of marker cones has been submitted.

Measurement of Payment for Guy Dampers (as identified in Appendix A - Schedule of Price Breakdown):

Each guy damper installed shall be paid on a unit rate basis.

The installation of guy dampers shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All guy dampers defined by the Drawings for a particular guy have been properly installed in the correct positions in the guy; and
- A quality control report documenting the proper installation of the guy dampers has been submitted.

7. FRAMING AND SETTING OF WOOD POLES

Measurement of Payment for S1-G1 to S1-G6/S2-G1 to S2-G6/S3-G1 to S3-G6/S4-G1 to S4-G6/S5-G1 to S5-G6 (as identified in Appendix A – Schedule of Price Breakdown):

Wood pole construction shall be paid as a unit price for each wood pole type for all available heights, considering all components required to frame and set that wood pole.

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The installation of a wood pole shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport, frame and set the wood pole has been completed, including any installation of guy wires, anchors, and wood pole accessories (line number, signage, plates, etc.); and
- All quality control reports, including pre-setting assembly inspections and post-setting inspections, have been submitted and Accepted by Engineer.

8. OPTIONAL PRICING

Measurement of Payment for S1-I15 to S1-I16/S2-I15 to S2-I16/S3-I15 to S3-I16/S4-I15 to S4-I16/S5-I15 to S5-I16 (as identified in Appendix A – Schedule of Price Breakdown):

Contractor shall be paid a lump sum amount for properly installed conductor, complete for both poles where applicable, and OPGW/ADSS from terminal structure to substation of transition compound gantry.

The installation shall be considered complete when the following has occurred and has been Accepted by Engineer:

- All Work to transport material (conductor, OPGW, ADSS, insulators, hardware and hardware accessories, etc), string, sag, dead-end, splice, clip-in and install dampers has been completed; and
- All quality control reports, including stringing information, sagging records and splicing records, have been submitted.

Measurement of Payment for S1-I13 to S1-I34/S2-I13 to S2-I34/S3-I13 to S3-I34/S4-I13 to S4-I34/S5-I13 to S5-I34 (as identified in Appendix A – Schedule of Price Breakdown):

The \$/kg price to be used for price adders or rebates in the event that foundation steel weights change prior to start of Work, shall be in accordance with the pay items of the above heading.

Measurement of Payment for S1-I35 to S1-I45/S2-I35 to S2-I45/S3-I35 to S3-I45/S4-I35 to S4-I45/S5-I35 to S5-I45 (as identified in Appendix A – Schedule of Price Breakdown):

The \$/kg price to be used for price adders or rebates in the event that tower steel weights change prior to start of Work, shall be in accordance with the pay items of the above heading.

Exhibit 2 – Appendix B
Monthly Payment Forecast Schedule
Agreement Number CT0327-001

MONTHLY PAYMENT FORECAST SCHEDULE

Exhibit 2 - Appendix B
 Monthly Payment Forecast Schedule
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**MONTHLY PAYMENT FORECAST SCHEDULE
 LINE CONSTRUCTION WORKS**

Month	Date	Estimated Monthly Payment
1	June 1, 2014	\$ 4,982,760
2	July 1, 2014	\$ 2,000,000
3	August 1, 2014	\$ 3,000,000
4	September 1, 2014	\$ 11,980,015
5	October 1, 2014	\$ 6,761,963
6	November 1, 2014	\$ 9,566,476
7	December 1, 2014	\$ 11,083,287
8	January 1, 2015	\$ 10,228,380
9	February 1, 2015	\$ 18,078,484
10	March 1, 2015	\$ 18,217,697
11	April 1, 2015	\$ 26,600,484
12	May 1, 2015	\$ 25,672,620
13	June 1, 2015	\$ 31,764,319
14	July 1, 2015	\$ 32,303,444
15	August 1, 2015	\$ 36,656,535
16	September 1, 2015	\$ 41,220,267
17	October 1, 2015	\$ 42,644,899
18	November 1, 2015	\$ 36,820,936
19	December 1, 2015	\$ 39,160,713
20	January 1, 2016	\$ 23,248,850
21	February 1, 2016	\$ 31,300,097
22	March 1, 2016	\$ 28,015,349
23	April 1, 2016	\$ 33,761,651
24	May 1, 2016	\$ 33,784,289
25	June 1, 2016	\$ 34,910,432
26	July 1, 2016	\$ 32,205,677
27	August 1, 2016	\$ 27,970,329
28	September 1, 2016	\$ 32,306,819
29	October 1, 2016	\$ 33,646,824
30	November 1, 2016	\$ 29,128,409
31	December 1, 2016	\$ 18,957,894
32	January 1, 2017	\$ 12,580,188
33	February 1, 2017	\$ 12,949,115
34	March 1, 2017	\$ 11,131,462
35	April 1, 2017	\$ 11,842,006
36	May 1, 2017	\$ 4,500,090
37	June 1, 2017	\$ 3,000,000
	TOTALS	\$ 823,982,760

PL

Exhibit 2 – Appendix C
Personnel Rate Schedule
Agreement Number CT0327-001

PERSONNEL RATE SCHEDULE

**PERSONNEL RATE SCHEDULE
APPLICABLE MAY 2014 THROUGH MAY 2015**

PERSONNEL RATE SCHEDULE APPLICABLE MAY 2014 THROUGH MAY 2015

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
POWERLINE TECHNICIAN										
Electrical Line Workers - Foreperson	37.04	4.82	28.58	0.60	0.60	21.28	92.92	123.90	154.85	3.00
Powerline Foreperson	37.04	4.82	28.58	0.60	0.60	21.28	92.92	123.90	154.85	3.00
Powerline SubForeperson	35.79	4.65	28.28	0.60	0.60	20.91	90.83	120.76	150.67	3.00
Journeyman Powerline Technician	33.54	4.36	27.74	0.60	0.60	20.24	87.08	115.11	143.14	3.00
Electrical Line Workers - Lineperson (or Cable Splicer)	33.54	4.36	27.74	0.60	0.60	20.24	87.08	115.11	143.14	3.00
Powerline Technician Apprentice										
4th Period	30.19	3.92	26.94	0.60	0.60	19.22	81.47	106.71	131.93	3.00
3rd Period	26.83	3.49	26.14	0.60	0.60	18.21	75.87	98.30	120.72	3.00
2nd Period	23.48	3.05	25.34	0.60	0.60	17.20	70.27	89.90	109.51	3.00
1st Period	20.12	2.62	24.53	0.60	0.60	16.19	64.66	81.49	98.30	3.00
Electrical Line Workers Lineperson (or Cable Splicer) Apprentice - 4th year	30.19	3.92	26.94	0.60	0.60	19.22	81.47	106.71	131.93	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 3rd year	26.83	3.49	26.14	0.60	0.60	18.21	75.87	98.30	120.72	3.00

AL

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 2nd year	23.48	3.05	25.34	0.60	0.60	17.20	70.27	89.90	109.51	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 1st year	20.12	2.62	24.53	0.60	0.60	16.19	64.66	81.49	98.30	3.00
ELECTRICIAN										
Electrician Foreperson	40.57	5.27	23.42	0.60	0.60	19.25	89.72	123.65	157.55	3.00
Electrician Subforeperson	39.32	5.11	23.12	0.60	0.60	18.88	87.63	120.51	153.37	3.00
Journeyman Electrician	37.07	4.82	22.58	0.60	0.60	18.21	83.88	114.88	145.86	3.00
Electrician Apprentice										
4th Period	33.36	4.34	21.70	0.60	0.60	17.04	77.64	105.58	133.47	3.00
3rd Period	29.66	3.86	20.81	0.60	0.60	15.97	71.49	96.30	121.08	3.00
2nd Period	25.95	3.37	19.93	0.60	0.60	14.85	65.30	87.00	108.69	3.00
1st Period	22.24	2.89	19.04	0.60	0.60	13.73	59.10	77.70	96.30	3.00
Civil Trade Foreperson	36.21	4.71	22.38	0.60	0.60	17.94	82.44	112.72	142.98	3.00
Carpenters - Working Foreperson	36.21	4.71	22.38	0.60	0.60	17.94	82.44	112.72	142.98	3.00
Civil Trade Subforeperson	34.96	4.54	22.08	0.60	0.60	17.56	80.35	109.59	138.80	3.00
Journeyman Civil	32.71	4.25	21.54	0.60	0.60	16.89	76.59	103.94	131.28	3.00
Carpenters - JourneyPerson, Carpenter, Welder, Scaffolder	32.71	4.25	21.54	0.60	0.60	16.89	76.59	103.94	131.28	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Civil Trade Apprentice										
4th Period	29.44	3.83	20.76	0.60	0.60	15.90	71.13	95.74	120.34	3.00
3rd Period	26.17	3.40	19.98	0.60	0.60	14.92	65.67	87.54	109.41	3.00
2nd Period	22.90	2.98	19.20	0.60	0.60	13.93	60.20	79.34	98.48	3.00
1st Period	19.63	2.55	18.42	0.60	0.60	12.94	54.74	71.14	87.54	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 4 th	29.44	3.83	20.76	0.60	0.60	15.90	71.13	95.74	120.34	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 3rd	26.17	3.40	19.98	0.60	0.60	14.92	65.67	87.54	109.41	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 2nd	22.90	2.98	19.20	0.60	0.60	13.93	60.20	79.34	98.48	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 1st	19.63	2.55	18.42	0.60	0.60	12.94	54.74	71.14	87.54	3.00

PR

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
MECHANICAL 1										
Mechanical 1 Trade Foreperson	39.71	5.16	23.21	0.60	0.60	19.00	88.28	121.50	154.68	3.00
Mechanical 1 Subforeperson	38.46	5.00	22.91	0.60	0.60	18.62	86.19	118.36	150.50	3.00
Journeyman Mechanical 1	36.21	4.71	22.38	0.60	0.60	17.94	82.44	112.72	142.98	3.00
Electrical Line Workers - Mechanic	36.21	4.71	22.38	0.60	0.60	17.94	82.44	112.72	142.98	3.00
Mechanical 1 Apprentice										
4th Period	32.59	4.24	21.51	0.60	0.60	16.85	76.39	103.65	130.88	3.00
3rd Period	28.97	3.77	20.65	0.60	0.60	15.75	70.34	94.56	118.77	3.00
2nd Period	25.35	3.30	19.78	0.60	0.60	14.67	64.29	85.49	106.67	3.00
1st Period	21.73	2.82	18.92	0.60	0.60	13.58	58.25	76.41	94.56	3.00
MECHANICAL 2										
Mechanical 2 Foreperson	37.71	4.90	22.74	0.60	0.60	18.39	84.95	116.48	147.99	3.00
Mechanical 2 Subforeperson	36.46	4.74	22.44	0.60	0.60	18.02	82.86	113.34	143.81	3.00
Journeyman Mechanical 2	34.21	4.45	21.90	0.60	0.60	17.34	79.09	107.70	136.30	3.00
Mechanical 2 Apprentice										
4th Period	30.79	4.00	21.08	0.60	0.60	16.31	73.38	99.13	124.86	3.00
3rd Period	27.37	3.56	20.27	0.60	0.60	15.28	67.67	90.55	113.43	3.00
2nd Period	23.95	3.11	19.45	0.60	0.60	14.24	61.95	81.98	101.99	3.00
1st Period	20.53	2.67	18.63	0.60	0.60	13.21	56.23	73.40	90.55	3.00
Heavy Duty Mechanic Technician	34.21	4.45	21.90	0.60	0.60	17.34	79.09	107.70	136.30	3.00
Crane Operator	35.71	4.64	22.26	0.60	0.60	17.79	81.60	111.47	141.30	3.00
Heavy Equipment Operator	31.21	4.06	21.18	0.60	0.60	16.44	74.08	100.19	126.27	3.00

RL

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Operator	31.21	4.06	21.18	0.60	0.60	16.44	74.08	100.19	126.27	3.00
Light Equipment Operator	30.21	3.93	20.94	0.60	0.60	16.13	72.41	97.68	122.92	3.00
Blaster/Driller/Compressor Operator	31.21	4.06	21.18	0.60	0.60	16.44	74.08	100.19	126.27	3.00
Electrical Line Workers - Blaster/Driller	31.21	4.06	21.18	0.60	0.60	16.44	74.08	100.19	126.27	3.00
Mechanic Helper	28.39	3.69	20.51	0.60	0.60	15.58	69.37	93.11	116.84	3.00
Accommodations Maintenance Person	28.39	3.69	20.51	0.60	0.60	15.58	69.37	93.11	116.84	3.00
Communications Installer	27.39	3.56	20.27	0.60	0.60	15.28	67.71	90.61	113.50	3.00
Utility Technician	28.39	3.69	20.51	0.60	0.60	15.58	69.37	93.11	116.84	3.00
Electrical Line Workers - Utility Worker	28.39	3.69	20.51	0.60	0.60	15.58	69.37	93.11	116.84	3.00
Utility Person	27.39	3.56	20.27	0.60	0.60	15.28	67.71	90.61	113.50	3.00
Storekeeper (Warehouse Person)	29.39	3.82	20.75	0.60	0.60	15.89	71.05	95.62	120.18	3.00
Electrical Line Workers - Full-time Storekeeper	29.39	3.82	20.75	0.60	0.60	15.89	71.05	95.62	120.18	3.00
Material Manager	29.39	3.82	20.75	0.60	0.60	15.89	71.05	95.62	120.18	3.00
Arborist	27.94	3.63	20.40	0.60	0.60	15.45	68.62	91.99	115.33	3.00
Forklift/Truck Driver Tandem/Muskeg/Bus Driver	30.21	3.93	20.94	0.60	0.60	16.13	72.41	97.68	122.92	3.00
Labourer Clearing/Labourer Laydown	27.39	3.56	20.27	0.60	0.60	15.28	67.71	90.61	113.50	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Project Director	\$236.24	Included	Included	Included	Included	\$21.26	\$257.50	\$257.50	\$257.50	N/A
Project Manager	\$188.99	Included	Included	Included	Included	\$17.01	\$206.00	\$206.00	\$206.00	N/A
Construction Manager	\$188.99	Included	Included	Included	Included	\$17.01	\$206.00	\$206.00	\$206.00	N/A
Assistant Project Manager	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Project Assistant	\$92.43	Included	Included	Included	Included	\$8.32	\$100.75	\$100.75	\$100.75	N/A
Project Accounting (Controller)	\$92.43	Included	Included	Included	Included	\$8.32	\$100.75	\$100.75	\$100.75	N/A
Field Supervisor	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Project Planner / Scheduler	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Materials Manager	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Project Administrator	\$32.59	4.24	21.51	0.60	0.60	16.85	76.39	103.65	130.88	
Electrical Line Workers - General Foreperson	\$137.59	Included	Included	Included	Included	15.41	186.63	186.63	186.63	N/A
Field Supervisor	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Environmental Supervisor	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Environmental Monitor	\$92.43	Included	Included	Included	Included	\$8.32	\$100.75	\$100.75	\$100.75	N/A
Site Health and Safety Supervisor	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Quality Assurance Supervisor	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
First Aid Attendant	\$31.21	4.06	21.18	0.60	0.60	16.44	74.08	100.19	126.27	N/A
Project Engineer	\$188.99	Included	Included	Included	Included	\$17.01	\$206.00	\$206.00	\$206.00	N/A
Geotechnical Scientist	\$222.06	Included	Included	Included	Included	\$19.99	\$242.05	\$242.05	\$242.05	N/A

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Geotechnical Engineer	\$222.06	Included	Included	Included	Included	\$19.99	\$242.05	\$242.05	\$242.05	N/A
Geotechnical Technician	\$165.37	Included	Included	Included	Included	\$14.88	\$180.25	\$180.25	\$180.25	N/A
3rd Party Density Tester	\$165.37	Included	Included	Included	Included	\$14.88	\$180.25	\$180.25	\$180.25	N/A
ROW Manager	\$161.59	Included	Included	Included	Included	\$14.54	\$176.13	\$176.13	\$176.13	N/A
Right of Way Coordinator	\$137.59	Included	Included	Included	Included	\$12.38	\$149.97	\$149.97	\$149.97	N/A
Drafting Technician	\$83.16	Included	Included	Included	Included	\$7.48	\$90.64	\$90.64	\$90.64	N/A
Quality Monitor	\$92.43	Included	Included	Included	Included	\$8.32	\$100.75	\$100.75	\$100.75	N/A
Safety Advisor	\$92.43	Included	Included	Included	Included	\$8.32	\$100.75	\$100.75	\$100.75	N/A
Access Road Survey Crew per attached Quotation	\$2100.00 / Day	Included	Included	Included	Included	Included	\$2100.00 / Day	\$210.00/ Hr	\$210.00/ Hr	N/A
RoW Survey Crew per attached Quotation	\$2300.00 / Day	Included	Included	Included	Included	Included	\$2300.00 / Day	\$230.00/ Hr	\$230.00/ Hr	N/A

In addition to the hourly rates above for employees the daily Camp Costs is \$250 per day per employee unless provided by Company.

As per the Project Labour Agreement if living in the area, the employees are not entitled to the Camp costs of \$250 per day per employee.

Flights for shift rotation are not included and shall be charged at Lowest Available Cost+9%.

Travel Time, on shift change, to and from major airports and the applicable camp at the Site is reimbursable.

All other time during shift changes is not reimbursable.

Other than the costs identified above, these rates are all inclusive.

NOTES

- Column 1: Trades and specialities required for the execution of the Work.
- Column 2: Base rate is per the Project Labour Agreement referenced in Section 8.0 of Exhibit 2 - Compensation, where applicable.
- Column 3: Vacation pay includes vacations, statutory holidays, sick and other leave with pay.
- Column 4: Payroll allowances and burdens includes, but is not limited to, unemployment insurance, workers' compensation, payroll tax, and other taxes and insurance measured by payroll, established employee benefits such as pension, health, and life insurance, bonus programs, fringe benefits, indemnity funds, training, and all other contributions or premiums as per the construction decree or any other labour agreements or Applicable Laws, as applicable.
- Column 5: Small Tools includes all tools with a replacement value of less than two thousand (\$2,000.00) Canadian Dollars. Refer to Item 3 of Attachment 1 for a typical listing of these types of small tools. Such items shall be furnished by the Contractor complete with all accessories and expendable operating parts and shall be maintained in good condition including the replacement of parts as may be necessary.
- Column 6: Consumables, whether recoverable or non-recoverable (refer to Item 2 of Attachment 1), and Personal Protective Equipment (refer to Item 1 of Attachment 1).
- Column 7: Overhead and Profit includes, but is not limited to, all home/corporate office expenses costs.
- Column 8: The Regular Time rate includes the total of Columns 2 to 7 inclusive.

Overtime rates (1.5x and 2.0x) include the regular time rate plus the overtime premium as per the Project Labour Agreement. Only the costs relative to those benefits and/or burdens that specifically apply when additional hours are worked shall be added. Other benefits, burdens and overhead will not be reimbursed since the full costs to the Contractor for these items has already been compensated in the regular time rate.

Second and Third Shift Premium is the incremental charge applied to the Regular Time Rate and Overtime Rates for second and third shift Personnel.

Rates shall be revised annually based on the Project Labour Agreement.

ATTACHMENT 1

The following lists include, but are not limited to, items that Company classifies as "Personal Protective Equipment", "Consumables", and "Small Tools", whether recoverable or non-recoverable.

1. PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment shall meet the requirements of Occupational Health and Safety Regulations.

APRON, WELDERS	HALF FACE or FULL FACE RESPIRATOR WITH CARTRIDGES – ALL TYPES
BELT, SAFETY	HARD HAT
BLANKET, FIRE	HEARING PROTECTION
BLOCK, WELDING HELMET	HOOD, WELDING
BOOT, SAFETY, ALL TYPES	INSECTICIDE
BRACKET, FOR FACE SHIELD	LANYARD FOR SAFETY BELTS
BRACKET, FIBER BROW, SAFETY SHIELD	LENS, WELDING
CAPS, PLASTIC SAFETY (FOR REBAR)	LIFE LINE
CURTAIN, WELDER	LOCKS
DUST MASK	MOUNTING VISOR AND KWIK-KLIP
DISPOSABLE MASK	PULLER, FUSE SAFETY
EYESHIELD, FOR BENCH GRINDER	RAIN WEAR, JACKET AND OVERALLS
FIRST AID SUPPLIES	SAFETY HARNESS
FLARE, ROAD, NON-ELECTRIC	SIREN, ELECTRIC
GLASSES, SAFETY	STRAP, CHIN
GLOVES, WORK, ALL TYPES	SWEAT BANDS
GOGGLES, SAFETY	TABLET, SALT
GUARDS, SHIN	VISOR, SHIELD, CLEAR
GUARDS, TOE, METAL W/STRAP	WELDING SHIELDS

2. CONSUMABLES

- | | | | |
|---|---|--|--|
| <p> ABRASIVES
 ACID
 ADAPTORS, TOOL – all types
 ADHESIVE
 ALCOHOL
 ANTIFREEZE
 ANTI-SPLATTER SPRAY
 APRON, WELDERS
 ARBORS, HOLE SAW
 AUGER, HAND - post hole digger
 BADGES
 BAG, DUST – for belt sander
 BAG, BOLT
 BANDS, SAFETY HAT
 BARRELS, WATER or TRASH
 BATTERY – flashlight and lantern
 BELTING, BELT DRESSING
 BINS, TRASH
 BITS – small hand tool, all types
 BLADES – small hand tool, all types
 BLANKET – wool, rubber
 BOX, CARDBOARD
 BRACKET, FLOAT HANDLE
 BRICK, RUBBING
 BROOM – all types
 BRUSH – all types
 BUCKET – all types
 BULB – blow out, dust
 BULB – flashlight, lantern, light
 BURLAP
 CABLES, RIGGING
 CAN, OIL
 CAN, SAFETY
 CARBIDE
 CARBORUNDUM – Blocks, Stones Walk
 CHAIN, SAFETY
 CHAIN, LOADBINDER
 CHALK
 CHALK LINE BOX </p> | <p> EXPANDER, TUBEROLLS AND
 MANDRELS
 FASTENERS
 FEELER STOCK
 FILE, METAL CUTTING
 FILE, WOOD CUTTING
 FILTER – for vacuum cleaner
 FILTERS
 FISHTAPE, HAND
 FITTINGS, ALEMITE & HOSE
 FLAMBEAU, KEROSENE
 FLASHLIGHT
 FLINT
 FLUID CLEANING
 FLUX - brazing, welding
 FORK, SEED
 FORM TIES
 FRAME, HACKSAW
 FUELS (for construction equipment)
 FUNNELS, ALL TYPES
 FUSE (except for permanent plant use)
 GARBAGE BAGS
 GASKETS, HOSE
 GLOVES, WORK, all types
 GLUE
 GLYCERINE
 GOGGLES, WORK, all types
 GRAPHITE
 GREASE
 GRIPS, PLASTIC for pliers
 GROMMETS
 GUIDE, HINGE-BUTT for router
 GUN, CAULKING
 GUN, GREASE
 HASPS
 HATCHET
 HINGES
 HOE
 HOOK, SNAP </p> | <p> PAD, POLISHING
 PADLOCKS
 PAINT (for erection marking)
 PAINT STICK
 PAN, DRAIN
 PAPER – sand, toilet
 PASTE – solder
 PATTERNS
 PENCIL, CARPENTER
 PENS, WRITING, MARKING
 PETROLEUM JELLY
 PICK, CLAY
 PLUG, PIPE TEST
 PLUNGER, BATHROOM
 POCKET, LINEMAN'S
 POUCH, CANVAS
 POUCH, ROD
 POWDER, SCOURING
 PULLER, WIRE
 PUMICE
 PUNCH AND CHISEL SETS
 PUNCH, CONDUIT
 PUNCH, PIN SET
 PUTTY
 RAGS
 RAKE, GARDEN
 RAKE, CONCRETE
 RAKE, ROAD
 REAMER, TAPER PIN (Hand Only)
 RIGGING HOOKS
 ROPE, MANILA
 ROPE, POLYPROPYLENE
 ROPE, WIRE
 RULE - Extension, Wood, Fiberglass,
 Folding
 RULE, TAPE
 RUST PREVENTIVE
 SANDBLAST NOZZLES
 SCISSORS, ELECTRICIAN </p> | <p> WASHERS
 WASHING POWDER
 WASHROOM SUPPLIES
 WASTE – Cotton
 WATER CANS
 WELD ROD
 WELDING GASES
 WHEEL, DEPRESSED CENTER
 WHEELBARROW, All Types
 WHEEL ABRASIVE
 WHEEL, WIRE
 WICKS, LANTERN
 WIRE - tie & miscellaneous
 WOOL – steel
 WRAP AROUNDS </p> |
|---|---|--|--|

CHAMOIS	HOOK, TIMBER	SCRAPER, HAND
CHARCOAL AND COKE	HOSE, AIR, 3/8" /Dia. Max. (Air Tools Only)	SCRAPER, SIDEWALK
CHISEL – all types	HOSE WATER to 3/4"	SCRAPER, WALL
CHOKER – all types	HOSE, GREASE, GUN	SCREEN CLOTH – Wire
CHUCKS, TOOL – all types	HOSE, TWIN WELDING	SCREW RUNNER
CLAMP, CABLE	ICE	SCREW STARTER
CLAMP, HOSE	INK, LAYOUT – for Millwrights	SCREWDRIVER, All Types
CLEANER, DRAIN	IRON, CAULKING	SHACKLES
CLEANER, HAND	IRON, PACKING	SHEATH, PLUMB BOB
CLEANER, TIP	IRON, YARNING	SHIMS
CLIPS, WIRE ROPE	JAW, BOLT CUTTER REPLACEMENT	SILICONE SPRAY
CLOTH, DROP, PAINTER'S	JITTERBUG – Concrete Hand	SOAP
CLOTH, EMERY	JOINT RUNNER	SOAP STONE
CLOTH, STRAINING	KEEL (lumber crayon)	SOLDER
COAL and COKE	KEY, CHUCK	SOLVENT
COMPOUND - cleaning, pipe, thread grinding	KEY, EJECTOR for Roto Hammers	SPONGE
COMPOUND, SWEEPING	KEY, HEX	STAKE - survey
COMPOUND, WIRE PULLING	LASHING, WIRE ROPE	STAPLES
CONNECTORS – Cord, Cotter Pins	LATCHES	STRING, NYLON
CORD, PLUMB BOB	LATTERNS, 6 VOLT LENS - Welding	TACKS
CORD, SASH	LIGHTER, SPARK	TAG, BLANK, WIRE TWIST
CORK	LIME, MARKING	TARPAULIN
CRAYON, LUMBER	LINE, FISH	TAP, TAPER, HAND
CRAYON – Temperature Indicating	LITHARGE	TAPE - adhesive, masking, friction, rubber, plumbers, etc.
CREOSOTE	LUBRICANT – thread cutting, electric wire pulling	TEMPIL STICKS
CUP – drinking	LUGS	THIMBLES, WIRE ROPE
CUTTER WHEELS – tools, all types	MARKER, METAL	TIP, TORCH WELDING
DIE NUTS – Hexagon Rethread	MARKER, PIPE CONTOUR	TOOL BOXES, BINS
DIES, BUTTON	MENDERS, HOSE	TOOL, BRUSHING for Vacuum cleaner
DIES, KNOCKOUT	MIRROR, INSPECTION	TOOL, CREVICE, 15" for Vacuum
DIES, PIPE – for Hand Threaders Only	MOP	TOOL, MAJOR FLOOR, 14"
DIES, TMB – 8, Compression Tools	NAILS	TOOL STEEL
DIPPERS	NIPPLES, HOSE	TOWEL – Paper
DISC, GRINDING	NOZZLE, WATER	TORCH, HEATING
DISINFECTANT	NUT RUNNER	TORCH, CUTTING
DISPENSER, PAPER CUP	NUT SETTER	TROWEL, HAND
DRESSING, BELT	OFFICE SUPPLIES	TRUNBUCKLES
DRILL BIT – Small Hand Tool, All Types	OIL - all types	TURPENTINE
EDGER, CONCRETE HAND	PACKING MATERIAL	TWINE
ELECTRODE HOLDERS		VISQUEEN – Non-reinforced

3. SMALL TOOLS

- | | | | |
|-------------------------------------|---------------------------------------|--|---|
| ADAPTER - hose, pipe thread | DOOR HANGING KIT | MOVER - freight car, hand | SOLDERING IRON |
| ADZE | DRESSER - grinding wheel | NAILER, AIR | SPADE |
| ANVIL | DRILL - all types: hand, electric, | NIBBLER, SHEET METAL | SPEED, PORTABLE |
| APRON | pneumatic | NIPPER | SPIKE- marlin |
| ARBOUR | DRILL PRESS | NOTCHER, PIPE | SPRAYER, ORCHARD |
| AUGER, GASOLINE (Post Hole Digger) | DRILL STAND - bench | NOZZLE - hose, weld | SPREADER, FLANGE |
| AWL | DYNAMOMETER | NUT - die, driver | SQUARE- combination, framing, etc. |
| AXE | ELCOMETER - paint thickness gauge | OILER - can, hand | SQUEEGEE |
| BABBITT | EMBOSSER, TAPE, HAND | OVEN - welding rod | STAND, DRILL |
| BANDING MACHINE – Hand Type | ETCHER, ELECTRIC | PAIL | STAND, GRINDER |
| BAR- claw, crow, pinch, etc. | EXPANDER- tube | PEDESTAL, GRINDER | STAND, PIPE |
| BARREL- trash | EXTENSION, SOCKET SET | PIN, BARREL | STAND, REEL, TELESCOPING SCREW |
| BASE, MAGNETIC/DAILY TEST | EXTENSION CORD | PIN, BULL | STAPLE- tacker |
| INDICATOR | EXTRACTOR - pipe & screw | PIN, DRAFT | STAPLER, ELECTRIC OR HAND |
| BELT- safety w/strap | FAN - electric | PINCER | STAR DRILL |
| BENDER - hydraulic, manual | FILE - hand | PLANE – wood | STEAM HEATER |
| BENDER, CABLE | FLARING TOOL | PLANE, BENCH JACK | STENCIL- steel, brass, paper |
| BENDER, PIPE | FLASHLIGHT - c/w bulb & batteries | PLANE, BLOCK | STONE - OIL |
| BENDER, TUBING | FLATTER - blacksmith | PLANE, ELECTRIC | STRAIGHT EDGE |
| BENDER, LOAD | FLOAT, CONCRETE – Hand Only | PLANE, VERSI | STRAINER- air line |
| BEVEL | FORGE - blacksmith | PLANNER, POWER BLOCK – Electric HD | STRAPPER |
| BEVELLER - load | FORK - barn | PLIERS – all types | STRIPPER- wire |
| BINDER - load | FULLER - blacksmith | PLUMB BOB | SUPPORT, PIPE – Roller type |
| BIT - auger, carpenter | FURNACE, PROPANE – Melting | POINT - trammel | SWEDGING TOOL KIT |
| BLOCK - chain, rope, cable, etc. | GAD | POLE - pike, range | SWIVEL |
| BLOCKS, WOOD | GAUGE- drill, feeler, wire thickness, | POT - melting, fire, welding rod, lead | TACHOMETER |
| BLOCKS, METAL – Snatch | tire, etc. | POUCH - tool | TAMPER- hand, pneumatic |
| BLOWER – Pneumatic Powered | GRINDER- electric, pneumatic | PRESTOLITE OUTFIT | TANK, LP – 20# only |
| BOB, PLUMB | GRAB, PIPE OF 20" | PROTRACTOR | TAP- bolt, pipe, wrench |
| BOSUN CHAIRS | GRINDER, ELECTRIC | PULLER, FUSE SAFETY | TAPE- steel measuring |
| BOX - tool box or tool bag | GRIP- cable | PULLER, WHEEL GEAR | TAPEWRITER, EMBOSSING – |
| BOX, GANG (Craft Storage) | GROOVING, TOOL | PULLER- nail, wire, spike road | Hand type |
| BRACE - ratchet | GUN- grease caulking, paint, heat | PULLEY, CABLE | TAPPER |
| BROOMS | (115V), pop rivet, powder actuated, | PULLEY, WELL | TELEPHONE- hand set, electrician's |
| BURNER, WEED | soldering | PUMP- hand, barrel, sump, test | testing |
| CABLE - welding, electrode, ground, | HACKSAW, POWER | PUNCH- center, back out, arch, | TEMPLATE, HINGE-BUTT |
| etc. | HAMMERS - all types: pneumatic, hand | knockout, hob, gasket, sheet metal, | TESTER- battery, hardness, antifreeze, |
| CALLIPERS | HANDLES - all types | stud, etc. | circuit, insulation, motor rotation, etc. |
| CANS | HATCHET & HANDLE - for hand | RADIO- portable, 2 way, intercom | THIMBLE- pipe |

CART - concrete	threader sets	RASP	THREADER- pipe chain, etc.
CART, WELDING BOTTLE 2	HATCHET, WRENCH	REAMER- pipe, bridge burring, etc.	TONGS, BRICK CARRIER
CASTERS	HEATER - portable: fuel, electric (115V),	REAMER, INNER, OUTER – for copper	TONGS, CHAIN
CAULKING TOOL - yarning iron	LP, Kerosene	tubing	TONGS, PIPE
CENTER FINDER SET - Wiggler	HOD - brick, mortar	REAMER, SPIRAL – Pipe only	TONGS, SHEET METAL
CHAIN - surveyor, measuring, steel	HOE	REAMER, STRAIGHT – Pipe only	TONG- blacksmith, pipe,
loading	HOIST - portable, all types	REEL, TIE WIRE	TOOL, FLARING
CHAIR, BOSUN'S	HOOD - welding, sandblasting	REGULATOR- welding gas	TOOL, PICK UP, MAG
CHARGER - battery	HOOK - packing, eye, cant, lug, etc.	RESPIRATOR- dusts c/w refill	TOOL, SOIL PIPE ASSEMBLY
CHUCK - taper, drill	HORSES - mason, saw	RIGGERS ROPE- manila, wire	TOOL- clamping (hose)
CLAMP - pipe, aligning, saw, carpenter,	INDICATOR - dial, test	RIVETER, HAND	TOOLS- cement worker
etc.	IRON - tire	ROLLER, PIPE	TORCH- blow, soldering
CLIMBER – Adjustable w/Pad	JACK - flange, hydraulic, mechanical,	ROLLER, paint	Cutting, propane, acetylene, prestolite
and Straps	screw	ROUTER, ELECTRIC	TRANSFORMER- dry type
CLIPPER - bolt	JIG - weld coupon bending test	RULES- all types	TROLLEY
COOLER - drinking water	KEY - welding, gas tank	RUSH DRILL	TROWEL
COMBINATION SETS – 6" to 18"	KNIFE - draw, putty	SANDER- disc, belt	TRUCK- hand
CONNECTOR - welding, cable	KNOCKOUT, HAND	SAW - portable, all types: hand, power	TURNBUCKLE
CONVEYOR - gravity, roller	LADDER - steel, extension, etc.	SCALER, NEEDLE	TWISTER- wire
CORD - electric extension	LADLE - melting, lead	SCRAPER- bearing, miscellaneous	UMBRELLA
COUPLING - hose	LANTERNS - all types	SCREW STOP	UNIVERSAL – for socket sets
CREEPER, FLOOR	LEAD JOINT RUNNER	SCREW PLANE (set)	VACUUM CLEANER, HD
CRIMPER, BAND	LEVEL - hand, line, etc.	SCRIBER SET- nail, rivet	VIBRATOR, CONCRETE- pneumatic,
CRIMPER - electrician's	LIGHT - portable, flood, drop	SHARPENER, DRILL BIT	Electric
CRIMPING TOOL - Wire	LINE - mason, chalk	SHEAR- bar, tinnors	WISE, MACHINIST
CUTTER - bar, wire, pipe-hand, pipe-	LUBRICATOR - air line	SHEAR, ANGLE IRON	WISE, PIPE
geared, gasket, etc.	MALLET	SHEARS, ELECTRIC, HAND	WEDGE
CYLINDER, HYDRAULIC – for Porta	MANDREL - all types	SHEARS, TRIMMING, ROTARY	WELDING TOOLS
Powers	MARKER, LIME, ROLLING	SHEAVES, CABLE, TRAY METAL	WELDING & CUTTING OUTFIT
DIE- pipe, bolt, c/w head, stock	MATTOCK	SHEETING- plastic, paper	(Oxy/Acetelyne)
DIGGER - hand, pneumatic	MAUL	SHIELD- face	WHEEL- grinding
DIVIDER – wing	MEGGER METER	SHOVEL	WHEELBARROW
DIVIDER, SPRING TYPE	METER - vibration	SIREN, ELECTRIC	WINCH- hand
DOLLY, BARREL	METER, AMP – Clamp-on w/Case	SLEEVE- morse, taper, shank	WRENCHES- all types
DOLLY, BEAM	METER, MILLIVOLT	SLING- canvas, pipe, wire, rope, nylon	
DOLLY, CATERPILLAR	METER, MOISTURE	SNIP- tinner	
DOLLY, MACHINE	METER, VOLT	SNIPS, AVIATION, HAND	
DOLLY, PIPE	MICROMETER	SNIPS, METAL CUT, HAND	
DOLLY, PRY	MIRROR, INSEPTION	SNIPS, TRIM HAND	
DOLLY, WAREHOUSE	MITER BOX – Electric or hand	SOCKET for hand tools only	
DOLLY BAR - pivot	MORTISER, LOCK - Electric	SOCKET SET	

Exhibit 2
2015 Personnel Rate Schedule
Agreement Number: CT0327-001

**PERSONNEL RATE SCHEDULE
APPLICABLE JUNE 2015 THROUGH MAY 2016**

PERSONNEL RATE SCHEDULE APPLICABLE JUNE 2015 THROUGH MAY 2016

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
POWERLINE TECHNICIAN										
Electrical Line Workers - Foreperson	38.81	5.05	30.22	0.63	0.63	22.38	97.72	130.18	162.63	3.00
Powerline Foreperson	38.81	5.05	30.22	0.63	0.63	22.38	97.72	130.18	162.63	3.00
Powerline SubForeperson	37.57	4.88	29.92	0.63	0.63	22.02	95.65	127.07	158.49	3.00
Jouneyperson Powerline Technician	35.31	4.59	29.37	0.63	0.63	21.35	91.88	121.40	150.93	3.00
Electrical Line Workers - Lineperson (or Cable Splicer)	35.31	4.59	29.37	0.63	0.63	21.35	91.88	121.40	150.93	3.00
Powerline Technician Apprentice										
4th Period	31.78	4.13	28.52	0.63	0.63	20.28	85.97	112.55	139.13	3.00
3rd Period	28.25	3.67	27.67	0.63	0.63	19.22	80.07	103.70	127.32	3.00
2nd Period	24.72	3.21	26.83	0.63	0.63	18.15	74.17	94.84	115.51	3.00
1st Period	21.19	2.75	25.98	0.63	0.63	17.09	68.27	85.99	103.71	3.00
Electrical Line Workers Lineperson (or Cable Splicer) Apprentice - 4th year	31.78	4.13	28.52	0.63	0.63	20.28	85.97	112.55	139.13	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 3rd year	28.25	3.67	27.67	0.63	0.63	19.22	80.07	103.70	127.32	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 2nd year	24.72	3.21	26.83	0.63	0.63	18.15	74.17	94.84	115.51	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 1st year	21.19	2.75	25.98	0.63	0.63	17.09	68.27	85.99	103.71	3.00
ELECTRICIAN										
Electrician Foreperson	42.34	5.50	25.14	0.63	0.63	20.29	94.53	129.94	165.34	3.00
Electrician Subforeperson	41.09	5.34	24.84	0.63	0.63	19.91	92.44	126.80	161.16	3.00
Journeyman Electrician	38.84	5.05	24.28	0.63	0.63	19.25	88.68	121.16	153.64	3.00
Electrician Apprentice										
4th Period	34.96	4.54	23.39	0.63	0.63	18.04	82.19	111.42	140.65	3.00
3rd Period	31.07	4.04	22.42	0.63	0.63	16.91	75.70	101.68	127.67	3.00
2nd Period	27.19	3.53	21.50	0.63	0.63	15.73	69.21	91.95	114.68	3.00
1st Period	23.30	3.03	20.56	0.63	0.63	14.57	62.72	82.21	101.70	3.00
Civil Trade Foreperson	37.98	4.94	24.08	0.63	0.63	18.99	87.25	119.00	150.76	3.00
Carpenters - Working Foreperson	37.98	4.94	24.08	0.63	0.63	18.99	87.25	119.00	150.76	3.00
Civil Trade Subforeperson	36.73	4.77	23.79	0.63	0.63	18.61	85.16	115.87	146.58	3.00
Journeyman Civil	34.48	4.48	23.23	0.63	0.63	17.95	81.40	110.23	139.06	3.00
Carpenters - JourneyPerson, Carpenter, Welder, Scaffolder	34.48	4.48	23.23	0.63	0.63	17.95	81.40	110.23	139.06	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Civil Trade Apprentice										
4th Period	31.03	4.03	22.39	0.63	0.63	16.91	75.63	101.58	127.53	3.00
3rd Period	27.58	3.59	21.57	0.63	0.63	15.87	69.87	92.94	116.01	3.00
2nd Period	24.14	3.14	20.75	0.63	0.63	14.83	64.11	84.29	104.48	3.00
1st Period	20.69	2.69	19.91	0.63	0.63	13.80	58.35	75.65	92.95	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 4 th	31.03	4.03	22.39	0.63	0.63	16.91	75.63	101.58	127.53	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 3rd	27.58	3.59	21.57	0.63	0.63	15.87	69.87	92.94	116.01	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 2nd	24.14	3.14	20.75	0.63	0.63	14.83	64.11	84.29	104.48	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 1st	20.69	2.69	19.91	0.63	0.63	13.80	58.35	75.65	92.95	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
MECHANICAL 1										
Mechanical 1 Trade Foreperson	41.47	5.39	24.93	0.63	0.63	20.03	93.08	127.75	162.43	3.00
Mechanical 1 Subforeperson	40.22	5.23	24.62	0.63	0.63	19.66	90.99	124.62	158.25	3.00
Journeyman Mechanical 1	37.97	4.94	24.08	0.63	0.63	18.98	87.23	118.98	150.73	3.00
Electrical Line Workers - Mechanic	37.97	4.94	24.08	0.63	0.63	18.98	87.23	118.98	150.73	3.00
Mechanical 1 Apprentice										
4th Period	34.17	4.44	23.16	0.63	0.63	17.84	80.88	109.46	138.03	3.00
3rd Period	30.38	3.95	22.27	0.63	0.63	16.69	74.54	99.94	125.34	3.00
2nd Period	26.58	3.46	21.34	0.63	0.63	15.56	68.19	90.42	112.65	3.00
1st Period	22.78	2.96	20.43	0.63	0.63	14.42	61.85	80.90	99.95	3.00
MECHANICAL 2										
Mechanical 2 Foreperson	39.48	5.13	24.45	0.63	0.63	19.43	89.75	122.76	155.78	3.00
Mechanical 2 Subforeperson	38.23	4.97	24.14	0.63	0.63	19.06	87.66	119.63	151.60	3.00
Journeyman Mechanical 2	35.98	4.68	23.59	0.63	0.63	18.39	83.90	113.99	144.08	3.00
Mechanical 2 Apprentice										
4th Period	32.38	4.21	22.73	0.63	0.63	17.31	77.89	104.97	132.05	3.00
3rd Period	28.78	3.74	21.86	0.63	0.63	16.23	71.88	95.95	120.02	3.00
2nd Period	25.19	3.27	21.01	0.63	0.63	15.14	65.87	86.93	107.99	3.00
1st Period	21.59	2.81	20.14	0.63	0.63	14.06	59.85	77.91	95.96	3.00
Heavy Duty Mechanic Technician	35.98	4.68	23.59	0.63	0.63	18.39	83.90	113.99	144.08	3.00
Crane Operator	37.48	4.87	23.96	0.63	0.63	18.84	86.41	117.75	149.09	3.00
Heavy Equipment Operator	32.98	4.29	22.86	0.63	0.63	17.50	78.89	106.47	134.05	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Operator	32.98	4.29	22.86	0.63	0.63	17.50	78.89	106.47	134.05	3.00
Light Equipment Operator	31.98	4.16	22.62	0.63	0.63	17.20	77.22	103.96	130.70	3.00
Blaster/Driller/Compressor Operator	32.98	4.29	22.86	0.63	0.63	17.50	78.89	106.47	134.05	3.00
Electrical Line Workers - Blaster/Driller	32.98	4.29	22.86	0.63	0.63	17.50	78.89	106.47	134.05	3.00
Mechanic Helper	30.16	3.92	22.18	0.63	0.63	16.66	74.18	99.40	124.62	3.00
Accommodations Maintenance Person	30.16	3.92	22.18	0.63	0.63	16.66	74.18	99.40	124.62	3.00
Communications Installer	29.16	3.79	21.93	0.63	0.63	16.37	72.51	96.89	121.27	3.00
Utility Technician	30.16	3.92	22.18	0.63	0.63	16.66	74.18	99.40	124.62	3.00
Electrical Line Workers - Utility Worker	30.16	3.92	22.18	0.63	0.63	16.66	74.18	99.40	124.62	3.00
Utility Person	29.16	3.79	21.93	0.63	0.63	16.37	72.51	96.89	121.27	3.00
Storekeeper (Warehouse Person)	31.11	4.04	22.42	0.63	0.63	16.94	75.77	101.78	127.79	3.00
Electrical Line Workers - Full-time Storekeeper	31.11	4.04	22.42	0.63	0.63	16.94	75.77	101.78	127.79	3.00
Material Manager	31.11	4.04	22.42	0.63	0.63	16.94	75.77	101.78	127.79	3.00
Arborist	29.78	3.87	22.07	0.63	0.63	16.56	73.54	98.45	123.35	3.00
Forklift/Truck Driver Tandem/Muskeg/Bus Driver	31.98	4.16	22.62	0.63	0.63	17.20	77.22	103.96	130.70	3.00
Labourer Clearing/Labourer Laydown	31.98	4.16	22.62	0.63	0.63	17.20	77.22	103.96	130.70	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Project Director	\$248.69	Included	Included	Included	Included	\$22.38	\$271.07	\$271.07	\$271.07	N/A
Project Manager	\$198.95	Included	Included	Included	Included	\$17.91	\$216.86	\$216.86	\$216.86	N/A
Construction Manager	\$198.95	Included	Included	Included	Included	\$17.91	\$216.86	\$216.86	\$216.86	N/A
Assistant Project Manager	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Project Assistant	\$97.30	Included	Included	Included	Included	\$8.76	\$106.06	\$106.06	\$106.06	N/A
Project Accounting (Controller)	\$97.30	Included	Included	Included	Included	\$8.76	\$106.06	\$106.06	\$106.06	N/A
Field Supervisor	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Project Planner / Scheduler	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Materials Manager	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Project Administrator	34.17	4.44	23.16	0.63	0.63	17.84	80.88	109.46	138.03	
Electrical Line Workers - General Foreperson	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Field Supervisor	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Environmental Supervisor	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Environmental Monitor	\$97.30	Included	Included	Included	Included	\$8.76	\$106.06	\$106.06	\$106.06	N/A
Site Health and Safety Supervisor	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Quality Assurance Supervisor	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
First Aid Attendant	32.98	4.29	22.86	0.63	0.63	17.50	78.89	106.47	134.05	N/A
Project Engineer	\$198.95	Included	Included	Included	Included	\$17.91	\$216.86	\$216.86	\$216.86	N/A
Geotechnical Scientist	\$233.77	Included	Included	Included	Included	\$21.04	\$254.81	\$254.81	\$254.81	N/A

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Geotechnical Engineer	\$233.77	Included	Included	Included	Included	\$21.04	\$254.81	\$254.81	\$254.81	N/A
Geotechnical Technician	\$174.09	Included	Included	Included	Included	\$15.67	\$189.76	\$189.76	\$189.76	N/A
3rd Party Density Tester	\$174.09	Included	Included	Included	Included	\$15.67	\$189.76	\$189.76	\$189.76	N/A
ROW Manager	\$170.11	Included	Included	Included	Included	\$15.31	\$185.42	\$185.42	\$185.42	N/A
Right of Way Coordinator	\$144.84	Included	Included	Included	Included	\$13.04	\$157.88	\$157.88	\$157.88	N/A
Drafting Technician	\$87.54	Included	Included	Included	Included	\$7.88	\$95.42	\$95.42	\$95.42	N/A
Quality Monitor	\$97.30	Included	Included	Included	Included	\$8.76	\$106.06	\$106.06	\$106.06	N/A
Safety Advisor	\$97.30	Included	Included	Included	Included	\$8.76	\$106.06	\$106.06	\$106.06	N/A
Access Road Survey Crew per attached Quotation	\$2205.00 / Day	Included	Included	Included	Included	Included	\$2205.00 / Day	\$220.50/ Hr	\$220.50/ Hr	N/A
RoW Survey Crew per attached Quotation	\$2415.00 / Day	Included	Included	Included	Included	Included	\$2415.00 / Day	\$241.50/ Hr	\$241.50/ Hr	N/A

In addition to the hourly rates above for employees the daily Camp Costs is \$250 per day per employee unless provided by Company.

As per the Project Labour Agreement if living in the area, the employees are not entitled to the Camp costs of \$250 per day per employee.

Flights for shift rotation are not included and shall be charged at Lowest Available Cost+9%.

Travel Time, on shift change, to and from major airports and the applicable camp at the Site is reimbursable.

All other time during shift changes is not reimbursable.

Other than the costs identified above, these rates are all inclusive.

NOTES

- Column 1: Trades and specialities required for the execution of the Work.
- Column 2: Base rate is per the Project Labour Agreement referenced in Section 8.0 of Exhibit 2 - Compensation, where applicable.
- Column 3: Vacation pay includes vacations, statutory holidays, sick and other leave with pay.
- Column 4: Payroll allowances and burdens includes, but is not limited to, unemployment insurance, workers' compensation, payroll tax, and other taxes and insurance measured by payroll, established employee benefits such as pension, health, and life insurance, bonus programs, fringe benefits, indemnity funds, training, and all other contributions or premiums as per the construction decree or any other labour agreements or Applicable Laws, as applicable.
- Column 5: Small Tools includes all tools with a replacement value of less than two thousand (\$2,000.00) Canadian Dollars. Refer to Item 3 of Attachment 1 for a typical listing of these types of small tools. Such items shall be furnished by the Contractor complete with all accessories and expendable operating parts and shall be maintained in good condition including the replacement of parts as may be necessary.
- Column 6: Consumables, whether recoverable or non-recoverable (refer to Item 2 of Attachment 1), and Personal Protective Equipment (refer to Item 1 of Attachment 1).
- Column 7: Overhead and Profit includes, but is not limited to, all home/corporate office expenses costs.
- Column 8: The Regular Time rate includes the total of Columns 2 to 7 inclusive.

Overtime rates (1.5x and 2.0x) include the regular time rate plus the overtime premium as per the Project Labour Agreement. Only the costs relative to those benefits and/or burdens that specifically apply when additional hours are worked shall be added. Other benefits, burdens and overhead will not be reimbursed since the full costs to the Contractor for these items has already been compensated in the regular time rate.

Second and Third Shift Premium is the incremental charge applied to the Regular Time Rate and Overtime Rates for second and third shift Personnel.

Rates shall be revised annually based on the Project Labour Agreement.

ATTACHMENT 1

The following lists include, but are not limited to, items that Company classifies as "Personal Protective Equipment", "Consumables", and "Small Tools", whether recoverable or non-recoverable.

1. PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment shall meet the requirements of Occupational Health and Safety Regulations.

- | | |
|------------------------------------|---|
| APRON, WELDERS | HALF FACE or FULL FACE RESPIRATOR WITH CARTRIDGES – ALL TYPES |
| BELT, SAFETY | HARD HAT |
| BLANKET, FIRE | HEARING PROTECTION |
| BLOCK, WELDING HELMET | HOOD, WELDING |
| BOOT, SAFETY, ALL TYPES | INSECTICIDE |
| BRACKET, FOR FACE SHIELD | LANYARD FOR SAFETY BELTS |
| BRACKET, FIBER BROW, SAFETY SHIELD | LENS, WELDING |
| CAPS, PLASTIC SAFETY (FOR REBAR) | LIFE LINE |
| CURTAIN, WELDER | LOCKS |
| DUST MASK | MOUNTING VISOR AND KWIK-KLIP |
| DISPOSABLE MASK | PULLER, FUZE SAFETY |
| EYESHIELD, FOR BENCH GRINDER | RAIN WEAR, JACKET AND OVERALLS |
| FIRST AID SUPPLIES | SAFETY HARNESS |
| FLARE, ROAD, NON-ELECTRIC | SIREN, ELECTRIC |
| GLASSES, SAFETY | STRAP, CHIN |
| GLOVES, WORK, ALL TYPES | SWEAT BANDS |
| GOGGLES, SAFETY | TABLET, SALT |
| GUARDS, SHIN | VISOR, SHIELD, CLEAR |
| GUARDS, TOE, METAL W/STRAP | WELDING SHIELDS |

2. CONSUMABLES

- | | | | |
|-------------------------------------|---------------------------------------|-------------------------------------|----------------------------|
| ABRASIVES | EXPANDER, TUBEROLLS AND | PAD, POLISHING | WASHERS |
| ACID | MANDRELS | PADLOCKS | WASHING POWDER |
| ADAPTORS, TOOL – all types | FASTENERS | PAINT (for erection marking) | WASHROOM SUPPLIES |
| ADHESIVE | FEELER STOCK | PAINT STICK | WASTE – Cotton |
| ALCOHOL | FILE, METAL CUTTING | PAN, DRAIN | WATER CANS |
| ANTIFREEZE | FILE, WOOD CUTTING | PAPER – sand, toilet | WELD ROD |
| ANTI-SPLATTER SPRAY | FILTER – for vacuum cleaner | PASTE – solder | WELDING GASES |
| APRON, WELDERS | FILTERS | PATTERNS | WHEEL, DEPRESSED CENTER |
| ARBORS, HOLE SAW | FISHTAPE, HAND | PENCIL, CARPENTER | WHEELBARROW, All Types |
| AUGER, HAND - post hole digger | FITTINGS, ALEMITE & HOSE | PENS, WRITING, MARKING | WHEEL ABRASIVE |
| BADGES | FLAMBEAU, KEROSENE | PETROLEUM JELLY | WHEEL, WIRE |
| BAG, DUST – for belt sander | FLASHLIGHT | PICK, CLAY | WICKS, LANTERN |
| BAG, BOLT | FLINT | PLUG, PIPE TEST | WIRE - tie & miscellaneous |
| BANDS, SAFETY HAT | FLUID CLEANING | PLUNGER, BATHROOM | WOOL – steel |
| BARRELS, WATER or TRASH | FLUX - brazing, welding | POCKET, LINEMAN'S | WRAP AROUNDS |
| BATTERY – flashlight and lantern | FORK, SEED | POUCH, CANVAS | |
| BELTING, BELT DRESSING | FORM TIES | POUCH, ROD | |
| BINS, TRASH | FRAME, HACKSAW | POWDER, SCOURING | |
| BITS – small hand tool, all types | FUELS (for construction equipment) | PULLER, WIRE | |
| BLADES – small hand tool, all types | FUNNELS, ALL TYPES | PUMICE | |
| BLANKET – wool, rubber | FUSE (except for permanent plant use) | PUNCH AND CHISEL SETS | |
| BOX, CARDBOARD | GARBAGE BAGS | PUNCH, CONDUIT | |
| BRACKET, FLOAT HANDLE | GASKETS, HOSE | PUNCH, PIN SET | |
| BRICK, RUBBING | GLOVES, WORK, all types | PUTTY | |
| BROOM – all types | GLUE | RAGS | |
| BRUSH – all types | GLYCERINE | RAKE, GARDEN | |
| BUCKET – all types | GOGGLES, WORK, all types | RAKE, CONCRETE | |
| BULB – blow out, dust | GRAPHITE | RAKE, ROAD | |
| BULB – flashlight, lantern, light | GREASE | REAMER, TAPER PIN (Hand Only) | |
| BURLAP | GRIPS, PLASTIC for pliers | RIGGING HOOKS | |
| CABLES, RIGGING | GROMMETS | ROPE, MANILA | |
| CAN, OIL | GUIDE, HINGE-BUTT for router | ROPE, POLYPROPYLENE | |
| CAN, SAFETY | GUN, CAULKING | ROPE, WIRE | |
| CARBIDE | GUN, GREASE | RULE - Extension, Wood, Fiberglass, | |
| CARBORUNDUM – Blocks, Stones Walk | HASPS | Folding | |
| CHAIN, SAFETY | HATCHET | RULE, TAPE | |
| CHAIN, LOADBINDER | HINGES | RUST PREVENTIVE | |
| CHALK | HOE | SANDBLAST NOZZLES | |
| CHALK LINE BOX | HOOK, SNAP | SCISSORS, ELECTRICIAN | |

CHAMOIS	HOOK, TIMBER	SCRAPER, HAND
CHARCOAL AND COKE	HOSE, AIR, ¾" /Dia. Max. (Air Tools Only)	SCRAPER, SIDEWALK
CHISEL – all types	HOSE WATER to ¾"	SCRAPER, WALL
CHOKER – all types	HOSE, GREASE, GUN	SCREEN CLOTH – Wire
CHUCKS, TOOL – all types	HOSE, TWIN WELDING	SCREW RUNNER
CLAMP, CABLE	ICE	SCREW STARTER
CLAMP, HOSE	INK, LAYOUT – for Millwrights	SCREWDRIVER, All Types
CLEANER, DRAIN	IRON, CAULKING	SHACKLES
CLEANER, HAND	IRON, PACKING	SHEATH, PLUMB BOB
CLEANER, TIP	IRON, YARNING	SHIMS
CLIPS, WIRE ROPE	JAW, BOLT CUTTER REPLACEMENT	SILICONE SPRAY
CLOTH, DROP, PAINTER'S	JITTERBUG – Concrete Hand	SOAP
CLOTH, EMERY	JOINT RUNNER	SOAP STONE
CLOTH, STRAINING	KEEL (lumber crayon)	SOLDER
COAL and COKE	KEY, CHUCK	SOLVENT
COMPOUND - cleaning, pipe, thread grinding	KEY, EJECTOR for Roto Hammers	SPONGE
COMPOUND, SWEEPING	KEY, HEX	STAKE - survey
COMPOUND, WIRE PULLING	LASHING, WIRE ROPE	STAPLES
CONNECTORS – Cord, Cotter Pins	LATCHES	STRING, NYLON
CORD, PLUMB BOB	LATTERNS, 6 VOLT LENS - Welding	TACKS
CORD, SASH	LIGHTER, SPARK	TAG, BLANK, WIRE TWIST
CORK	LIME, MARKING	TARPAULIN
CRAYON, LUMBER	LINE, FISH	TAP, TAPER, HAND
CRAYON – Temperature Indicating	LITHARGE	TAPE - adhesive, masking, friction, rubber, plumbers, etc.
CREOSOTE	LUBRICANT – thread cutting, electric wire pulling	TEMPIL STICKS
CUP – drinking	LUGS	THIMBLES, WIRE ROPE
CUTTER WHEELS – tools, all types	MARKER, METAL	TIP, TORCH WELDING
DIE NUTS – Hexagon Rethread	MARKER, PIPE CONTOUR	TOOL BOXES, BINS
DIES, BUTTON	MENDERS, HOSE	TOOL, BRUSHING for Vacuum cleaner
DIES, KNOCKOUT	MIRROR, INSPECTION	TOOL, CREVICE, 15" for Vacuum
DIES, PIPE – for Hand Threaders Only	MOP	TOOL, MAJOR FLOOR, 14"
DIES, TMB – 8, Compression Tools	NAILS	TOOL STEEL
DIPPERS	NIPPLES, HOSE	TOWEL – Paper
DISC, GRINDING	NOZZLE, WATER	TORCH, HEATING
DISINFECTANT	NUT RUNNER	TORCH, CUTTING
DISPENSER, PAPER CUP	NUT SETTER	TROWEL, HAND
DRESSING, BELT	OFFICE SUPPLIES	TRUNBUCKLES
DRILL BIT – Small Hand Tool, All Types	OIL - all types	TURPENTINE
EDGER, CONCRETE HAND	PACKING MATERIAL	TWINE
ELECTRODE HOLDERS		VISQUEEN – Non-reinforced

3. SMALL TOOLS

ADAPTER - hose, pipe thread	DOOR HANGING KIT	MOVER - freight car, hand	SOLDERING IRON
ADZE	DRESSER - grinding wheel	NAILER, AIR	SPADE
ANVIL	DRILL - all types: hand, electric,	NIBBLER, SHEET METAL	SPEED, PORTABLE
APRON	pneumatic	NIPPER	SPIKE- marlin
ARBOUR	DRILL PRESS	NOTCHER, PIPE	SPRAYER, ORCHARD
AUGER, GASOLINE (Post Hole Digger)	DRILL STAND - bench	NOZZLE - hose, weld	SPREADER, FLANGE
AWL	DYNAMOMETER	NUT - die, driver	SQUARE- combination, framing, etc.
AXE	ELCOMETER - paint thickness gauge	OILER - can, hand	SQUEEGEE
BABBITT	EMBOSSER, TAPE, HAND	OVEN - welding rod	STAND, DRILL
BANDING MACHINE – Hand Type	ETCHER, ELECTRIC	PAIL	STAND, GRINDER
BAR- claw, crow, pinch, etc.	EXPANDER- tube	PEDESTAL, GRINDER	STAND, PIPE
BARREL- trash	EXTENSION, SOCKET SET	PIN, BARREL	STAND, REEL, TELESCOPING SCREW
BASE, MAGNETIC/DAILY TEST	EXTENSION CORD	PIN, BULL	STAPLE- tacker
INDICATOR	EXTRACTOR - pipe & screw	PIN, DRAFT	STAPLER, ELECTRIC OR HAND
BELT- safety w/strap	FAN - electric	PINCER	STAR DRILL
BENDER - hydraulic, manual	FILE - hand	PLANE – wood	STEAM HEATER
BENDER, CABLE	FLARING TOOL	PLANE, BENCH JACK	STENCIL- steel, brass, paper
BENDER, PIPE	FLASHLIGHT - c/w bulb & batteries	PLANE, BLOCK	STONE - OIL
BENDER, TUBING	FLATTER - blacksmith	PLANE, ELECTRIC	STRAIGHT EDGE
BENDER, LOAD	FLOAT, CONCRETE – Hand Only	PLANE, VERSI	STRAINER- air line
BEVEL	FORGE - blacksmith	PLANNER, POWER BLOCK – Electric HD	STRAPPER
BEVELLER - load	FORK - barn	PLIERS – all types	STRIPPER- wire
BINDER - load	FULLER - blacksmith	PLUMB BOB	SUPPORT, PIPE – Roller type
BIT - auger, carpenter	FURNACE, PROPANE – Melting	POINT - trammel	SWEDGING TOOL KIT
BLOCK - chain, rope, cable, etc.	GAD	POLE - pike, range	SWIVEL
BLOCKS, WOOD	GAUGE- drill, feeler, wire thickness,	POT - melting, fire, welding rod, lead	TACHOMETER
BLOCKS, METAL – Snatch	tire, etc.	POUCH - tool	TAMPER- hand, pneumatic
BLOWER – Pneumatic Powered	GRINDER- electric, pneumatic	PRESTOLITE OUTFIT	TANK, LP – 20# only
BOB, PLUMB	GRAB, PIPE OF 20"	PROTRACTOR	TAP- bolt, pipe, wrench
BOSUN CHAIRS	GRINDER, ELECTRIC	PULLER, FUSE SAFETY	TAPE- steel measuring
BOX - tool box or tool bag	GRIP- cable	PULLER, WHEEL GEAR	TAPEWRITER, EMBOSSING –
BOX, GANG (Craft Storage)	GROOVING, TOOL	PULLER- nail, wire, spike road	Hand type
BRACE - ratchet	GUN- grease caulking, paint, heat	PULLEY, CABLE	TAPPER
BROOMS	(115V), pop rivet, powder actuated,	PULLEY, WELL	TELEPHONE- hand set, electrician's
BURNER, WEED	soldering	PUMP- hand, barrel, sump, test	testing
CABLE - welding, electrode, ground,	HACKSAW, POWER	PUNCH- center, back out, arch,	TEMPLATE, HINGE-BUTT
etc.	HAMMERS - all types: pneumatic, hand	knockout, hob, gasket, sheet metal,	TESTER- battery, hardness, antifreeze,
CALLIPERS	HANDLES - all types	stud, etc.	circuit, insulation, motor rotation, etc.
CANS	HATCHET & HANDLE - for hand	RADIO- portable, 2 way, intercom	THIMBLE- pipe

CART - concrete	threader sets	RASP	THREADER- pipe chain, etc.
CART, WELDING BOTTLE 2	HATCHET, WRENCH	REAMER- pipe, bridge burring, etc.	TONGS, BRICK CARRIER
CASTERS	HEATER - portable: fuel, electric (115V), LP, Kerosene	REAMER, INNER, OUTER – for copper tubing	TONGS, CHAIN
CAULKING TOOL - yarning iron	HOD - brick, mortar	REAMER, SPIRAL – Pipe only	TONGS, PIPE
CENTER FINDER SET - Wiggler	HOE	REAMER, STRAIGHT – Pipe only	TONGS, SHEET METAL
CHAIN - surveyor, measuring, steel loading	HOIST - portable, all types	REEL, TIE WIRE	TONG- blacksmith, pipe,
CHAIR, BOSUN’S	HOOD - welding, sandblasting	REGULATOR- welding gas	TOOL, FLARING
CHARGER - battery	HOOK - packing, eye, cant, lug, etc.	RESPIRATOR- dusts c/w refill	TOOL, PICK UP, MAG
CHUCK - taper, drill	HORSES - mason, saw	RIGGERS ROPE- manila, wire	TOOL, SOIL PIPE ASSEMBLY
CLAMP - pipe, aligning, saw, carpenter, etc.	INDICATOR - dial, test	RIVERTER, HAND	TOOL- clamping (hose)
CLIMBER – Adjustable w/Pad and Straps	IRON - tire	ROLLER, PIPE	TOOLS- cement worker
CLIPPER - bolt	JACK - flange, hydraulic, mechanical, screw	ROLLER, paint	TORCH- blow, soldering
COOLER - drinking water	JIG - weld coupon bending test	ROUTER, ELECTRIC	Cutting, propane, acetylene, prestolite
COMBINATION SETS – 6” to 18”	KEY - welding, gas tank	RULES- all types	TRANSFORMER- dry type
CONNECTOR - welding, cable	KNIFE - draw, putty	RUSH DRILL	TROLLEY
CONVEYOR - gravity, roller	KNOCKOUT, HAND	SANDER- disc, belt	TROWEL
CORD - electric extension	LADDER - steel, extension, etc.	SAW - portable, all types: hand, power	TRUCK- hand
COUPLING - hose	LADLE - melting, lead	SCALER, NEEDLE	TURNBUCKLE
CREEPER, FLOOR	LANTERNS - all types	SCRAPER- bearing, miscellaneous	TWISTER- wire
CRIMPER, BAND	LEAD JOINT RUNNER	SCREW STOP	UMBRELLA
CRIMPER - electrician's	LEVEL - hand, line, etc.	SCREW PLANE (set)	UNIVERSAL – for socket sets
CRIMPING TOOL - Wire	LIGHT - portable, flood, drop	SCRIBER SET- nail, rivet	VACUUM CLEANER, HD
CUTTER - bar, wire, pipe-hand, pipe-gear, gasket, etc.	LINE - mason, chalk	SHARPENER, DRILL BIT	VIBRATOR, CONCRETE- pneumatic, Electric
CYLINDER, HYDRAULIC – for Porta Powers	LUBRICATOR - air line	SHEAR- bar, tinnners	WISE, MACHINIST
DIE- pipe, bolt, c/w head, stock	MALLET	SHEAR, ANGLE IRON	WISE, PIPE
DIGGER - hand, pneumatic	MANDREL - all types	SHEARS, ELECTRIC, HAND	WEDGE
DIVIDER – wing	MARKER, LIME, ROLLING	SHEARS, TRIMMING, ROTARY	WELDING TOOLS
DIVIDER, SPRING TYPE	MATTOCK	SHEAVES, CABLE, TRAY METAL	WELDING & CUTTING OUTFIT (Oxy/Acetylyne)
DOLLY, BARREL	MAUL	SHEETING- plastic, paper	WHEEL- grinding
DOLLY, BEAM	MEGGER METER	SHIELD- face	WHEELBARROW
DOLLY, CATERPILLAR	METER - vibration	SHOVEL	WINCH- hand
DOLLY, MACHINE	METER, AMP – Clamp-on w/Case	SIREN, ELECTRIC	WRENCHES- all types
DOLLY, PIPE	METER, MILLIVOLT	SLEEVE- morse, taper, shank	
DOLLY, PRY	METER, MOISTURE	SLING- canvas, pipe, wire, rope, nylon	
DOLLY, WAREHOUSE	METER, VOLT	SNIP- tinner	
DOLLY BAR - pivot	MICROMETER	SNIPS, AVIATION, HAND	
	MIRROR, INSEPTION	SNIPS, METAL CUT, HAND	
	MITER BOX – Electric or hand	SNIPS, TRIM HAND	
	MORTISER, LOCK - Electric	SOCKET for hand tools only	
		SOCKET SET	

**PERSONNEL RATE SCHEDULE
APPLICABLE JUNE 2016 THROUGH MAY 2017**

PERSONNEL RATE SCHEDULE APPLICABLE JUNE 2016 THROUGH MAY 2017

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
POWERLINE TECHNICIAN										
Electrical Line Workers - Foreperson	41.27	5.37	30.59	0.67	0.67	23.34	101.91	136.43	170.94	3.00
Powerline Foreperson	41.27	5.37	30.59	0.67	0.67	23.34	101.91	136.43	170.94	3.00
Powerline SubForeperson	40.02	5.20	30.29	0.67	0.67	22.98	99.83	133.29	166.76	3.00
Journeyman Powerline Technician	37.52	4.88	29.68	0.67	0.67	22.23	95.65	127.02	158.40	3.00
Electrical Line Workers - Lineperson (or Cable Splicer)	37.52	4.88	29.68	0.67	0.67	22.23	95.65	127.02	158.40	3.00
Powerline Technician Apprentice										
4th Period	33.77	4.39	28.80	0.67	0.67	21.08	89.38	117.62	145.86	3.00
3rd Period	30.02	3.90	27.91	0.67	0.67	19.94	83.11	108.21	133.31	3.00
2nd Period	26.26	3.41	27.01	0.67	0.67	18.81	76.84	98.80	120.77	3.00
1st Period	22.51	2.93	26.12	0.67	0.67	17.67	70.57	89.40	108.22	3.00
Electrical Line Workers Lineperson (or Cable Splicer) Apprentice - 4th year	33.77	4.39	28.80	0.67	0.67	21.08	89.38	117.62	145.86	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 3rd year	30.02	3.90	27.91	0.67	0.67	19.94	83.11	108.21	133.31	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 2nd year	26.26	3.41	27.01	0.67	0.67	18.81	76.84	98.80	120.77	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 1st year	22.51	2.93	26.12	0.67	0.67	17.67	70.57	89.40	108.22	3.00
ELECTRICIAN										
Electrician Foreperson	44.80	5.82	25.57	0.67	0.67	21.19	98.72	136.18	173.64	3.00
Electrician Subforeperson	43.55	5.66	25.26	0.67	0.67	20.82	96.63	133.05	169.46	3.00
Journeyman Electrician	41.05	5.34	24.66	0.67	0.67	20.07	92.46	126.78	161.11	3.00
Electrician Apprentice										
4th Period	36.95	4.80	23.72	0.67	0.67	18.79	85.60	116.49	147.38	3.00
3rd Period	32.84	4.27	22.70	0.67	0.67	17.59	78.74	106.20	133.66	3.00
2nd Period	28.74	3.74	21.73	0.67	0.67	16.34	71.88	95.91	119.93	3.00
1st Period	24.63	3.20	20.75	0.67	0.67	15.10	65.02	85.61	106.21	3.00
Civil Trade Foreperson	40.44	5.26	24.50	0.67	0.67	19.90	91.44	125.25	159.07	3.00
Carpenters - Working Foreperson	40.44	5.26	24.50	0.67	0.67	19.90	91.44	125.25	159.07	3.00
Civil Trade Subforeperson	39.19	5.09	24.20	0.67	0.67	19.53	89.35	122.12	154.89	3.00
Journeyperson Civil	36.69	4.77	23.59	0.67	0.67	18.78	85.17	115.85	146.53	3.00
Carpenters - JourneyPerson, Carpenter, Welder, Scaffolder	36.69	4.77	23.59	0.67	0.67	18.78	85.17	115.85	146.53	3.00

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Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Civil Trade Apprentice										
4th Period	33.02	4.29	22.72	0.67	0.67	17.67	79.04	106.65	134.26	3.00
3rd Period	29.35	3.82	21.84	0.67	0.67	16.56	72.91	97.45	122.00	3.00
2nd Period	25.68	3.34	20.97	0.67	0.67	15.45	66.78	88.25	109.73	3.00
1st Period	22.01	2.86	20.08	0.67	0.67	14.34	60.64	79.05	97.46	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 4 th	33.02	4.29	22.72	0.67	0.67	17.67	79.04	106.65	134.26	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 3rd	29.35	3.82	21.84	0.67	0.67	16.56	72.91	97.45	122.00	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 2nd	25.68	3.34	20.97	0.67	0.67	15.45	66.78	88.25	109.73	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 1st	22.01	2.86	20.08	0.67	0.67	14.34	60.64	79.05	97.46	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
MECHANICAL 1										
Mechanical 1 Trade Foreperson	43.94	5.71	25.36	0.67	0.67	20.94	97.29	134.03	170.77	3.00
Mechanical 1 Subforeperson	42.69	5.55	25.05	0.67	0.67	20.57	95.20	130.89	166.59	3.00
Journeyman Mechanical 1	40.19	5.22	24.46	0.67	0.67	19.81	91.02	124.62	158.23	3.00
Electrical Line Workers - Mechanic	40.19	5.22	24.46	0.67	0.67	19.81	91.02	124.62	158.23	3.00
Mechanical 1 Apprentice										
4th Period	36.17	4.70	23.49	0.67	0.67	18.60	84.30	114.55	144.79	3.00
3rd Period	32.15	4.18	22.54	0.67	0.67	17.38	77.59	104.47	131.36	3.00
2nd Period	28.13	3.66	21.57	0.67	0.67	16.17	70.87	94.40	117.92	3.00
1st Period	24.11	3.13	20.61	0.67	0.67	14.95	64.15	84.32	104.48	3.00
MECHANICAL 2										
Mechanical 2 Foreperson	41.94	5.45	24.87	0.67	0.67	20.34	93.94	129.01	164.08	3.00
Mechanical 2 Subforeperson	40.69	5.29	24.56	0.67	0.67	19.97	91.85	125.88	159.90	3.00
Journeyman Mechanical 2	38.19	4.96	23.97	0.67	0.67	19.22	87.68	119.61	151.54	3.00
Mechanical 2 Apprentice										
4th Period	34.37	4.47	23.04	0.67	0.67	18.07	81.29	110.04	138.78	3.00
3rd Period	30.55	3.97	22.14	0.67	0.67	16.91	74.91	100.46	126.01	3.00
2nd Period	26.73	3.48	21.23	0.67	0.67	15.75	68.53	90.89	113.24	3.00
1st Period	22.91	2.98	20.32	0.67	0.67	14.60	62.15	81.31	100.47	3.00
Heavy Duty Mechanic Technician	38.19	4.96	23.97	0.67	0.67	19.22	87.68	119.61	151.54	3.00
Crane Operator	39.69	5.16	24.33	0.67	0.67	19.66	90.18	123.37	156.56	3.00
Heavy Equipment Operator	35.19	4.57	23.22	0.67	0.67	18.34	82.66	112.09	141.52	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Operator	35.19	4.57	23.22	0.67	0.67	18.34	82.66	112.09	141.52	3.00
Light Equipment Operator	34.19	4.44	22.98	0.67	0.67	18.04	80.99	109.58	138.17	3.00
Blaster/Driller/Compressor Operator	35.19	4.57	23.22	0.67	0.67	18.34	82.66	112.09	141.52	3.00
Electrical Line Workers - Blaster/Driller	35.19	4.57	23.22	0.67	0.67	18.34	82.66	112.09	141.52	3.00
Mechanic Helper	32.37	4.21	22.52	0.67	0.67	17.51	77.95	105.02	132.09	3.00
Accommodations Maintenance Person	32.37	4.21	22.52	0.67	0.67	17.51	77.95	105.02	132.09	3.00
Communications Installer	31.37	4.08	22.27	0.67	0.67	17.22	76.28	102.51	128.74	3.00
Utility Technician	32.37	4.21	22.52	0.67	0.67	17.51	77.95	105.02	132.09	3.00
Electrical Line Workers - Utility Worker	32.37	4.21	22.52	0.67	0.67	17.51	77.95	105.02	132.09	3.00
Utility Person	31.37	4.08	22.27	0.67	0.67	17.22	76.28	102.51	128.74	3.00
Storekeeper (Warehouse Person)	33.32	4.33	22.76	0.67	0.67	17.79	79.54	107.40	135.26	3.00
Electrical Line Workers - Full-time Storekeeper	33.32	4.33	22.76	0.67	0.67	17.79	79.54	107.40	135.26	3.00
Material Manager	33.32	4.33	22.76	0.67	0.67	17.79	79.54	107.40	135.26	3.00
Arborist	31.92	4.15	22.41	0.67	0.67	17.38	77.20	103.89	130.58	3.00
Forklift/Truck Driver Tandem/Muskeg/Bus Driver	34.19	4.44	22.98	0.67	0.67	18.04	80.99	109.58	138.17	3.00
Labourer Clearing/Labourer Laydown	31.37	4.08	22.27	0.67	0.67	17.22	76.28	102.51	128.74	3.00

RW

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Project Director	\$264.74	Included	Included	Included	Included	\$23.83	\$288.57	\$288.57	\$288.57	N/A
Project Manager	\$211.79	Included	Included	Included	Included	\$19.06	\$230.85	\$230.85	\$230.85	N/A
Construction Manager	\$211.79	Included	Included	Included	Included	\$19.06	\$230.85	\$230.85	\$230.85	N/A
Assistant Project Manager	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Project Assistant	\$103.58	Included	Included	Included	Included	\$9.32	\$112.90	\$112.90	\$112.90	N/A
Project Accounting (Controller)	\$103.58	Included	Included	Included	Included	\$9.32	\$112.90	\$112.90	\$112.90	N/A
Field Supervisor	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Project Planner / Scheduler	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Materials Manager	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Project Administrator	36.17	4.70	23.49	0.67	0.67	18.60	84.30	114.55	144.79	
Electrical Line Workers - General Foreperson	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Field Supervisor	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Environmental Supervisor	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Environmental Monitor	\$103.58	Included	Included	Included	Included	\$9.32	\$112.90	\$112.90	\$112.90	N/A
Site Health and Safety Supervisor	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Quality Assurance Supervisor	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
First Aid Attendant	35.19	4.57	23.22	0.67	0.67	18.34	82.66	112.09	141.52	N/A
Project Engineer	\$211.79	Included	Included	Included	Included	\$19.06	\$230.85	\$230.85	\$230.85	N/A
Geotechnical Scientist	\$248.85	Included	Included	Included	Included	\$22.40	\$271.25	\$271.25	\$271.25	N/A

PK

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Geotechnical Engineer	\$248.85	Included	Included	Included	Included	\$22.40	\$271.25	\$271.25	\$271.25	N/A
Geotechnical Technician	\$185.32	Included	Included	Included	Included	\$16.68	\$202.00	\$202.00	\$202.00	N/A
3rd Party Density Tester	\$185.32	Included	Included	Included	Included	\$16.68	\$202.00	\$202.00	\$202.00	N/A
ROW Manager	\$181.08	Included	Included	Included	Included	\$16.30	\$197.38	\$197.38	\$197.38	N/A
Right of Way Coordinator	\$154.19	Included	Included	Included	Included	\$13.88	\$168.07	\$168.07	\$168.07	N/A
Drafting Technician	\$93.19	Included	Included	Included	Included	\$8.39	\$101.58	\$101.58	\$101.58	N/A
Quality Monitor	\$103.58	Included	Included	Included	Included	\$9.32	\$112.90	\$112.90	\$112.90	N/A
Safety Advisor	\$103.58	Included	Included	Included	Included	\$9.32	\$112.90	\$112.90	\$112.90	N/A
Access Road Survey Crew per attached Quotation	\$2315.25 / Day	Included	Included	Included	Included	Included	\$2315.25 / Day	\$231.52/ Hr	\$231.52/ Hr	N/A
RoW Survey Crew per attached Quotation	\$2535.75 / Day	Included	Included	Included	Included	Included	\$2535.75 / Day	\$253.58/ Hr	\$253.58/ Hr	N/A

In addition to the hourly rates above for employees the daily Camp Costs is \$250 per day per employee unless provided by Company.

As per the Project Labour Agreement if living in the area, the employees are not entitled to the Camp costs of \$250 per day per employee.

Flights for shift rotation are not included and shall be charged at Lowest Available Cost+9%.

Travel Time, on shift change, to and from major airports and the applicable camp at the Site is reimbursable.

All other time during shift changes is not reimbursable.

Other than the costs identified above, these rates are all inclusive.

NOTES

- Column 1: Trades and specialities required for the execution of the Work.
- Column 2: Base rate is per the Project Labour Agreement referenced in Section 8.0 of Exhibit 2 - Compensation, where applicable.
- Column 3: Vacation pay includes vacations, statutory holidays, sick and other leave with pay.
- Column 4: Payroll allowances and burdens includes, but is not limited to, unemployment insurance, workers' compensation, payroll tax, and other taxes and insurance measured by payroll, established employee benefits such as pension, health, and life insurance, bonus programs, fringe benefits, indemnity funds, training, and all other contributions or premiums as per the construction decree or any other labour agreements or Applicable Laws, as applicable.
- Column 5: Small Tools includes all tools with a replacement value of less than two thousand (\$2,000.00) Canadian Dollars. Refer to Item 3 of Attachment 1 for a typical listing of these types of small tools. Such items shall be furnished by the Contractor complete with all accessories and expendable operating parts and shall be maintained in good condition including the replacement of parts as may be necessary.
- Column 6: Consumables, whether recoverable or non-recoverable (refer to Item 2 of Attachment 1), and Personal Protective Equipment (refer to Item 1 of Attachment 1).
- Column 7: Overhead and Profit includes, but is not limited to, all home/corporate office expenses costs.
- Column 8: The Regular Time rate includes the total of Columns 2 to 7 inclusive.

Overtime rates (1.5x and 2.0x) include the regular time rate plus the overtime premium as per the Project Labour Agreement. Only the costs relative to those benefits and/or burdens that specifically apply when additional hours are worked shall be added. Other benefits, burdens and overhead will not be reimbursed since the full costs to the Contractor for these items has already been compensated in the regular time rate.

Second and Third Shift Premium is the incremental charge applied to the Regular Time Rate and Overtime Rates for second and third shift Personnel.

Rates shall be revised annually based on the Project Labour Agreement.

ATTACHMENT 1

The following lists include, but are not limited to, items that Company classifies as "Personal Protective Equipment", "Consumables", and "Small Tools", whether recoverable or non-recoverable.

1. PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment shall meet the requirements of Occupational Health and Safety Regulations.

- | | |
|------------------------------------|---|
| APRON, WELDERS | HALF FACE or FULL FACE RESPIRATOR WITH CARTRIDGES – ALL TYPES |
| BELT, SAFETY | HARD HAT |
| BLANKET, FIRE | HEARING PROTECTION |
| BLOCK, WELDING HELMET | HOOD, WELDING |
| BOOT, SAFETY, ALL TYPES | INSECTICIDE |
| BRACKET, FOR FACE SHIELD | LANYARD FOR SAFETY BELTS |
| BRACKET, FIBER BROW, SAFETY SHIELD | LENS, WELDING |
| CAPS, PLASTIC SAFETY (FOR REBAR) | LIFE LINE |
| CURTAIN, WELDER | LOCKS |
| DUST MASK | MOUNTING VISOR AND KWIK-KLIP |
| DISPOSABLE MASK | PULLER, FUSE SAFETY |
| EYESHIELD, FOR BENCH GRINDER | RAIN WEAR, JACKET AND OVERALLS |
| FIRST AID SUPPLIES | SAFETY HARNESS |
| FLARE, ROAD, NON-ELECTRIC | SIREN, ELECTRIC |
| GLASSES, SAFETY | STRAP, CHIN |
| GLOVES, WORK, ALL TYPES | SWEAT BANDS |
| GOGGLES, SAFETY | TABLET, SALT |
| GUARDS, SHIN | VISOR, SHIELD, CLEAR |
| GUARDS, TOE, METAL W/STRAP | WELDING SHIELDS |

2. CONSUMABLES

- | | | | |
|-------------------------------------|---------------------------------------|-------------------------------------|----------------------------|
| ABRASIVES | EXPANDER, TUBEROLLS AND | PAD, POLISHING | WASHERS |
| ACID | MANDRELS | PADLOCKS | WASHING POWDER |
| ADAPTORS, TOOL – all types | FASTENERS | PAINT (for erection marking) | WASHROOM SUPPLIES |
| ADHESIVE | FEELER STOCK | PAINT STICK | WASTE – Cotton |
| ALCOHOL | FILE, METAL CUTTING | PAN, DRAIN | WATER CANS |
| ANTIFREEZE | FILE, WOOD CUTTING | PAPER – sand, toilet | WELD ROD |
| ANTI-SPLATTER SPRAY | FILTER – for vacuum cleaner | PASTE – solder | WELDING GASES |
| APRON, WELDERS | FILTERS | PATTERNS | WHEEL, DEPRESSED CENTER |
| ARBORS, HOLE SAW | FISHTAPE, HAND | PENCIL, CARPENTER | WHEELBARROW, All Types |
| AUGER, HAND - post hole digger | FITTINGS, ALEMITE & HOSE | PENS, WRITING, MARKING | WHEEL ABRASIVE |
| BADGES | FLAMBEAU, KEROSENE | PETROLEUM JELLY | WHEEL, WIRE |
| BAG, DUST – for belt sander | FLASHLIGHT | PICK, CLAY | WICKS, LANTERN |
| BAG, BOLT | FLINT | PLUG, PIPE TEST | WIRE - tie & miscellaneous |
| BANDS, SAFETY HAT | FLUID CLEANING | PLUNGER, BATHROOM | WOOL – steel |
| BARRELS, WATER or TRASH | FLUX - brazing, welding | POCKET, LINEMAN'S | WRAP AROUNDS |
| BATTERY – flashlight and lantern | FORK, SEED | POUCH, CANVAS | |
| BELTING, BELT DRESSING | FORM TIES | POUCH, ROD | |
| BINS, TRASH | FRAME, HACKSAW | POWDER, SCOURING | |
| BITS – small hand tool, all types | FUELS (for construction equipment) | PULLER, WIRE | |
| BLADES – small hand tool, all types | FUNNELS, ALL TYPES | PUMICE | |
| BLANKET – wool, rubber | FUSE (except for permanent plant use) | PUNCH AND CHISEL SETS | |
| BOX, CARDBOARD | GARBAGE BAGS | PUNCH, CONDUIT | |
| BRACKET, FLOAT HANDLE | GASKETS, HOSE | PUNCH, PIN SET | |
| BRICK, RUBBING | GLOVES, WORK, all types | PUTTY | |
| BROOM – all types | GLUE | RAGS | |
| BRUSH – all types | GLYCERINE | RAKE, GARDEN | |
| BUCKET – all types | GOGGLES, WORK, all types | RAKE, CONCRETE | |
| BULB – blow out, dust | GRAPHITE | RAKE, ROAD | |
| BULB – flashlight, lantern, light | GREASE | REAMER, TAPER PIN (Hand Only) | |
| BURLAP | GRIPS, PLASTIC for pliers | RIGGING HOOKS | |
| CABLES, RIGGING | GROMMETS | ROPE, MANILA | |
| CAN, OIL | GUIDE, HINGE-BUTT for router | ROPE, POLYPROPYLENE | |
| CAN, SAFETY | GUN, CAULKING | ROPE, WIRE | |
| CARBIDE | GUN, GREASE | RULE - Extension, Wood, Fiberglass, | |
| CARBORUNDUM – Blocks, Stones Walk | HASPS | Folding | |
| CHAIN, SAFETY | HATCHET | RULE, TAPE | |
| CHAIN, LOADBINDER | HINGES | RUST PREVENTIVE | |
| CHALK | HOE | SANDBLAST NOZZLES | |
| CHALK LINE BOX | HOOK, SNAP | SCISSORS, ELECTRICIAN | |

CHAMOIS	HOOK, TIMBER	SCRAPER, HAND
CHARCOAL AND COKE	HOSE, AIR, 3/4" /Dia. Max. (Air Tools Only)	SCRAPER, SIDEWALK
CHISEL – all types	HOSE WATER to 3/4"	SCRAPER, WALL
CHOKER – all types	HOSE, GREASE, GUN	SCREEN CLOTH – Wire
CHUCKS, TOOL – all types	HOSE, TWIN WELDING	SCREW RUNNER
CLAMP, CABLE	ICE	SCREW STARTER
CLAMP, HOSE	INK, LAYOUT – for Millwrights	SCREWDRIVER, All Types
CLEANER, DRAIN	IRON, CAULKING	SHACKLES
CLEANER, HAND	IRON, PACKING	SHEATH, PLUMB BOB
CLEANER, TIP	IRON, YARNING	SHIMS
CLIPS, WIRE ROPE	JAW, BOLT CUTTER REPLACEMENT	SILICONE SPRAY
CLOTH, DROP, PAINTER'S	JITTERBUG – Concrete Hand	SOAP
CLOTH, EMERY	JOINT RUNNER	SOAP STONE
CLOTH, STRAINING	KEEL (lumber crayon)	SOLDER
COAL and COKE	KEY, CHUCK	SOLVENT
COMPOUND - cleaning, pipe, thread grinding	KEY, EJECTOR for Roto Hammers	SPONGE
COMPOUND, SWEEPING	KEY, HEX	STAKE - survey
COMPOUND, WIRE PULLING	LASHING, WIRE ROPE	STAPLES
CONNECTORS – Cord, Cotter Pins	LATCHES	STRING, NYLON
CORD, PLUMB BOB	LATTERNS, 6 VOLT LENS - Welding	TACKS
CORD, SASH	LIGHTER, SPARK	TAG, BLANK, WIRE TWIST
CORK	LIME, MARKING	TARPAULIN
CRAYON, LUMBER	LINE, FISH	TAP, TAPER, HAND
CRAYON – Temperature Indicating	LITHARGE	TAPE - adhesive, masking, friction, rubber, plumbers, etc.
CREOSOTE	LUBRICANT – thread cutting, electric wire pulling	TEMPIL STICKS
CUP – drinking	LUGS	THIMBLES, WIRE ROPE
CUTTER WHEELS – tools, all types	MARKER, METAL	TIP, TORCH WELDING
DIE NUTS – Hexagon Rethread	MARKER, PIPE CONTOUR	TOOL BOXES, BINS
DIES, BUTTON	MENDERS, HOSE	TOOL, BRUSHING for Vacuum cleaner
DIES, KNOCKOUT	MIRROR, INSPECTION	TOOL, CREVICE, 15" for Vacuum
DIES, PIPE – for Hand Threaders Only	MOP	TOOL, MAJOR FLOOR, 14"
DIES, TMB – 8, Compression Tools	NAILS	TOOL STEEL
DIPPERS	NIPPLES, HOSE	TOWEL – Paper
DISC, GRINDING	NOZZLE, WATER	TORCH, HEATING
DISINFECTANT	NUT RUNNER	TORCH, CUTTING
DISPENSER, PAPER CUP	NUT SETTER	TROWEL, HAND
DRESSING, BELT	OFFICE SUPPLIES	TRUNBUCKLES
DRILL BIT – Small Hand Tool, All Types	OIL - all types	TURPENTINE
EDGER, CONCRETE HAND	PACKING MATERIAL	TWINE
ELECTRODE HOLDERS		VISQUEEN – Non-reinforced

3. SMALL TOOLS

ADAPTER - hose, pipe thread	DOOR HANGING KIT	MOVER - freight car, hand	SOLDERING IRON
ADZE	DRESSER - grinding wheel	NAILER, AIR	SPADE
ANVIL	DRILL - all types: hand, electric,	NIBBLER, SHEET METAL	SPEED, PORTABLE
APRON	pneumatic	NIPPER	SPIKE- marlin
ARBOUR	DRILL PRESS	NOTCHER, PIPE	SPRAYER, ORCHARD
AUGER, GASOLINE (Post Hole Digger)	DRILL STAND - bench	NOZZLE - hose, weld	SPREADER, FLANGE
AWL	DYNAMOMETER	NUT - die, driver	SQUARE- combination, framing, etc.
AXE	ELCOMETER - paint thickness gauge	OILER - can, hand	SQUEEGEE
BABBITT	EMBOSSER, TAPE, HAND	OVEN - welding rod	STAND, DRILL
BANDING MACHINE – Hand Type	ETCHER, ELECTRIC	PAIL	STAND, GRINDER
BAR- claw, crow, pinch, etc.	EXPANDER- tube	PEDESTAL, GRINDER	STAND, PIPE
BARREL- trash	EXTENSION, SOCKET SET	PIN, BARREL	STAND, REEL, TELESCOPING SCREW
BASE, MAGNETIC/DAILY TEST	EXTENSION CORD	PIN, BULL	STAPLE- tacker
INDICATOR	EXTRACTOR - pipe & screw	PIN, DRAFT	STAPLER, ELECTRIC OR HAND
BELT- safety w/strap	FAN - electric	PINCER	STAR DRILL
BENDER - hydraulic, manual	FILE - hand	PLANE – wood	STEAM HEATER
BENDER, CABLE	FLARING TOOL	PLANE, BENCH JACK	STENCIL- steel, brass, paper
BENDER, PIPE	FLASHLIGHT - c/w bulb & batteries	PLANE, BLOCK	STONE - OIL
BENDER, TUBING	FLATTER - blacksmith	PLANE, ELECTRIC	STRAIGHT EDGE
BENDER, LOAD	FLOAT, CONCRETE – Hand Only	PLANE, VERSI	STRAINER- air line
BEVEL	FORGE - blacksmith	PLANNER, POWER BLOCK – Electric HD	STRAPPER
BEVELLER - load	FORK - barn	PLIERS – all types	STRIPPER- wire
BINDER - load	FULLER - blacksmith	PLUMB BOB	SUPPORT, PIPE – Roller type
BIT - auger, carpenter	FURNACE, PROPANE – Melting	POINT - trammel	SWEDGING TOOL KIT
BLOCK - chain, rope, cable, etc.	GAD	POLE - pike, range	SWIVEL
BLOCKS, WOOD	GAUGE- drill, feeler, wire thickness,	POT - melting, fire, welding rod, lead	TACHOMETER
BLOCKS, METAL – Snatch	tire, etc.	POUCH - tool	TAMPER- hand, pneumatic
BLOWER – Pneumatic Powered	GRINDER- electric, pneumatic	PRESTOLITE OUTFIT	TANK, LP – 20# only
BOB, PLUMB	GRAB, PIPE OF 20"	PROTRACTOR	TAP- bolt, pipe, wrench
BOSUN CHAIRS	GRINDER, ELECTRIC	PULLER, FUSE SAFETY	TAPE- steel measuring
BOX - tool box or tool bag	GRIP- cable	PULLER, WHEEL GEAR	TAPEWRITER, EMBOSSING –
BOX, GANG (Craft Storage)	GROOVING, TOOL	PULLER- nail, wire, spike road	Hand type
BRACE - ratchet	GUN- grease caulking, paint, heat	PULLEY, CABLE	TAPPER
BROOMS	(115V), pop rivet, powder actuated,	PULLEY, WELL	TELEPHONE- hand set, electrician's
BURNER, WEED	soldering	PUMP- hand, barrel, sump, test	testing
CABLE - welding, electrode, ground,	HACKSAW, POWER	PUNCH- center, back out, arch,	TEMPLATE, HINGE-BUTT
etc.	HAMMERS - all types: pneumatic, hand	knockout, hob, gasket, sheet metal,	TESTER- battery, hardness, antifreeze,
CALLIPERS	HANDLES - all types	stud, etc.	circuit, insulation, motor rotation, etc.
CANS	HATCHET & HANDLE - for hand	RADIO- portable, 2 way, intercom	THIMBLE- pipe

CART - concrete	threader sets	RASP	THREADER- pipe chain, etc.
CART, WELDING BOTTLE 2	HATCHET, WRENCH	REAMER- pipe, bridge burring, etc.	TONGS, BRICK CARRIER
CASTERS	HEATER - portable: fuel, electric (115V),	REAMER, INNER, OUTER – for copper	TONGS, CHAIN
CAULKING TOOL - yarning iron	LP, Kerosene	tubing	TONGS, PIPE
CENTER FINDER SET - Wiggler	HOD - brick, mortar	REAMER, SPIRAL – Pipe only	TONGS, SHEET METAL
CHAIN - surveyor, measuring, steel	HOE	REAMER, STRAIGHT – Pipe only	TONG- blacksmith, pipe,
loading	HOIST - portable, all types	REEL, TIE WIRE	TOOL, FLARING
CHAIR, BOSUN'S	HOOD - welding, sandblasting	REGULATOR- welding gas	TOOL, PICK UP, MAG
CHARGER - battery	HOOK - packing, eye, cant, lug, etc.	RESPIRATOR- dusts c/w refill	TOOL, SOIL PIPE ASSEMBLY
CHUCK - taper, drill	HORSES - mason, saw	RIGGERS ROPE- manila, wire	TOOL- clamping (hose)
CLAMP - pipe, aligning, saw, carpenter,	INDICATOR - dial, test	RIVETER, HAND	TOOLS- cement worker
etc.	IRON - tire	ROLLER, PIPE	TORCH- blow, soldering
CLIMBER – Adjustable w/Pad	JACK - flange, hydraulic, mechanical,	ROLLER, paint	Cutting, propane, acetylene, prestolite
and Straps	screw	ROUTER, ELECTRIC	TRANSFORMER- dry type
CLIPPER - bolt	JIG - weld coupon bending test	RULES- all types	TROLLEY
COOLER - drinking water	KEY - welding, gas tank	RUSH DRILL	TROWEL
COMBINATION SETS – 6" to 18"	KNIFE - draw, putty	SANDER- disc, belt	TRUCK- hand
CONNECTOR - welding, cable	KNOCKOUT, HAND	SAW - portable, all types: hand, power	TURNBUCKLE
CONVEYOR - gravity, roller	LADDER - steel, extension, etc.	SCALER, NEEDLE	TWISTER- wire
CORD - electric extension	LADLE - melting, lead	SCRAPER- bearing, miscellaneous	UMBRELLA
COUPLING - hose	LANTERNS - all types	SCREW STOP	UNIVERSAL – for socket sets
CREEPER, FLOOR	LEAD JOINT RUNNER	SCREW PLANE (set)	VACUUM CLEANER, HD
CRIMPER, BAND	LEVEL - hand, line, etc.	SCRIBER SET- nail, rivet	VIBRATOR, CONCRETE- pneumatic,
CRIMPER - electrician's	LIGHT - portable, flood, drop	SHARPENER, DRILL BIT	Electric
CRIMPING TOOL - Wire	LINE - mason, chalk	SHEAR- bar, tanners	WISE, MACHINIST
CUTTER - bar, wire, pipe-hand, pipe-	LUBRICATOR - air line	SHEAR, ANGLE IRON	WISE, PIPE
geared, gasket, etc.	MALLET	SHEARS, ELECTRIC, HAND	WEDGE
CYLINDER, HYDRAULIC – for Porta	MANDREL - all types	SHEARS, TRIMMING, ROTARY	WELDING TOOLS
Powers	MARKER, LIME, ROLLING	SHEAVES, CABLE, TRAY METAL	WELDING & CUTTING OUTFIT
DIE- pipe, bolt, c/w head, stock	MATTOCK	SHEETING- plastic, paper	(Oxy/Acetylene)
DIGGER - hand, pneumatic	MAUL	SHIELD- face	WHEEL- grinding
DIVIDER – wing	MEGGER METER	SHOVEL	WHEELBARROW
DIVIDER, SPRING TYPE	METER - vibration	SIREN, ELECTRIC	WINCH- hand
DOLLY, BARREL	METER, AMP – Clamp-on w/Case	SLEEVE- morse, taper, shank	WRENCHES- all types
DOLLY, BEAM	METER, MILLIVOLT	SLING- canvas, pipe, wire, rope, nylon	
DOLLY, CATERPILLAR	METER, MOISTURE	SNIP- tinner	
DOLLY, MACHINE	METER, VOLT	SNIPS, AVIATION, HAND	
DOLLY, PIPE	MICROMETER	SNIPS, METAL CUT, HAND	
DOLLY, PRY	MIRROR, INSEPTION	SNIPS, TRIM HAND	
DOLLY, WAREHOUSE	MITER BOX – Electric or hand	SOCKET for hand tools only	
DOLLY BAR - pivot	MORTISER, LOCK - Electric	SOCKET SET	

**PERSONNEL RATE SCHEDULE
APPLICABLE JUNE 2017 THROUGH MAY 2018**

PERSONNEL RATE SCHEDULE APPLICABLE JUNE 2017 THROUGH MAY 2018

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
POWERLINE TECHNICIAN										
Electrical Line Workers - Foreperson	43.04	5.60	30.85	0.70	0.70	24.04	104.93	140.92	176.91	3.00
Powerline Foreperson	43.04	5.60	30.85	0.70	0.70	24.04	104.93	140.92	176.91	3.00
Powerline SubForeperson	41.79	5.43	30.55	0.70	0.70	23.67	102.84	137.79	172.74	3.00
Journeyman Powerline Technician	39.29	5.11	29.94	0.70	0.70	22.93	98.67	131.52	164.38	3.00
Electrical Line Workers - Lineperson (or Cable Splicer)	39.29	5.11	29.94	0.70	0.70	22.93	98.67	131.52	164.38	3.00
Powerline Technician Apprentice										
4th Period	35.36	4.60	29.02	0.70	0.70	21.72	92.10	121.67	151.24	3.00
3rd Period	31.43	4.09	28.08	0.70	0.70	20.53	85.53	111.82	138.11	3.00
2nd Period	27.50	3.58	27.16	0.70	0.70	19.33	78.97	101.97	124.97	3.00
1st Period	23.57	3.06	26.23	0.70	0.70	18.13	72.40	92.12	111.83	3.00
Electrical Line Workers Lineperson (or Cable Splicer) Apprentice - 4th year	35.36	4.60	29.02	0.70	0.70	21.72	92.10	121.67	151.24	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 3rd year	31.43	4.09	28.08	0.70	0.70	20.53	85.53	111.82	138.11	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 2nd year	27.50	3.58	27.16	0.70	0.70	19.33	78.97	101.97	124.97	3.00
Electrical Line Workers - Lineperson (or Cable Splicer) - Apprentice - 1st year	23.57	3.06	26.23	0.70	0.70	18.13	72.40	92.12	111.83	3.00
ELECTRICIAN										
Electrician Foreperson	46.57	6.05	25.89	0.70	0.70	21.83	101.74	140.68	179.62	3.00
Electrician Subforeperson	45.32	5.89	25.57	0.70	0.70	21.47	99.65	137.55	175.44	3.00
Journeyman Electrician	42.82	5.57	24.96	0.70	0.70	20.72	95.47	131.28	167.08	3.00
Electrician Apprentice										
4th Period	38.54	5.01	23.99	0.70	0.70	19.38	88.32	120.54	152.77	3.00
3rd Period	34.26	4.45	22.92	0.70	0.70	18.13	81.16	109.81	138.45	3.00
2nd Period	29.97	3.90	21.91	0.70	0.70	16.83	74.01	99.07	124.14	3.00
1st Period	25.69	3.34	20.89	0.70	0.70	15.53	66.85	88.34	109.82	3.00
Civil Trade Foreperson	42.21	5.49	24.80	0.70	0.70	20.55	94.45	129.75	165.04	3.00
Carpenters - Working Foreperson	42.21	5.49	24.80	0.70	0.70	20.55	94.45	129.75	165.04	3.00
Civil Trade Subforeperson	40.96	5.32	24.50	0.70	0.70	20.19	92.37	126.62	160.87	3.00
Journeyman Civil	38.46	5.00	23.88	0.70	0.70	19.45	88.19	120.35	152.51	3.00
Carpenters - JourneyPerson, Carpenter, Welder, Scaffolder	38.46	5.00	23.88	0.70	0.70	19.45	88.19	120.35	152.51	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Civil Trade Apprentice										
4th Period	34.61	4.50	22.97	0.70	0.70	18.28	81.76	110.70	139.65	3.00
3rd Period	30.77	4.00	22.05	0.70	0.70	17.11	75.33	101.06	126.79	3.00
2nd Period	26.92	3.50	21.15	0.70	0.70	15.94	68.91	91.42	113.93	3.00
1st Period	23.08	3.00	20.23	0.70	0.70	14.77	62.48	81.78	101.07	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 4 th	34.61	4.50	22.97	0.70	0.70	18.28	81.76	110.70	139.65	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 3rd	30.77	4.00	22.05	0.70	0.70	17.11	75.33	101.06	126.79	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 2nd	26.92	3.50	21.15	0.70	0.70	15.94	68.91	91.42	113.93	3.00
Carpenters - Carpenter, Welder, Scaffolder – Apprentice – 1st	23.08	3.00	20.23	0.70	0.70	14.77	62.48	81.78	101.07	3.00

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
MECHANICAL 1										
Mechanical 1 Trade Foreperson	45.71	5.94	25.67	0.70	0.70	21.58	100.30	138.52	176.75	3.00
Mechanical 1 Subforeperson	44.46	5.78	25.35	0.70	0.70	21.22	98.21	135.39	172.57	3.00
Journeyman Mechanical 1	41.96	5.45	24.77	0.70	0.70	20.46	94.04	129.12	164.21	3.00
Electrical Line Workers - Mechanic	41.96	5.45	24.77	0.70	0.70	20.46	94.04	129.12	164.21	3.00
Mechanical 1 Apprentice										
4th Period	37.76	4.91	23.75	0.70	0.70	19.20	87.02	118.60	150.18	3.00
3rd Period	33.57	4.36	22.76	0.70	0.70	17.92	80.01	108.08	136.15	3.00
2nd Period	29.37	3.82	21.76	0.70	0.70	16.65	73.00	97.56	122.12	3.00
1st Period	25.18	3.27	20.76	0.70	0.70	15.38	65.99	87.04	108.10	3.00
MECHANICAL 2										
Mechanical 2 Foreperson	43.71	5.68	25.18	0.70	0.70	20.99	96.96	133.51	170.06	3.00
Mechanical 2 Subforeperson	42.46	5.52	24.86	0.70	0.70	20.63	94.87	130.38	165.88	3.00
Journeyman Mechanical 2	39.96	5.19	24.26	0.70	0.70	19.88	90.69	124.11	157.52	3.00
Mechanical 2 Apprentice										
4th Period	35.96	4.68	23.30	0.70	0.70	18.68	84.02	114.09	144.16	3.00
3rd Period	31.97	4.16	22.36	0.70	0.70	17.46	77.34	104.07	130.80	3.00
2nd Period	27.97	3.64	21.41	0.70	0.70	16.24	70.66	94.05	117.44	3.00
1st Period	23.98	3.12	20.46	0.70	0.70	15.03	63.98	84.03	104.08	3.00
Heavy Duty Mechanic Technician	39.96	5.19	24.26	0.70	0.70	19.88	90.69	124.11	157.52	3.00
Crane Operator	41.46	5.39	24.63	0.70	0.70	20.32	93.20	127.87	162.54	3.00
Heavy Equipment Operator	36.96	4.80	23.51	0.70	0.70	19.01	85.68	116.59	147.49	3.00

PR

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Electrical Line Workers - Operator	36.96	4.80	23.51	0.70	0.70	19.01	85.68	116.59	147.49	3.00
Light Equipment Operator	35.96	4.67	23.27	0.70	0.70	18.71	84.01	114.08	144.15	3.00
Blaster/Driller/Compressor Operator	36.96	4.80	23.51	0.70	0.70	19.01	85.68	116.59	147.49	3.00
Electrical Line Workers - Blaster/Driller	36.96	4.80	23.51	0.70	0.70	19.01	85.68	116.59	147.49	3.00
Mechanic Helper	34.14	4.44	22.80	0.70	0.70	18.19	80.97	109.52	138.06	3.00
Accommodations Maintenance Person	34.14	4.44	22.80	0.70	0.70	18.19	80.97	109.52	138.06	3.00
Communications Installer	33.14	4.31	22.55	0.70	0.70	17.90	79.30	107.01	134.72	3.00
Utility Technician	34.14	4.44	22.80	0.70	0.70	18.19	80.97	109.52	138.06	3.00
Electrical Line Workers - Utility Worker	34.14	4.44	22.80	0.70	0.70	18.19	80.97	109.52	138.06	3.00
Utility Person	33.14	4.31	22.55	0.70	0.70	17.90	79.30	107.01	134.72	3.00
Storekeeper (Warehouse Person)	35.09	4.56	23.05	0.70	0.70	18.46	82.56	111.90	141.24	3.00
Electrical Line Workers - Full-time Storekeeper	35.09	4.56	23.05	0.70	0.70	18.46	82.56	111.90	141.24	3.00
Material Manager	35.09	4.56	23.05	0.70	0.70	18.46	82.56	111.90	141.24	3.00
Arborist	33.69	4.38	22.69	0.70	0.70	18.06	80.22	108.39	136.56	3.00
Forklift/Truck Driver Tandem/Muskeg/Bus Driver	35.96	4.67	23.27	0.70	0.70	18.71	84.01	114.08	144.15	3.00
Labourer Clearing/Labourer Laydown	33.14	4.31	22.55	0.70	0.70	17.90	79.30	107.01	134.72	3.00

BY

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Project Director	\$277.03	Included	Included	Included	Included	\$24.93	\$301.96	\$301.96	\$301.96	N/A
Project Manager	\$221.62	Included	Included	Included	Included	\$19.95	\$241.57	\$241.57	\$241.57	N/A
Construction Manager	\$221.62	Included	Included	Included	Included	\$19.95	\$241.57	\$241.57	\$241.57	N/A
Assistant Project Manager	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Project Assistant	\$108.39	Included	Included	Included	Included	\$9.75	\$118.14	\$118.14	\$118.14	N/A
Project Accounting (Controller)	\$108.39	Included	Included	Included	Included	\$9.75	\$118.14	\$118.14	\$118.14	N/A
Field Supervisor	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Project Planner / Scheduler	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Materials Manager	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Project Administrator	37.76	4.91	23.75	0.70	0.70	19.20	87.02	118.60	150.18	
Electrical Line Workers - General Foreperson	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Field Supervisor	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Environmental Supervisor	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Environmental Monitor	\$108.39	Included	Included	Included	Included	\$9.75	\$118.14	\$118.14	\$118.14	N/A
Site Health and Safety Supervisor	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Quality Assurance Supervisor	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
First Aid Attendant	36.96	4.80	23.51	0.70	0.70	19.01	85.68	116.59	147.49	N/A
Project Engineer	\$221.62	Included	Included	Included	Included	\$19.95	\$241.57	\$241.57	\$241.57	N/A
Geotechnical Scientist	\$260.40	Included	Included	Included	Included	\$23.44	\$283.84	\$283.84	\$283.84	N/A

Trade or Classification (1)	Base Rate (2)	Vacation Pay (3)	Payroll Allowances and Burdens (4)	Small Tools (5)	Consumables and PPE (6)	Overhead & Profit (7)	Regular Time Rate (8)	Overtime Rate (1.5x)	Overtime Rate (2.0x)	Second and Third Shift Premium
Geotechnical Engineer	\$260.40	Included	Included	Included	Included	\$23.44	\$283.84	\$283.84	\$283.84	N/A
Geotechnical Technician	\$193.92	Included	Included	Included	Included	\$17.45	\$211.37	\$211.37	\$211.37	N/A
3rd Party Density Tester	\$193.92	Included	Included	Included	Included	\$17.45	\$211.37	\$211.37	\$211.37	N/A
ROW Manager	\$189.49	Included	Included	Included	Included	\$17.05	\$206.54	\$206.54	\$206.54	N/A
Right of Way Coordinator	\$161.34	Included	Included	Included	Included	\$14.52	\$175.86	\$175.86	\$175.86	N/A
Drafting Technician	\$97.52	Included	Included	Included	Included	\$8.78	\$106.30	\$106.30	\$106.30	N/A
Quality Monitor	\$108.39	Included	Included	Included	Included	\$9.75	\$118.14	\$118.14	\$118.14	N/A
Safety Advisor	\$108.39	Included	Included	Included	Included	\$9.75	\$118.14	\$118.14	\$118.14	N/A
Access Road Survey Crew per attached Quotation	\$2431.00 / Day	Included	Included	Included	Included	Included	\$2431.00 / Day	\$243.10/ Hr	\$243.10/ Hr	N/A
RoW Survey Crew per attached Quotation	\$2662.54 / Day	Included	Included	Included	Included	Included	\$2662.54 / Day	\$266.25/ Hr	\$266.25/ Hr	N/A

In addition to the hourly rates above for employees the daily Camp Costs is \$289 per day per employee unless provided by Company.

As per union agreement if living in the area, the employees are not entitled to the Camp costs of \$289 per day per employee.

*Indicate currency. If necessary, provide separate information by currency and rationale for currencies used.

Flights for shift rotation are not included and shall be charged at Lowest Available Cost+9%.

Travel Time, on shift change, to and from major airports at the worksite end is paid.

All other time during shift changes is not.

Other than the costs identified, these rates are all inclusive.

RV

NOTES

- Column 1: Trades and specialities required for the execution of the Work.
- Column 2: Base rate is per the Project Labour Agreement referenced in Section 8.0 of Exhibit 2 - Compensation, where applicable.
- Column 3: Vacation pay includes vacations, statutory holidays, sick and other leave with pay.
- Column 4: Payroll allowances and burdens includes, but is not limited to, unemployment insurance, workers' compensation, payroll tax, and other taxes and insurance measured by payroll, established employee benefits such as pension, health, and life insurance, bonus programs, fringe benefits, indemnity funds, training, and all other contributions or premiums as per the construction decree or any other labour agreements or Applicable Laws, as applicable.
- Column 5: Small Tools includes all tools with a replacement value of less than two thousand (\$2,000.00) Canadian Dollars. Refer to Item 3 of Attachment 1 for a typical listing of these types of small tools. Such items shall be furnished by the Contractor complete with all accessories and expendable operating parts and shall be maintained in good condition including the replacement of parts as may be necessary.
- Column 6: Consumables, whether recoverable or non-recoverable (refer to Item 2 of Attachment 1), and Personal Protective Equipment (refer to Item 1 of Attachment 1).
- Column 7: Overhead and Profit includes, but is not limited to, all home/corporate office expenses costs.
- Column 8: The Regular Time rate includes the total of Columns 2 to 7 inclusive.

Overtime rates (1.5x and 2.0x) include the regular time rate plus the overtime premium as per the Project Labour Agreement. Only the costs relative to those benefits and/or burdens that specifically apply when additional hours are worked shall be added. Other benefits, burdens and overhead will not be reimbursed since the full costs to the Contractor for these items has already been compensated in the regular time rate.

Second and Third Shift Premium is the incremental charge applied to the Regular Time Rate and Overtime Rates for second and third shift Personnel.

Rates shall be revised annually based on the Project Labour Agreement.

ATTACHMENT 1

The following lists include, but are not limited to, items that Company classifies as "Personal Protective Equipment", "Consumables", and "Small Tools", whether recoverable or non-recoverable.

1. PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment shall meet the requirements of Occupational Health and Safety Regulations.

APRON, WELDERS	HALF FACE or FULL FACE RESPIRATOR WITH CARTRIDGES – ALL TYPES
BELT, SAFETY	HARD HAT
BLANKET, FIRE	HEARING PROTECTION
BLOCK, WELDING HELMET	HOOD, WELDING
BOOT, SAFETY, ALL TYPES	INSECTICIDE
BRACKET, FOR FACE SHIELD	LANYARD FOR SAFETY BELTS
BRACKET, FIBER BROW, SAFETY SHIELD	LENS, WELDING
CAPS, PLASTIC SAFETY (FOR REBAR)	LIFE LINE
CURTAIN, WELDER	LOCKS
DUST MASK	MOUNTING VISOR AND KWIK-KLIP
DISPOSABLE MASK	PULLER, FUSE SAFETY
EYESHIELD, FOR BENCH GRINDER	RAIN WEAR, JACKET AND OVERALLS
FIRST AID SUPPLIES	SAFETY HARNESS
FLARE, ROAD, NON-ELECTRIC	SIREN, ELECTRIC
GLASSES, SAFETY	STRAP, CHIN
GLOVES, WORK, ALL TYPES	SWEAT BANDS
GOGGLES, SAFETY	TABLET, SALT
GUARDS, SHIN	VISOR, SHIELD, CLEAR
GUARDS, TOE, METAL W/STRAP	WELDING SHIELDS

2. CONSUMABLES

ABRASIVES	EXPANDER, TUBEROLLS AND	PAD, POLISHING	WASHERS
ACID	MANDRELS	PADLOCKS	WASHING POWDER
ADAPTORS, TOOL – all types	FASTENERS	PAINT (for erection marking)	WASHROOM SUPPLIES
ADHESIVE	FEELER STOCK	PAINT STICK	WASTE – Cotton
ALCOHOL	FILE, METAL CUTTING	PAN, DRAIN	WATER CANS
ANTIFREEZE	FILE, WOOD CUTTING	PAPER – sand, toilet	WELD ROD
ANTI-SPLATTER SPRAY	FILTER – for vacuum cleaner	PASTE – solder	WELDING GASES
APRON, WELDERS	FILTERS	PATTERNS	WHEEL, DEPRESSED CENTER
ARBORS, HOLE SAW	FISHTAPE, HAND	PENCIL, CARPENTER	WHEELBARROW, All Types
AUGER, HAND - post hole digger	FITTINGS, ALEMITE & HOSE	PENS, WRITING, MARKING	WHEEL ABRASIVE
BADGES	FLAMBEAU, KEROSENE	PETROLEUM JELLY	WHEEL, WIRE
BAG, DUST – for belt sander	FLASHLIGHT	PICK, CLAY	WICKS, LANTERN
BAG, BOLT	FLINT	PLUG, PIPE TEST	WIRE - tie & miscellaneous
BANDS, SAFETY HAT	FLUID CLEANING	PLUNGER, BATHROOM	WOOL – steel
BARRELS, WATER or TRASH	FLUX - brazing, welding	POCKET, LINEMAN'S	WRAP AROUNDS
BATTERY – flashlight and lantern	FORK, SEED	POUCH, CANVAS	
BELTING, BELT DRESSING	FORM TIES	POUCH, ROD	
BINS, TRASH	FRAME, HACKSAW	POWDER, SCOURING	
BITS – small hand tool, all types	FUELS (for construction equipment)	PULLER, WIRE	
BLADES – small hand tool, all types	FUNNELS, ALL TYPES	PUMICE	
BLANKET – wool, rubber	FUSE (except for permanent plant use)	PUNCH AND CHISEL SETS	
BOX, CARDBOARD	GARBAGE BAGS	PUNCH, CONDUIT	
BRACKET, FLOAT HANDLE	GASKETS, HOSE	PUNCH, PIN SET	
BRICK, RUBBING	GLOVES, WORK, all types	PUTTY	
BROOM – all types	GLUE	RAGS	
BRUSH – all types	GLYCERINE	RAKE, GARDEN	
BUCKET – all types	GOGGLES, WORK, all types	RAKE, CONCRETE	
BULB – blow out, dust	GRAPHITE	RAKE, ROAD	
BULB – flashlight, lantern, light	GREASE	REAMER, TAPER PIN (Hand Only)	
BURLAP	GRIPS, PLASTIC for pliers	RIGGING HOOKS	
CABLES, RIGGING	GROMMETS	ROPE, MANILA	
CAN, OIL	GUIDE, HINGE-BUTT for router	ROPE, POLYPROPYLENE	
CAN, SAFETY	GUN, CAULKING	ROPE, WIRE	
CARBIDE	GUN, GREASE	RULE - Extension, Wood, Fiberglass,	
CARBORUNDUM – Blocks, Stones Walk	HASPS	Folding	
CHAIN, SAFETY	HATCHET	RULE, TAPE	
CHAIN, LOADBINDER	HINGES	RUST PREVENTIVE	
CHALK	HOE	SANDBLAST NOZZLES	
CHALK LINE BOX	HOOK, SNAP	SCISSORS, ELECTRICIAN	

CHAMOIS	HOOK, TIMBER	SCRAPER, HAND
CHARCOAL AND COKE	HOSE, AIR, ¾" /Dia. Max. (Air Tools Only)	SCRAPER, SIDEWALK
CHISEL – all types	HOSE WATER to ¾"	SCRAPER, WALL
CHOKER – all types	HOSE, GREASE, GUN	SCREEN CLOTH – Wire
CHUCKS, TOOL – all types	HOSE, TWIN WELDING	SCREW RUNNER
CLAMP, CABLE	ICE	SCREW STARTER
CLAMP, HOSE	INK, LAYOUT – for Millwrights	SCREWDRIVER, All Types
CLEANER, DRAIN	IRON, CAULKING	SHACKLES
CLEANER, HAND	IRON, PACKING	SHEATH, PLUMB BOB
CLEANER, TIP	IRON, YARNING	SHIMS
CLIPS, WIRE ROPE	JAW, BOLT CUTTER REPLACEMENT	SILICONE SPRAY
CLOTH, DROP, PAINTER'S	JITTERBUG – Concrete Hand	SOAP
CLOTH, EMERY	JOINT RUNNER	SOAP STONE
CLOTH, STRAINING	KEEL (lumber crayon)	SOLDER
COAL and COKE	KEY, CHUCK	SOLVENT
COMPOUND - cleaning, pipe, thread grinding	KEY, EJECTOR for Roto Hammers	SPONGE
COMPOUND, SWEEPING	KEY, HEX	STAKE - survey
COMPOUND, WIRE PULLING	LASHING, WIRE ROPE	STAPLES
CONNECTORS – Cord, Cotter Pins	LATCHES	STRING, NYLON
CORD, PLUMB BOB	LATTERNS, 6 VOLT LENS - Welding	TACKS
CORD, SASH	LIGHTER, SPARK	TAG, BLANK, WIRE TWIST
CORK	LIME, MARKING	TARPAULIN
CRAYON, LUMBER	LINE, FISH	TAP, TAPER, HAND
CRAYON – Temperature Indicating	LITHARGE	TAPE - adhesive, masking, friction, rubber, plumbers, etc.
CREOSOTE	LUBRICANT – thread cutting, electric wire pulling	TEMPIL STICKS
CUP – drinking	LUGS	THIMBLES, WIRE ROPE
CUTTER WHEELS – tools, all types	MARKER, METAL	TIP, TORCH WELDING
DIE NUTS – Hexagon Rethread	MARKER, PIPE CONTOUR	TOOL BOXES, BINS
DIES, BUTTON	MENDERS, HOSE	TOOL, BRUSHING for Vacuum cleaner
DIES, KNOCKOUT	MIRROR, INSPECTION	TOOL, CREVICE, 15" for Vacuum
DIES, PIPE – for Hand Threaders Only	MOP	TOOL, MAJOR FLOOR, 14"
DIES, TMB – 8, Compression Tools	NAILS	TOOL STEEL
DIPPERS	NIPPLES, HOSE	TOWEL – Paper
DISC, GRINDING	NOZZLE, WATER	TORCH, HEATING
DISINFECTANT	NUT RUNNER	TORCH, CUTTING
DISPENSER, PAPER CUP	NUT SETTER	TROWEL, HAND
DRESSING, BELT	OFFICE SUPPLIES	TRUNBUCKLES
DRILL BIT – Small Hand Tool, All Types	OIL - all types	TURPENTINE
EDGER, CONCRETE HAND	PACKING MATERIAL	TWINE
ELECTRODE HOLDERS		VISQUEEN – Non-reinforced

3. SMALL TOOLS

ADAPTER - hose, pipe thread	DOOR HANGING KIT	MOVER - freight car, hand	SOLDERING IRON
ADZE	DRESSER - grinding wheel	NAILER, AIR	SPADE
ANVIL	DRILL - all types: hand, electric,	NIBBLER, SHEET METAL	SPEED, PORTABLE
APRON	pneumatic	NIPPER	SPIKE- marlin
ARBOUR	DRILL PRESS	NOTCHER, PIPE	SPRAYER, ORCHARD
AUGER, GASOLINE (Post Hole Digger)	DRILL STAND - bench	NOZZLE - hose, weld	SPREADER, FLANGE
AWL	DYNAMOMETER	NUT - die, driver	SQUARE- combination, framing, etc.
AXE	ELCOMETER - paint thickness gauge	OILER - can, hand	SQUEEGEE
BABBITT	EMBOSSER, TAPE, HAND	OVEN - welding rod	STAND, DRILL
BANDING MACHINE – Hand Type	ETCHER, ELECTRIC	PAIL	STAND, GRINDER
BAR- claw, crow, pinch, etc.	EXPANDER- tube	PEDESTAL, GRINDER	STAND, PIPE
BARREL- trash	EXTENSION, SOCKET SET	PIN, BARREL	STAND, REEL, TELESCOPING SCREW
BASE, MAGNETIC/DAILY TEST	EXTENSION CORD	PIN, BULL	STAPLE- tacker
INDICATOR	EXTRACTOR - pipe & screw	PIN, DRAFT	STAPLER, ELECTRIC OR HAND
BELT- safety w/strap	FAN - electric	PINCER	STAR DRILL
BENDER - hydraulic, manual	FILE - hand	PLANE – wood	STEAM HEATER
BENDER, CABLE	FLARING TOOL	PLANE, BENCH JACK	STENCIL- steel, brass, paper
BENDER, PIPE	FLASHLIGHT - c/w bulb & batteries	PLANE, BLOCK	STONE - OIL
BENDER, TUBING	FLATTER - blacksmith	PLANE, ELECTRIC	STRAIGHT EDGE
BENDER, LOAD	FLOAT, CONCRETE – Hand Only	PLANE, VERSI	STRAINER- air line
BEVEL	FORGE - blacksmith	PLANNER, POWER BLOCK – Electric HD	STRAPPER
BEVELLER - load	FORK - barn	PLIERS – all types	STRIPPER- wire
BINDER - load	FULLER - blacksmith	PLUMB BOB	SUPPORT, PIPE – Roller type
BIT - auger, carpenter	FURNACE, PROPANE – Melting	POINT - trammel	SWEDGING TOOL KIT
BLOCK - chain, rope, cable, etc.	GAD	POLE - pike, range	SWIVEL
BLOCKS, WOOD	GAUGE- drill, feeler, wire thickness,	POT - melting, fire, welding rod, lead	TACHOMETER
BLOCKS, METAL – Snatch	tire, etc.	POUCH - tool	TAMPER- hand, pneumatic
BLOWER – Pneumatic Powered	GRINDER- electric, pneumatic	PRESTOLITE OUTFIT	TANK, LP – 20# only
BOB, PLUMB	GRAB, PIPE OF 20"	PROTRACTOR	TAP- bolt, pipe, wrench
BOSUN CHAIRS	GRINDER, ELECTRIC	PULLER, FUSE SAFETY	TAPE- steel measuring
BOX - tool box or tool bag	GRIP- cable	PULLER, WHEEL GEAR	TAPEWRITER, EMBOSSING –
BOX, GANG (Craft Storage)	GROOVING, TOOL	PULLER- nail, wire, spike road	Hand type
BRACE - ratchet	GUN- grease caulking, paint, heat	PULLEY, CABLE	TAPPER
BROOMS	(115V), pop rivet, powder actuated,	PULLEY, WELL	TELEPHONE- hand set, electrician's
BURNER, WEED	soldering	PUMP- hand, barrel, sump, test	testing
CABLE - welding, electrode, ground,	HACKSAW, POWER	PUNCH- center, back out, arch,	TEMPLATE, HINGE-BUTT
etc.	HAMMERS - all types: pneumatic, hand	knockout, hob, gasket, sheet metal,	TESTER- battery, hardness, antifreeze,
CALLIPERS	HANDLES - all types	stud, etc.	circuit, insulation, motor rotation, etc.
CANS	HATCHET & HANDLE - for hand	RADIO- portable, 2 way, intercom	THIMBLE- pipe

CART - concrete
 CART, WELDING BOTTLE 2
 CASTERS
 CAULKING TOOL - yarning iron
 CENTER FINDER SET - Wiggler
 CHAIN - surveyor, measuring, steel loading
 CHAIR, BOSUN'S
 CHARGER - battery
 CHUCK - taper, drill
 CLAMP - pipe, aligning, saw, carpenter, etc.
 CLIMBER – Adjustable w/Pad and Straps
 CLIPPER - bolt
 COOLER - drinking water
 COMBINATION SETS – 6” to 18”
 CONNECTOR - welding, cable
 CONVEYOR - gravity, roller
 CORD - electric extension
 COUPLING - hose
 CREEPER, FLOOR
 CRIMPER, BAND
 CRIMPER - electrician's
 CRIMPING TOOL - Wire
 CUTTER - bar, wire, pipe-hand, pipe-geared, gasket, etc.
 CYLINDER, HYDRAULIC – for Porta Powers
 DIE- pipe, bolt, c/w head, stock
 DIGGER - hand, pneumatic
 DIVIDER – wing
 DIVIDER, SPRING TYPE
 DOLLY, BARREL
 DOLLY, BEAM
 DOLLY, CATERPILLAR
 DOLLY, MACHINE
 DOLLY, PIPE
 DOLLY, PRY
 DOLLY, WAREHOUSE
 DOLLY BAR - pivot

threader sets
 HATCHET, WRENCH
 HEATER - portable: fuel, electric (115V), LP, Kerosene
 HOD - brick, mortar
 HOE
 HOIST - portable, all types
 HOOD - welding, sandblasting
 HOOK - packing, eye, cant, lug, etc.
 HORSES - mason, saw
 INDICATOR - dial, test
 IRON - tire
 JACK - flange, hydraulic, mechanical, screw
 JIG - weld coupon bending test
 KEY - welding, gas tank
 KNIFE - draw, putty
 KNOCKOUT, HAND
 LADDER - steel, extension, etc.
 LADLE - melting, lead
 LANTERNS - all types
 LEAD JOINT RUNNER
 LEVEL - hand, line, etc.
 LIGHT - portable, flood, drop
 LINE - mason, chalk
 LUBRICATOR - air line
 MALLET
 MANDREL - all types
 MARKER, LIME, ROLLING
 MATTOCK
 MAUL
 MEGGER METER
 METER - vibration
 METER, AMP – Clamp-on w/Case
 METER, MILLIVOLT
 METER, MOISTURE
 METER, VOLT
 MICROMETER
 MIRROR, INSEPTION
 MITER BOX – Electric or hand
 MORTISER, LOCK - Electric

RASP
 REAMER- pipe, bridge burring, etc.
 REAMER, INNER, OUTER – for copper tubing
 REAMER, SPIRAL – Pipe only
 REAMER, STRAIGHT – Pipe only
 REEL, TIE WIRE
 REGULATOR- welding gas
 RESPIRATOR- dusts c/w refill
 RIGGERS ROPE- manila, wire
 RIVERTER, HAND
 ROLLER, PIPE
 ROLLER, paint
 ROUTER, ELECTRIC
 RULES- all types
 RUSH DRILL
 SANDER- disc, belt
 SAW - portable, all types: hand, power
 SCALER, NEEDLE
 SCRAPER- bearing, miscellaneous
 SCREW STOP
 SCREW PLANE (set)
 SCRIBER SET- nail, rivet
 SHARPENER, DRILL BIT
 SHEAR- bar, tinnern
 SHEAR, ANGLE IRON
 SHEARS, ELECTRIC, HAND
 SHEARS, TRIMMING, ROTARY
 SHEAVES, CABLE, TRAY METAL
 SHEETING- plastic, paper
 SHIELD- face
 SHOVEL
 SIREN, ELECTRIC
 SLEEVE- morse, taper, shank
 SLING- canvas, pipe, wire, rope, nylon
 SNIP- tinner
 SNIPS, AVIATION, HAND
 SNIPS, METAL CUT, HAND
 SNIPS, TRIM HAND
 SOCKET for hand tools only
 SOCKET SET

THREADER- pipe chain, etc.
 TONGS, BRICK CARRIER
 TONGS, CHAIN
 TONGS, PIPE
 TONGS, SHEET METAL
 TONG- blacksmith, pipe,
 TOOL, FLARING
 TOOL, PICK UP, MAG
 TOOL, SOIL PIPE ASSEMBLY
 TOOL- clamping (hose)
 TOOLS- cement worker
 TORCH- blow, soldering
 Cutting, propane, acetylene, prestolite
 TRANSFORMER- dry type
 TROLLEY
 TROWEL
 TRUCK- hand
 TURNBUCKLE
 TWISTER- wire
 UMBRELLA
 UNIVERSAL – for socket sets
 VACUUM CLEANER, HD
 VIBRATOR, CONCRETE- pneumatic, Electric
 VISE, MACHINIST
 VISE, PIPE
 WEDGE
 WELDING TOOLS
 WELDING & CUTTING OUTFIT (Oxy/Acetelyne)
 WHEEL- grinding
 WHEELBARROW
 WINCH- hand
 WRENCHES- all types

This Appendix C – Attachment 1 details the rates identified in the Personnel Rate Schedule for Access Road Survey Crew and ROW Survey Crew



HVDC Transmission Line

Flagging Survey Procedure

Prepared for



July 30, 2014



1.0 Introduction

The purpose of this document is to outline the survey plan for the flagging of the right-of-way boundaries and the access roads for the HVDC transmission line while clearly outlining the daily charge out rates.

2.0 Access Road Flagging

Field crews surveying the access roads will work with the Valard Construction right-of-way group to scout and select suitable terrain for the access road construction.

The survey of the access roads will be conducted with a hand held GPS and the center line of the access road will be flagged with orange flagging. The flagging is to be inter-visible and hung as high as possible on the side of the trees most visible to construction crews.

3.0 Access Road Daily Rates

The daily rate per survey crew for the access road survey based on a 10 hour day is **\$2100** excluding applicable taxes.

This daily rate includes the following:

- 2-man experienced survey crew complete with all safety tickets
- Hand held GPS, laptops, ipads, cell phones, satellite phones, cell boosters, etc.
- 4 x 4 truck with fuel and maintenance included
- Geomatics Technician support (gpx file creation, shape file plotting, Quality Control and GIS production tracking) – includes ArcGIS and Trimble Business Centre software
- Project Management and supervision including occasional site trips (the Project Manager is a Commissioned Land Surveyor)



- Chainsaw and fuel
- Safety plan with emergency supply kits, fire extinguishers and GPS tracking devices, survey vests and all PPE.
- GNSS RTK rover with Virtual Base System (VBS) option
- Supplies include lath, flagging, spray paint, concrete nails, water proof field note paper, custom note templates, pens, etc.
- Rock drill and attachment pieces
- Shovel, hatchets, sledgehammer, compass, measuring tapes, pull chains, etc.
- Skids to pull the gear into the bush as well as compact backpacks
- All equipment calibrations, extra batteries and maintenance included
- Access maps and any other information crews require to navigate

This daily rate excludes UTV's, ATV's, and snowmobiles. Units will be completely outfitted for survey needs. This includes winches, racks for the survey gear, tie down mechanisms, zodiac rack, skid plates, extra wheels, tracks, etc.

In areas where it is requested we have units on site for use, the units will be charged out at the following rate only when taken off the trailer used:

2 ATV's/ 2 sled's/ 1 UTV daily rate: **\$310** excluding applicable taxes

The daily rate covers training, safety, operating costs and maintenance.

In areas where flagging is anticipated by foot only, units will be sent to site upon request as deemed necessary. Mobilization and transport will be arranged once they are deemed necessary for use. The equipment will not be available onsite on standby.

All accommodation and subsistence costs are extra and are excluded from the daily rate. Flight travel costs are additional.

Helicopter use and costs are excluded from the daily rate and will be additional, if required.



4.0 Right-of-Way Flagging

Field crews surveying the right-of-way boundaries will utilize Trimble R10 RTK GNSS systems to achieve +/- 1 meter accuracy or less to flag the boundaries based on a provided staking alignment file.

The survey crews will stay directly in front of clearing crews for safety purposes but will stay far enough to ensure clearing production is not delayed.

The right-of-way boundary will be marked with pink flagging and all flagging will be inter-visible. The flagging is to be inter-visible and hung as high as possible on the side of the trees most visible to construction crews.

In areas where trees are not present, the boundary will be marked with either lath, spray paint, concrete nails pounded into the rock, drill marks or any combination of these methods to ensure the boundary is clearly visible.

Each GNSS base position will collect static data observations for the day and will be post-processed using the NRCAN Precise Point Positioning service using the rapid ephemerides data (next day), rechecked using the final ephemerides data (14 days) and running a least squares adjustment to prepare a project control file.

Redundant checks will be performed daily to a minimum of two established published control points using a combination of GNSS static observations (observations will consist of a GNSS base unit on the point to be verified and the second GNSS base unit on a known point) and GNSS RTK (observations will consist of two measurements of the control point with a minimum of 60 observed positions at a minimum of 1 second intervals and a minimum of 20 minutes between each measurement to check satellite geometry).

Multiple GNSS base stations will be utilized to expedite the establishment of site control.



5.0 Right-of-Way Daily Rates

The daily rate per survey crew for the access road survey based on a 10 hour day is **\$2300** excluding applicable taxes.

This daily rate includes the following:

- 2-man experienced survey crew complete with all safety tickets
- Hand held GPS, laptops, ipads, cell phones, satellite phones, cell boosters, etc.
- 4 x 4 truck with fuel and maintenance included
- Geomatics Technician support (data processing, shape file plotting GIS production tracking, Quality Control) – includes ArcGIS and Trimble Business Centre software
- Project Management and supervision including occasional site trips (the Project Manager is a Commissioned Land Surveyor)
- Chainsaw and fuel
- Safety plan with emergency supply kits, fire extinguishers and GPS tracking devices, survey vests and all PPE.
- GNSS RTK rover with Virtual Base System (VBS) option
- GNSS Base station system (2) base stations per survey crew)
- GNSS signal repeater
- Tripods, cables, spare batteries, prisms, range poles, tribrachs, plum bobs, etc.
- Total Station
- Supplies include lath, flagging, spray paint, concrete nails, water proof field note paper, custom note templates, pens, etc.
- Rock drill and attachment pieces
- Shovel, hatchets, sledgehammer, measuring tapes, compass, pull chains, etc.
- Skids to pull the gear into the bush as well as compact backpacks
- All equipment calibrations, extra batteries and maintenance included
- Access maps and any other information crews require to navigate



This daily rate excludes UTV's, ATV's, and snowmobiles. Units will be completely outfitted for survey needs. This includes winches, racks for the survey gear, tie down mechanisms, zodiac rack, skid plates, extra wheels, tracks, etc.

In areas where it is requested we have units on site for use, the units will be charged out at the following rate only when taken off the trailer used:

2 ATV's/ 2 sled's/ 1 UTV daily rate: **\$310** excluding applicable taxes

The daily rate covers training, safety, operating costs and maintenance.

In areas where flagging is anticipated by foot only, units will be sent to site upon request as deemed necessary. Mobilization and transport will be arranged once they are deemed necessary for use. The equipment will not be available onsite on standby.

All accommodation and subsistence costs are extra and are excluded from the daily rate. Flight travel costs are additional.

Helicopter use and costs are excluded from the daily rate and will be additional, if required.

6.0 Exclusions and Assumptions

The following assumptions/exclusions have been made:

1. We will be provided with a right-of-way boundary alignment file to use for flagging. We will not perform a legal boundary survey unless requested. This would require legal survey pricing and is considered out of scope and excluded from the daily rate.
2. The current published control file established thus far will be provided to us.



-
3. It is assumed no maps or plans will be required unless requested. This will require additional pricing and is considered out of scope and excluded from the daily rate.
 4. All over time over the 10 hours per day, if needed, will be charged at \$210/hour exclusive for the access road flagging and \$230/hour for the right-of-way flagging.
 5. Rates are subject to an annual increase of 5%.
 6. Invoices will be sent out on a monthly basis and payment is expected within 30 days of receipt. Invoices will be issued the first week of each month for the past months work.

Exhibit 2 – Appendix D
Equipment Rate Schedule
Agreement Number CT0327-001

EQUIPMENT RATE SCHEDULE

**CLEARING AND ACCESS
EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2014**

CLEARING AND ACCESS EQUIPMENT RATE SCHEDULE FOR 2014

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$ CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$23.65	\$260.15	\$1,821.05	\$7,095.00	\$23.65	\$260.15	\$1,821.05	\$7,095.00
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$28.35	\$311.85	\$2,182.95	\$8,505.00	\$28.35	\$311.85	\$2,182.95	\$8,505.00
Excavators with bucket / thumb	JD 290	30T	Varies	7	\$138.86	Hourly	Hourly	Hourly	\$138.86	Hourly	Hourly	Hourly
Excavators with bucket and thumb	JD 350	35T	Varies	5	\$154.29	Hourly	Hourly	Hourly	\$154.29	Hourly	Hourly	Hourly
Tracked Dozer	JD 750	230HP	Varies	2	\$163.71	Hourly	Hourly	Hourly	\$163.71	Hourly	Hourly	Hourly
Tracked Dozer	JD 850	200Hp	Varies	2	\$171.90	Hourly	Hourly	Hourly	\$171.90	Hourly	Hourly	Hourly
Skidder	JD 748	32T	Varies	1	\$146.57	Hourly	Hourly	Hourly	\$146.57	Hourly	Hourly	Hourly
Rock trucks.	30-32T	120'	Varies	2	\$192.86	Hourly	Hourly	Hourly	\$192.86	Hourly	Hourly	Hourly
Rock drills.	Traxon	80'	Varies	2	\$101.83	Hourly	Hourly	Hourly	\$101.83	Hourly	Hourly	Hourly
Graders.	Various	14'	Varies	2	\$138.86	Hourly	Hourly	Hourly	\$138.86	Hourly	Hourly	Hourly
Water truck	Various	65	Varies	3	\$55.71	Hourly	Hourly	Hourly	\$55.71	Hourly	Hourly	Hourly
Water pump	Various	35	Varies		\$30.00	Hourly	Hourly	Hourly	\$30.00	Hourly	Hourly	Hourly
Utility trailers.	Various	20	Varies	5	\$17.14	Hourly	Hourly	Hourly	\$17.14	Hourly	Hourly	Hourly
Side by Side ATV	Various		Varies	10	\$21.43	Hourly	Hourly	Hourly	\$21.43	Hourly	Hourly	Hourly
53' Tridem trailer	Various	53'	Varies	4	\$11.71	Hourly	Hourly	Hourly	\$11.71	Hourly	Hourly	Hourly
T/A Gravel Truck	Various	10yd	Varies	1	\$80.19	Hourly	Hourly	Hourly	\$80.19	Hourly	Hourly	Hourly
Tractor Trailer/Picker	Various	40T	Varies	4	\$133.14	Hourly	Hourly	Hourly	\$133.14	Hourly	Hourly	Hourly
Mobile Treatment Centre	Various		Varies	4	\$32.35	Hourly	Hourly	Hourly	\$32.35	Hourly	Hourly	Hourly
Loader	John Deere 544		Varies	3	\$67.25	Hourly	Hourly	Hourly	\$67.25	Hourly	Hourly	Hourly
UTV (Side by Side) for Survey Crew per attached	Various	2 person	Varies	10	N/A	\$310.00	N/A	N/A	N/A	N/A	N/A	N/A
2xSled or 2xATV for Survey Crew per attached	Various	1 person	Varies	10	N/A	\$310.00	N/A	N/A	N/A	N/A	N/A	N/A

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The rates include labour and equipment for fuelling, lubricating, servicing, maintaining, repairing, spare parts and installation.
3. The rates exclude operator's labour costs.
4. Rates are applicable only to actual operating time.
5. For any equipment not listed, rental rates will be agreed to in writing by Company prior to the deployment and use of such equipment. Equipment rented or leased from a third party shall be compensated at actual documented invoice cost. Third party leasing shall be subject to the Approval of Company in advance of the deployment and use of such equipment. In the event of third party leased equipment requires operation and maintenance, then the appropriate rate for same shall be subject to the Approval of Company in advance of the deployment and use of such equipment.
6. If Approved by Company, the time required to mobilize and demobilize equipment not located at the Site and which is to be deployed at the Site on Change Order Work will be compensated. Compensation will include loading and transportation costs where this is more efficient than transporting the equipment. The cost of demobilizing the equipment will not be compensated if such equipment is used at the Site on lump sum or Unit Price Work.

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.

**CLEARING AND ACCESS
EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2015**

EQUIPMENT RATE SCHEDULE 2015

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.00	\$264.05	\$1,848.37	\$7,201.43	\$24.00	\$264.05	\$1,848.37	\$7,201.43
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$28.78	\$316.53	\$2,215.69	\$8,632.58	\$28.78	\$316.53	\$2,215.69	\$8,632.58
Excavators with bucket / thumb	JD 290	30T	Varies	7	\$140.94	Hourly	Hourly	Hourly	\$140.94	Hourly	Hourly	Hourly
Excavators with bucket and thumb	JD 350	35T	Varies	5	\$156.60	Hourly	Hourly	Hourly	\$156.60	Hourly	Hourly	Hourly
Tracked Dozer	JD 750	230HP	Varies	2	\$166.17	Hourly	Hourly	Hourly	\$166.17	Hourly	Hourly	Hourly
Tracked Dozer	JD 850	200Hp	Varies	2	\$174.48	Hourly	Hourly	Hourly	\$174.48	Hourly	Hourly	Hourly
Skidder	JD 748	32T	Varies	1	\$148.77	Hourly	Hourly	Hourly	\$148.77	Hourly	Hourly	Hourly
Rock trucks.	30-32T	120'	Varies	2	\$195.75	Hourly	Hourly	Hourly	\$195.75	Hourly	Hourly	Hourly
Rock drills.	Traxon	80'	Varies	2	\$103.36	Hourly	Hourly	Hourly	\$103.36	Hourly	Hourly	Hourly
Graders.	Various	14'	Varies	2	\$140.94	Hourly	Hourly	Hourly	\$140.94	Hourly	Hourly	Hourly
Water truck	Various	65	Varies	3	\$56.55	Hourly	Hourly	Hourly	\$56.55	Hourly	Hourly	Hourly
Water pump	Various	35	Varies		\$30.45	Hourly	Hourly	Hourly	\$30.45	Hourly	Hourly	Hourly
Utility trailers.	Various	20	Varies	5	\$17.40	Hourly	Hourly	Hourly	\$17.40	Hourly	Hourly	Hourly
Side by Side ATV	Various		Varies	10	\$21.75	Hourly	Hourly	Hourly	\$21.75	Hourly	Hourly	Hourly
53' Tridem trailer	Various	53'	Varies	4	\$11.88	Hourly	Hourly	Hourly	\$11.88	Hourly	Hourly	Hourly
T/A Gravel Truck	Various	10yd	Varies	1	\$81.40	Hourly	Hourly	Hourly	\$81.40	Hourly	Hourly	Hourly
Tractor Trailer/Picker	Various	40T	Varies	4	\$135.14	Hourly	Hourly	Hourly	\$135.14	Hourly	Hourly	Hourly
Mobile Treatment Centre	Various		Varies	4	\$32.84	Hourly	Hourly	Hourly	\$32.35	Hourly	Hourly	Hourly
Loader	John Deere 544		Varies	3	\$68.26	Hourly	Hourly	Hourly	\$67.25	Hourly	Hourly	Hourly
UTV (Side by Side) for Survey Crew per attached	Various	2 person	Varies	10	N/A	\$325.50	N/A	N/A	N/A	N/A	N/A	N/A
2xSled or 2xATV for Survey Crew per attached	Various	1 person	Varies	10	N/A	\$325.50	N/A	N/A	N/A	N/A	N/A	N/A

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The rates include labour and equipment for fuelling, lubricating, servicing, maintaining, repairing, spare parts and installation.
3. The rates exclude operator's labour costs.
4. Rates are applicable only to actual operating time.
5. For any equipment not listed, rental rates will be agreed to in writing by Company prior to the deployment and use of such equipment. Equipment rented or leased from a third party shall be compensated at actual documented invoice cost. Third party leasing shall be subject to the Approval of Company in advance of the deployment and use of such equipment. In the event of third party leased equipment requires operation and maintenance, then the appropriate rate for same shall be subject to the Approval of Company in advance of the deployment and use of such equipment.
6. If Approved by Company, the time required to mobilize and demobilize equipment not located at the Site and which is to be deployed at the Site on Change Order Work will be compensated. Compensation will include loading and transportation costs where this is more efficient than transporting the equipment. The cost of demobilizing the equipment will not be compensated if such equipment is used at the Site on lump sum or Unit Price Work.

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.

**CLEARING AND ACCESS
EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2016**

EQUIPMENT RATE SCHEDULE 2016

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.36	\$268.01	\$1,876.09	\$7,309.45	\$24.36	\$268.01	\$1,876.09	\$7,309.45
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$29.21	\$321.28	\$2,248.93	\$8,762.06	\$29.21	\$321.28	\$2,248.93	\$8,762.06
Excavators with bucket / thumb	JD 290	30T	Varies	7	\$143.05	Hourly	Hourly	Hourly	\$143.05	Hourly	Hourly	Hourly
Excavators with bucket and thumb	JD 350	35T	Varies	5	\$158.95	Hourly	Hourly	Hourly	\$158.95	Hourly	Hourly	Hourly
Tracked Dozer	JD 750	230HP	Varies	2	\$168.66	Hourly	Hourly	Hourly	\$168.66	Hourly	Hourly	Hourly
Tracked Dozer	JD 850	200Hp	Varies	2	\$177.10	Hourly	Hourly	Hourly	\$177.10	Hourly	Hourly	Hourly
Skidder	JD 748	32T	Varies	1	\$151.00	Hourly	Hourly	Hourly	\$151.00	Hourly	Hourly	Hourly
Rock trucks.	30-32T	120'	Varies	2	\$198.69	Hourly	Hourly	Hourly	\$198.69	Hourly	Hourly	Hourly
Rock drills.	Traxon	80'	Varies	2	\$104.91	Hourly	Hourly	Hourly	\$104.91	Hourly	Hourly	Hourly
Graders.	Various	14'	Varies	2	\$143.05	Hourly	Hourly	Hourly	\$143.05	Hourly	Hourly	Hourly
Water truck	Various	65	Varies	3	\$57.40	Hourly	Hourly	Hourly	\$57.40	Hourly	Hourly	Hourly
Water pump	Various	35	Varies		\$30.91	Hourly	Hourly	Hourly	\$30.91	Hourly	Hourly	Hourly
Utility trailers.	Various	20	Varies	5	\$17.66	Hourly	Hourly	Hourly	\$17.66	Hourly	Hourly	Hourly
Side by Side ATV	Various		Varies	10	\$22.08	Hourly	Hourly	Hourly	\$22.08	Hourly	Hourly	Hourly
53' Tridem trailer	Various	53'	Varies	4	\$12.06	Hourly	Hourly	Hourly	\$12.06	Hourly	Hourly	Hourly
T/A Gravel Truck	Various	10yd	Varies	1	\$82.62	Hourly	Hourly	Hourly	\$82.62	Hourly	Hourly	Hourly
Tractor Trailer/Picker	Various	40T	Varies	4	\$137.16	Hourly	Hourly	Hourly	\$137.16	Hourly	Hourly	Hourly
Mobile Treatment Centre	Various		Varies	4	\$33.33	Hourly	Hourly	Hourly	\$32.35	Hourly	Hourly	Hourly
Loader	John Deere 544		Varies	3	\$69.28	Hourly	Hourly	Hourly	\$67.25	Hourly	Hourly	Hourly
UTV (Side by Side) for Survey Crew per attached	Various	2 person	Varies	10	N/A	\$341.78	N/A	N/A	N/A	N/A	N/A	N/A
2xSled or 2xATV for Survey Crew per attached	Various	1 person	Varies	10	N/A	\$341.78	N/A	N/A	N/A	N/A	N/A	N/A

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The rates include labour and equipment for fuelling, lubricating, servicing, maintaining, repairing, spare parts and installation.
3. The rates exclude operator's labour costs.
4. Rates are applicable only to actual operating time.
5. For any equipment not listed, rental rates will be agreed to in writing by Company prior to the deployment and use of such equipment. Equipment rented or leased from a third party shall be compensated at actual documented invoice cost. Third party leasing shall be subject to the Approval of Company in advance of the deployment and use of such equipment. In the event of third party leased equipment requires operation and maintenance, then the appropriate rate for same shall be subject to the Approval of Company in advance of the deployment and use of such equipment.
6. If Approved by Company, the time required to mobilize and demobilize equipment not located at the Site and which is to be deployed at the Site on Change Order Work will be compensated. Compensation will include loading and transportation costs where this is more efficient than transporting the equipment. The cost of demobilizing the equipment will not be compensated if such equipment is used at the Site on lump sum or Unit Price Work.

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.

**CLEARING AND ACCESS
EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2017**

EQUIPMENT RATE SCHEDULE 2017

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.73	\$272.03	\$1,904.23	\$7,419.09	\$24.73	\$272.03	\$1,904.23	\$7,419.09
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$29.64	\$326.09	\$2,282.66	\$8,893.49	\$29.64	\$326.09	\$2,282.66	\$8,893.49
Excavators with bucket / thumb	JD 290	30T	Varies	7	\$145.20	Hourly	Hourly	Hourly	\$145.20	Hourly	Hourly	Hourly
Excavators with bucket and thumb	JD 350	35T	Varies	5	\$161.33	Hourly	Hourly	Hourly	\$161.33	Hourly	Hourly	Hourly
Tracked Dozer	JD 750	230HP	Varies	2	\$171.19	Hourly	Hourly	Hourly	\$171.19	Hourly	Hourly	Hourly
Tracked Dozer	JD 850	200Hp	Varies	2	\$179.75	Hourly	Hourly	Hourly	\$179.75	Hourly	Hourly	Hourly
Skidder	JD 748	32T	Varies	1	\$153.27	Hourly	Hourly	Hourly	\$153.27	Hourly	Hourly	Hourly
Rock trucks.	30-32T	120'	Varies	2	\$201.67	Hourly	Hourly	Hourly	\$201.67	Hourly	Hourly	Hourly
Rock drills.	Traxon	80'	Varies	2	\$106.48	Hourly	Hourly	Hourly	\$106.48	Hourly	Hourly	Hourly
Graders.	Various	14'	Varies	2	\$145.20	Hourly	Hourly	Hourly	\$145.20	Hourly	Hourly	Hourly
Water truck	Various	65	Varies	3	\$58.26	Hourly	Hourly	Hourly	\$58.26	Hourly	Hourly	Hourly
Water pump	Various	35	Varies		\$31.37	Hourly	Hourly	Hourly	\$31.37	Hourly	Hourly	Hourly
Utility trailers.	Various	20	Varies	5	\$17.93	Hourly	Hourly	Hourly	\$17.93	Hourly	Hourly	Hourly
Side by Side ATV	Various		Varies	10	\$22.41	Hourly	Hourly	Hourly	\$22.41	Hourly	Hourly	Hourly
53' Tridem trailer	Various	53'	Varies	4	\$12.24	Hourly	Hourly	Hourly	\$12.24	Hourly	Hourly	Hourly
T/A Gravel Truck	Various	10yd	Varies	1	\$83.86	Hourly	Hourly	Hourly	\$83.86	Hourly	Hourly	Hourly
Tractor Trailer/Picker	Various	40T	Varies	4	\$139.22	Hourly	Hourly	Hourly	\$139.22	Hourly	Hourly	Hourly
Mobile Treatment Centre	Various		Varies	4	\$33.83	Hourly	Hourly	Hourly	\$32.35	Hourly	Hourly	Hourly
Loader	John Deere 544		Varies	3	\$70.32	Hourly	Hourly	Hourly	\$67.25	Hourly	Hourly	Hourly
UTV (Side by Side) for Survey Crew per attached	Various	2 person	Varies	10	N/A	\$358.87	N/A	N/A	N/A	N/A	N/A	N/A
2xSled or 2xATV for Survey Crew per attached	Various	1 person	Varies	10	N/A	\$358.87	N/A	N/A	N/A	N/A	N/A	N/A

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
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STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.

**EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2014**

350KV HVDC LINE CONSTRUCTION

EQUIPMENT RATE SCHEDULE FOR 2014

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$23.65	\$260.00	\$1,800.00	\$7,900.00	\$23.65	\$260.00	\$1,800.00	\$7,900.00
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$28.35	\$310.00	\$2,200.00	\$9,500.00	\$28.35	\$310.00	\$2,200.00	\$9,500.00
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$132.30	\$1,450.00	\$10,200.00	\$44,300.00	\$132.30	\$1,450.00	\$10,200.00	\$44,300.00
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$157.50	\$1,730.00	\$12,100.00	\$52,700.00	\$157.50	\$1,730.00	\$12,100.00	\$52,700.00
40T RT Crane	Various	40T	Varies	2	\$200.00	\$2,200.00	\$15,400.00	\$66,900.00	\$200.00	\$2,200.00	\$15,400.00	\$66,900.00
Digger - TelElect 5052	Various	5052	Varies	2	\$86.80	\$950.00	\$6,700.00	\$29,000.00	\$86.80	\$950.00	\$6,700.00	\$29,000.00
200T All-Tr. crane	Liebherr	200T	Varies	1	\$444.16	\$4,880.00	\$34,200.00	\$148,600.00	\$444.16	\$4,880.00	\$34,200.00	\$148,600.00
120' Gene Lift	Gene	120'	Varies	2	\$85.00	\$930.00	\$6,500.00	\$28,400.00	\$85.00	\$930.00	\$6,500.00	\$28,400.00
53' Tridem trailer	Various	53'	Varies	4	\$11.50	\$130.00	\$900.00	\$3,800.00	\$11.50	\$130.00	\$900.00	\$3,800.00
T/A Gravel Truck	Various	10yd	Varies	1	\$78.75	\$870.00	\$6,100.00	\$26,300.00	\$78.75	\$870.00	\$6,100.00	\$26,300.00
Tractor Trailer/Picker	Various	40T	Varies	4	\$130.75	\$1,440.00	\$10,100.00	\$43,700.00	\$130.75	\$1,440.00	\$10,100.00	\$43,700.00
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$130.75	\$1,440.00	\$10,100.00	\$43,700.00	\$130.75	\$1,440.00	\$10,100.00	\$43,700.00
Crawler Tractors 750 JD	JD 750		Varies	3	\$161.00	\$1,770.00	\$12,400.00	\$53,900.00	\$161.00	\$1,770.00	\$12,400.00	\$53,900.00
JD 554 Loader	JD 554		Varies	6	\$67.25	\$740.00	\$5,200.00	\$22,500.00	\$67.25	\$740.00	\$5,200.00	\$22,500.00
JD 200 Excavator	JD 200		Varies	3	\$126.80	\$1,390.00	\$9,800.00	\$42,400.00	\$126.80	\$1,390.00	\$9,800.00	\$42,400.00
Skid-Steer Loader	Various		Varies	2	\$37.00	\$410.00	\$2,800.00	\$12,400.00	\$37.00	\$410.00	\$2,800.00	\$12,400.00
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$221.60	\$2,440.00	\$17,100.00	\$74,100.00	\$221.60	\$2,440.00	\$17,100.00	\$74,100.00
10T Tele-Handler	Various	10T	Varies	6	\$51.46	\$570.00	\$4,000.00	\$17,200.00	\$51.46	\$570.00	\$4,000.00	\$17,200.00
Reel Trailer	Tmberland	3 Drum	Varies	2	\$70.00	\$770.00	\$5,400.00	\$23,400.00	\$70.00	\$770.00	\$5,400.00	\$23,400.00
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$125.00	\$1,370.00	\$9,600.00	\$41,800.00	\$125.00	\$1,370.00	\$9,600.00	\$41,800.00
Puller	Tmberland	20Kip	Varies	1	\$125.00	\$1,370.00	\$9,600.00	\$41,800.00	\$125.00	\$1,370.00	\$9,600.00	\$41,800.00

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
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6. If Approved by Company, the time required to mobilize and demobilize equipment not located at the Site and which is to be deployed at the Site on Change Order Work will be compensated. Compensation will include loading and transportation costs where this is more efficient than transporting the equipment. The cost of demobilizing the equipment will not be compensated if such equipment is used at the Site on lump sum or Unit Price Work.
7. Rates are applicable for 2014 only and are subject to yearly escalation.

EQUIPMENT STANDBY RATE SCHEDULE FOR 2014

Equipment	Manufacturer and Model Number	Size	Year	Quantity Available	Hour \$CDN	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$11.83	\$130.00	\$900.00	\$4,000.00
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$14.18	\$160.00	\$1,100.00	\$4,700.00
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$66.15	\$730.00	\$5,100.00	\$22,100.00
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$78.75	\$870.00	\$6,100.00	\$26,300.00
40T RT Crane	Various	40T	Varies	2	\$100.00	\$1,100.00	\$7,700.00	\$33,500.00
Digger - TelElect 5052	Various	5052	Varies	2	\$43.40	\$480.00	\$3,300.00	\$14,500.00
200T All-Tr. crane	Liebherr	200T	Varies	1	\$222.08	\$2,440.00	\$17,100.00	\$74,300.00
120' Gene Lift	Gene	120'	Varies	2	\$42.50	\$470.00	\$3,300.00	\$14,200.00
53' Tridem trailer	Various	53'	Varies	4	\$5.75	\$60.00	\$400.00	\$1,900.00
T/A Gravel Truck	Various	10yd	Varies	1	\$39.38	\$430.00	\$3,000.00	\$13,200.00
Tractor Trailer/Picker	Various	40T	Varies	4	\$65.38	\$720.00	\$5,000.00	\$21,900.00
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$65.38	\$720.00	\$5,000.00	\$21,900.00
Crawler Tractors 750 JD	JD 750		Varies	3	\$80.50	\$890.00	\$6,200.00	\$26,900.00
JD 554 Loader	JD 554		Varies	6	\$33.63	\$370.00	\$2,600.00	\$11,300.00
JD 200 Excavator	JD 200		Varies	3	\$63.40	\$700.00	\$4,900.00	\$21,200.00
Skid-Steer Loader	Various		Varies	2	\$18.50	\$200.00	\$1,400.00	\$6,200.00
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$110.80	\$1,220.00	\$8,500.00	\$37,100.00
10T Tele-Handler	Various	10T	Varies	6	\$25.73	\$280.00	\$2,000.00	\$8,600.00
Reel Trailer	Tmberland	3 Drum	Varies	2	\$35.00	\$380.00	\$2,700.00	\$11,700.00
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$62.50	\$690.00	\$4,800.00	\$20,900.00
Puller	Tmberland	20Kip	Varies	1	\$62.50	\$690.00	\$4,800.00	\$20,900.00

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.
3. Rates are applicable for 2014 only and are subject to yearly escalation.

**EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2015**

350KV HVDC LINE CONSTRUCTION

EQUIPMENT RATE SCHEDULE FOR 2015

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.01	\$263.90	\$1,827.00	\$8,018.50	\$24.01	\$263.90	\$1,827.00	\$8,018.50
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$28.78	\$314.65	\$2,233.00	\$9,642.50	\$28.78	\$314.65	\$2,233.00	\$9,642.50
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$134.28	\$1,471.75	\$10,353.00	\$44,964.50	\$134.28	\$1,471.75	\$10,353.00	\$44,964.50
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$159.86	\$1,755.95	\$12,281.50	\$53,490.50	\$159.86	\$1,755.95	\$12,281.50	\$53,490.50
40T RT Crane	Various	40T	Varies	2	\$203.00	\$2,233.00	\$15,631.00	\$67,903.50	\$203.00	\$2,233.00	\$15,631.00	\$67,903.50
Digger - TelElect 5052	Various	5052	Varies	2	\$88.10	\$964.25	\$6,800.50	\$29,435.00	\$88.10	\$964.25	\$6,800.50	\$29,435.00
200T All-Tr. crane	Liebherr	200T	Varies	1	\$450.82	\$4,953.20	\$34,713.00	\$150,829.00	\$450.82	\$4,953.20	\$34,713.00	\$150,829.00
120' Gene Lift	Gene	120'	Varies	2	\$86.28	\$943.95	\$6,597.50	\$28,826.00	\$86.28	\$943.95	\$6,597.50	\$28,826.00
53' Tridem trailer	Various	53'	Varies	4	\$11.67	\$131.95	\$913.50	\$3,857.00	\$11.67	\$131.95	\$913.50	\$3,857.00
T/A Gravel Truck	Various	10yd	Varies	1	\$79.94	\$883.05	\$6,191.50	\$26,694.50	\$79.94	\$883.05	\$6,191.50	\$26,694.50
Tractor Trailer/Picker	Various	40T	Varies	4	\$132.71	\$1,461.60	\$10,251.50	\$44,355.50	\$132.71	\$1,461.60	\$10,251.50	\$44,355.50
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$132.71	\$1,461.60	\$10,251.50	\$44,355.50	\$132.71	\$1,461.60	\$10,251.50	\$44,355.50
Crawler Tractors 750 JD	JD 750		Varies	3	\$163.42	\$1,796.55	\$12,586.00	\$54,708.50	\$163.42	\$1,796.55	\$12,586.00	\$54,708.50
JD 554 Loader	JD 554		Varies	6	\$68.26	\$751.10	\$5,278.00	\$22,837.50	\$68.26	\$751.10	\$5,278.00	\$22,837.50
JD 200 Excavator	JD 200		Varies	3	\$128.70	\$1,410.85	\$9,947.00	\$43,036.00	\$128.70	\$1,410.85	\$9,947.00	\$43,036.00
Skid-Steer Loader	Various		Varies	2	\$37.56	\$416.15	\$2,842.00	\$12,586.00	\$37.56	\$416.15	\$2,842.00	\$12,586.00
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$224.92	\$2,476.60	\$17,356.50	\$75,211.50	\$224.92	\$2,476.60	\$17,356.50	\$75,211.50
10T Tele-Handler	Various	10T	Varies	6	\$52.23	\$578.55	\$4,060.00	\$17,458.00	\$52.23	\$578.55	\$4,060.00	\$17,458.00
Reel Trailer	Tmberland	3 Drum	Varies	2	\$71.05	\$781.55	\$5,481.00	\$23,751.00	\$71.05	\$781.55	\$5,481.00	\$23,751.00
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$126.88	\$1,390.55	\$9,744.00	\$42,427.00	\$126.88	\$1,390.55	\$9,744.00	\$42,427.00
Puller	Tmberland	20Kip	Varies	1	\$126.88	\$1,390.55	\$9,744.00	\$42,427.00	\$126.88	\$1,390.55	\$9,744.00	\$42,427.00

NOTES

1. The rates include, but are not limited to, the cost of equipment rental, fuel, lubricants, tires, expendable parts, service, maintenance, calibration, repairs, storage, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The rates include labour and equipment for fuelling, lubricating, servicing, maintaining, repairing, spare parts and installation.
3. The rates exclude operator's labour costs.
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6. If Approved by Company, the time required to mobilize and demobilize equipment not located at the Site and which is to be deployed at the Site on Change Order Work will be compensated. Compensation will include loading and transportation costs where this is more efficient than transporting the equipment. The cost of demobilizing the equipment will not be compensated if such equipment is used at the Site on lump sum or Unit Price Work.
7. Rates are applicable for 2015 only and are subject to yearly escalation.

EQUIPMENT STANDBY RATE SCHEDULE FOR 2015

Equipment	Manufacturer and Model Number	Size	Year	Quantity Available	Hour \$CDN	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$12.01	\$131.95	\$913.50	\$4,009.25
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$14.39	\$157.33	\$1,116.50	\$4,821.25
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$67.14	\$735.88	\$5,176.50	\$22,482.25
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$79.93	\$877.98	\$6,140.75	\$26,745.25
40T RT Crane	Various	40T	Varies	2	\$101.50	\$1,116.50	\$7,815.50	\$33,951.75
Digger - TelElect 5052	Various	5052	Varies	2	\$44.05	\$482.13	\$3,400.25	\$14,717.50
200T All-Tr. crane	Liebherr	200T	Varies	1	\$225.41	\$2,476.60	\$17,356.50	\$75,414.50
120' Gene Lift	Gene	120'	Varies	2	\$43.14	\$471.98	\$3,298.75	\$14,413.00
53' Tridem trailer	Various	53'	Varies	4	\$5.84	\$65.98	\$456.75	\$1,928.50
T/A Gravel Truck	Various	10yd	Varies	1	\$39.97	\$441.53	\$3,095.75	\$13,347.25
Tractor Trailer/Picker	Various	40T	Varies	4	\$66.36	\$730.80	\$5,125.75	\$22,177.75
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$66.36	\$730.80	\$5,125.75	\$22,177.75
Crawler Tractors 750 JD	JD 750		Varies	3	\$81.71	\$898.28	\$6,293.00	\$27,354.25
JD 554 Loader	JD 554		Varies	6	\$34.13	\$375.55	\$2,639.00	\$11,418.75
JD 200 Excavator	JD 200		Varies	3	\$64.35	\$705.43	\$4,973.50	\$21,518.00
Skid-Steer Loader	Various		Varies	2	\$18.78	\$208.08	\$1,421.00	\$6,293.00
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$112.46	\$1,238.30	\$8,678.25	\$37,605.75
10T Tele-Handler	Various	10T	Varies	6	\$26.12	\$289.28	\$2,030.00	\$8,729.00
Reel Trailer	Tmberland	3 Drum	Varies	2	\$35.53	\$390.78	\$2,740.50	\$11,875.50
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$63.44	\$695.28	\$4,872.00	\$21,213.50
Puller	Tmberland	20Kip	Varies	1	\$63.44	\$695.28	\$4,872.00	\$21,213.50

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.
3. Rates are applicable for 2015 only and are subject to yearly escalation.

**EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2016**

350KV HVDC LINE CONSTRUCTION

EQUIPMENT RATE SCHEDULE FOR 2016

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.37	\$267.86	\$1,854.41	\$8,138.78	\$24.37	\$267.86	\$1,854.41	\$8,138.78
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$29.21	\$319.37	\$2,266.50	\$9,787.14	\$29.21	\$319.37	\$2,266.50	\$9,787.14
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$136.29	\$1,493.83	\$10,508.30	\$45,638.97	\$136.29	\$1,493.83	\$10,508.30	\$45,638.97
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$162.26	\$1,782.29	\$12,465.72	\$54,292.86	\$162.26	\$1,782.29	\$12,465.72	\$54,292.86
40T RT Crane	Various	40T	Varies	2	\$206.05	\$2,266.50	\$15,865.47	\$68,922.05	\$206.05	\$2,266.50	\$15,865.47	\$68,922.05
Digger - TelElect 5052	Various	5052	Varies	2	\$89.42	\$978.71	\$6,902.51	\$29,876.53	\$89.42	\$978.71	\$6,902.51	\$29,876.53
200T All-Tr. crane	Liebherr	200T	Varies	1	\$457.58	\$5,027.50	\$35,233.70	\$153,091.44	\$457.58	\$5,027.50	\$35,233.70	\$153,091.44
120' Gene Lift	Gene	120'	Varies	2	\$87.57	\$958.11	\$6,696.46	\$29,258.39	\$87.57	\$958.11	\$6,696.46	\$29,258.39
53' Tridem trailer	Various	53'	Varies	4	\$11.85	\$133.93	\$927.20	\$3,914.86	\$11.85	\$133.93	\$927.20	\$3,914.86
T/A Gravel Truck	Various	10yd	Varies	1	\$81.14	\$896.30	\$6,284.37	\$27,094.92	\$81.14	\$896.30	\$6,284.37	\$27,094.92
Tractor Trailer/Picker	Various	40T	Varies	4	\$134.70	\$1,483.52	\$10,405.27	\$45,020.83	\$134.70	\$1,483.52	\$10,405.27	\$45,020.83
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$134.70	\$1,483.52	\$10,405.27	\$45,020.83	\$134.70	\$1,483.52	\$10,405.27	\$45,020.83
Crawler Tractors 750 JD	JD 750		Varies	3	\$165.87	\$1,823.50	\$12,774.79	\$55,529.13	\$165.87	\$1,823.50	\$12,774.79	\$55,529.13
JD 554 Loader	JD 554		Varies	6	\$69.28	\$762.37	\$5,357.17	\$23,180.06	\$69.28	\$762.37	\$5,357.17	\$23,180.06
JD 200 Excavator	JD 200		Varies	3	\$130.63	\$1,432.01	\$10,096.21	\$43,681.54	\$130.63	\$1,432.01	\$10,096.21	\$43,681.54
Skid-Steer Loader	Various		Varies	2	\$38.12	\$422.39	\$2,884.63	\$12,774.79	\$38.12	\$422.39	\$2,884.63	\$12,774.79
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$228.29	\$2,513.75	\$17,616.85	\$76,339.67	\$228.29	\$2,513.75	\$17,616.85	\$76,339.67
10T Tele-Handler	Various	10T	Varies	6	\$53.01	\$587.23	\$4,120.90	\$17,719.87	\$53.01	\$587.23	\$4,120.90	\$17,719.87
Reel Trailer	Tmberland	3 Drum	Varies	2	\$72.12	\$793.27	\$5,563.22	\$24,107.27	\$72.12	\$793.27	\$5,563.22	\$24,107.27
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$128.78	\$1,411.41	\$9,890.16	\$43,063.41	\$128.78	\$1,411.41	\$9,890.16	\$43,063.41
Puller	Tmberland	20Kip	Varies	1	\$128.78	\$1,411.41	\$9,890.16	\$43,063.41	\$128.78	\$1,411.41	\$9,890.16	\$43,063.41

NOTES

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7. Rates are applicable for 2016 only are are subject to yearly escalation.

EQUIPMENT STANDBY RATE SCHEDULE FOR 2016

Equipment	Manufacturer and Model Number	Size	Year	Quantity Available	Hour \$CDN	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$11.83	\$130.00	\$900.00	\$4,000.00
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$14.18	\$160.00	\$1,100.00	\$4,700.00
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$66.15	\$730.00	\$5,100.00	\$22,100.00
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$78.75	\$870.00	\$6,100.00	\$26,300.00
40T RT Crane	Various	40T	Varies	2	\$100.00	\$1,100.00	\$7,700.00	\$33,500.00
Digger - TelElect 5052	Various	5052	Varies	2	\$43.40	\$480.00	\$3,300.00	\$14,500.00
200T All-Tr. crane	Liebherr	200T	Varies	1	\$222.08	\$2,440.00	\$17,100.00	\$74,300.00
120' Gene Lift	Gene	120'	Varies	2	\$42.50	\$470.00	\$3,300.00	\$14,200.00
53' Tridem trailer	Various	53'	Varies	4	\$5.75	\$60.00	\$400.00	\$1,900.00
T/A Gravel Truck	Various	10yd	Varies	1	\$39.38	\$430.00	\$3,000.00	\$13,200.00
Tractor Trailer/Picker	Various	40T	Varies	4	\$65.38	\$720.00	\$5,000.00	\$21,900.00
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$65.38	\$720.00	\$5,000.00	\$21,900.00
Crawler Tractors 750 JD	JD 750		Varies	3	\$80.50	\$890.00	\$6,200.00	\$26,900.00
JD 554 Loader	JD 554		Varies	6	\$33.63	\$370.00	\$2,600.00	\$11,300.00
JD 200 Excavator	JD 200		Varies	3	\$63.40	\$700.00	\$4,900.00	\$21,200.00
Skid-Steer Loader	Various		Varies	2	\$18.50	\$200.00	\$1,400.00	\$6,200.00
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$110.80	\$1,220.00	\$8,500.00	\$37,100.00
10T Tele-Handler	Various	10T	Varies	6	\$25.73	\$280.00	\$2,000.00	\$8,600.00
Reel Trailer	Tmberland	3 Drum	Varies	2	\$35.00	\$380.00	\$2,700.00	\$11,700.00
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$62.50	\$690.00	\$4,800.00	\$20,900.00
Puller	Tmberland	20Kip	Varies	1	\$62.50	\$690.00	\$4,800.00	\$20,900.00

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.
3. Rates are applicable for 2016 only and are subject to yearly escalation.

**EQUIPMENT RATE SCHEDULE
APPLICABLE FOR 2017**

350KV HVDC LINE CONSTRUCTION

EQUIPMENT RATE SCHEDULE FOR 2017

Equipment Type	Manufacturer and Model Number	Size	Year	Quantity Available	First Shift				Second Shift			
					Hour \$CDN	Day	Week	Month	Hour	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$24.74	\$271.88	\$1,882.23	\$8,260.86	\$24.74	\$271.88	\$1,882.23	\$8,260.86
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$29.65	\$324.16	\$2,300.50	\$9,933.95	\$29.65	\$324.16	\$2,300.50	\$9,933.95
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$138.33	\$1,516.24	\$10,665.92	\$46,323.55	\$138.33	\$1,516.24	\$10,665.92	\$46,323.55
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$164.69	\$1,809.02	\$12,652.71	\$55,107.25	\$164.69	\$1,809.02	\$12,652.71	\$55,107.25
40T RT Crane	Various	40T	Varies	2	\$209.14	\$2,300.50	\$16,103.45	\$69,955.88	\$209.14	\$2,300.50	\$16,103.45	\$69,955.88
Digger - TelElect 5052	Various	5052	Varies	2	\$90.76	\$993.39	\$7,006.05	\$30,324.68	\$90.76	\$993.39	\$7,006.05	\$30,324.68
200T All-Tr. crane	Liebherr	200T	Varies	1	\$464.44	\$5,102.91	\$35,762.21	\$155,387.81	\$464.44	\$5,102.91	\$35,762.21	\$155,387.81
120' Gene Lift	Gene	120'	Varies	2	\$88.88	\$972.48	\$6,796.91	\$29,697.27	\$88.88	\$972.48	\$6,796.91	\$29,697.27
53' Tridem trailer	Various	53'	Varies	4	\$12.03	\$135.94	\$941.11	\$3,973.58	\$12.03	\$135.94	\$941.11	\$3,973.58
T/A Gravel Truck	Various	10yd	Varies	1	\$82.36	\$909.74	\$6,378.64	\$27,501.34	\$82.36	\$909.74	\$6,378.64	\$27,501.34
Tractor Trailer/Picker	Various	40T	Varies	4	\$136.72	\$1,505.77	\$10,561.35	\$45,696.14	\$136.72	\$1,505.77	\$10,561.35	\$45,696.14
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$136.72	\$1,505.77	\$10,561.35	\$45,696.14	\$136.72	\$1,505.77	\$10,561.35	\$45,696.14
Crawler Tractors 750 JD	JD 750		Varies	3	\$168.36	\$1,850.85	\$12,966.41	\$56,362.07	\$168.36	\$1,850.85	\$12,966.41	\$56,362.07
JD 554 Loader	JD 554		Varies	6	\$70.32	\$773.81	\$5,437.53	\$23,527.76	\$70.32	\$773.81	\$5,437.53	\$23,527.76
JD 200 Excavator	JD 200		Varies	3	\$132.59	\$1,453.49	\$10,247.65	\$44,336.76	\$132.59	\$1,453.49	\$10,247.65	\$44,336.76
Skid-Steer Loader	Various		Varies	2	\$38.69	\$428.73	\$2,927.90	\$12,966.41	\$38.69	\$428.73	\$2,927.90	\$12,966.41
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$231.71	\$2,551.46	\$17,881.10	\$77,484.77	\$231.71	\$2,551.46	\$17,881.10	\$77,484.77
10T Tele-Handler	Various	10T	Varies	6	\$53.81	\$596.04	\$4,182.71	\$17,985.67	\$53.81	\$596.04	\$4,182.71	\$17,985.67
Reel Trailer	Tmberland	3 Drum	Varies	2	\$73.20	\$805.17	\$5,646.67	\$24,468.88	\$73.20	\$805.17	\$5,646.67	\$24,468.88
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$130.71	\$1,432.58	\$10,038.51	\$43,709.36	\$130.71	\$1,432.58	\$10,038.51	\$43,709.36
Puller	Tmberland	20Kip	Varies	1	\$130.71	\$1,432.58	\$10,038.51	\$43,709.36	\$130.71	\$1,432.58	\$10,038.51	\$43,709.36

NOTES

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7. Rates are applicable for 2017 only and are subject to yearly escalation.

EQUIPMENT STANDBY RATE SCHEDULE FOR 2017

Equipment	Manufacturer and Model Number	Size	Year	Quantity Available	Hour \$CDN	Day	Week	Month
Pickup	Various (4x4)	1/2 Ton	Varies	9	\$12.37	\$135.94	\$941.12	\$4,130.43
Crew Cab Truck	Various (4x4)	1 Ton	Varies	30	\$14.83	\$162.08	\$1,150.25	\$4,966.98
Picker - 17 Ton or Less	Various	12-17T	Varies	7	\$69.17	\$758.12	\$5,332.96	\$23,161.78
Picker - 17.5 to 25 Ton	Various	17.5-25T	Varies	5	\$82.35	\$904.51	\$6,326.36	\$27,553.63
40T RT Crane	Various	40T	Varies	2	\$104.57	\$1,150.25	\$8,051.73	\$34,977.94
Digger - TelElect 5052	Various	5052	Varies	2	\$45.38	\$496.70	\$3,503.03	\$15,162.34
200T All-Tr. crane	Liebherr	200T	Varies	1	\$232.22	\$2,551.46	\$17,881.11	\$77,693.91
120' Gene Lift	Gene	120'	Varies	2	\$44.44	\$486.24	\$3,398.46	\$14,848.64
53' Tridem trailer	Various	53'	Varies	4	\$6.02	\$67.97	\$470.56	\$1,986.79
T/A Gravel Truck	Various	10yd	Varies	1	\$41.18	\$454.87	\$3,189.32	\$13,750.67
Tractor Trailer/Picker	Various	40T	Varies	4	\$68.36	\$752.89	\$5,280.68	\$22,848.07
Tractor Trailer (Heavy)	Various	50T	Varies	2	\$68.36	\$752.89	\$5,280.68	\$22,848.07
Crawler Tractors 750 JD	JD 750		Varies	3	\$84.18	\$925.43	\$6,483.21	\$28,181.04
JD 554 Loader	JD 554		Varies	6	\$35.16	\$386.91	\$2,718.77	\$11,763.88
JD 200 Excavator	JD 200		Varies	3	\$66.30	\$726.75	\$5,123.83	\$22,168.38
Skid-Steer Loader	Various		Varies	2	\$19.35	\$214.37	\$1,463.95	\$6,483.21
Nodwells - Picker over 17 Ton	Various	22-28T	Varies	1	\$115.86	\$1,275.73	\$8,940.55	\$38,742.39
10T Tele-Handler	Various	10T	Varies	6	\$26.91	\$298.02	\$2,091.36	\$8,992.84
Reel Trailer	Tmberland	3 Drum	Varies	2	\$36.60	\$402.59	\$2,823.34	\$12,234.44
Tensioner (Twin Drum)	Tmberland	10Kip	Varies	1	\$65.36	\$716.29	\$5,019.26	\$21,854.68
Puller	Tmberland	20Kip	Varies	1	\$65.36	\$716.29	\$5,019.26	\$21,854.68

STANDBY RATE NOTES

1. The standby rates include cost of equipment rental, insurance, licenses, depreciation, interest, taxes, overhead, mark-up and profit.
2. The standby rates exclude operator's labour costs.
3. Rates are applicable for 2017 only and are subject to yearly escalation.

Exhibit 2 – Appendix E
NOT USED
Agreement Number CT0327-001

NOT USED

SWORN DECLARATION

SWORN DECLARATION – ACCOMPANYING INVOICE FOR PAYMENT

CANADA)	IN THE MATTER OF THE AGREEMENT
)	BETWEEN COMPANY AND
PROVINCE OF NEWFOUNDLAND)	[CONTRACTOR] DATED AS OF [DATE] FOR
AND LABRADOR)	THE [DESCRIPTION OF WORK] BEING
)	AGREEMENT NO. [INSERT NO.] (the
)	“Agreement”)

I, **[●]**, of the City of **[●]**, in the **[Province]/[State]** of **[●]**,**[Country]**, do solemnly declare that:

1. I am the **[title]** of **[full legal name of Contractor]** and as such have personal knowledge of the facts set out in this Declaration.
2. Defined terms used in this sworn Declaration but not defined in this Declaration have the meanings given to those terms in the Agreement.
3. All (a) payments due to Subcontractors, (b) wages and benefit payments due to any of the Contractor’s Personnel, and (c) Taxes, contributions, premiums, allowances and remittances due to any Authority, pension fund, benefit plan or union fund in accordance with a collective agreement or Applicable Laws, have been paid in a timely manner on or before the date of the Invoice and associated Payment Certificate to which this Declaration relates, subject to any withholdings or holdbacks required by Applicable Laws.
4. Title to the applicable part of the Work will pass to Company in accordance with Article 27 of the Agreement.
5. (a) There are no known outstanding Claims under the Agreement, including but not limited to Claims by Contractor against Company, except for those Claims which have already been communicated to Company in a timely manner in the form of Notice required by the Agreement and which are described and listed in the Appendix to this Declaration, including an estimate of the value of each such Claim;

or

- (b) There are outstanding Claims, including but not limited to Claims by Contractor against Company, which have not been communicated to Company and each of these outstanding Claims is described and listed in the Appendix to this Declaration and is delivered to Company in a timely manner, and there are no other known outstanding Claims under the Agreement, except for those Claims which have already been communicated to Company in a timely manner in the form of Notice required by the Agreement and which are described and listed in

the Appendix to this Declaration, including an estimate of the value of each such Claim.

6. The last application for payment for which we have received payment is No. _____ dated the _____ day of _____, 20__.

I make this Declaration conscientiously believing it to be true and knowing it is of the same force as if made under oath.

DECLARED before me at the City of _____)
[•],)
in the [Province]/[State] of _____)
[•],)
[Country])
on [Month], [Date], 20[•])
_____)

Name:
A Commissioner, etc.

Declarant

APPENDIX TO SWORN DECLARATION
[Date]

(a) Claims previously communicated to Company:

Description

Estimated Value

(b) Claims not previously communicated to Company:

Description:

Estimated Value:

Exhibit 3
Coordination Procedures
Agreement Number: CT0327-001

EXHIBIT 3
COORDINATION PROCEDURES

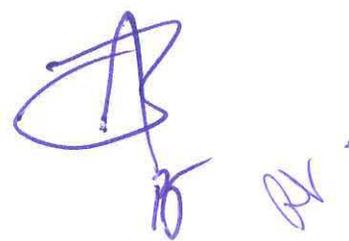
A handwritten signature in blue ink, consisting of a large, stylized initial 'A' followed by a vertical line and a horizontal stroke at the bottom, and a smaller signature to the right.

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- Appendix L - Preliminary Execution Plan

1 INTRODUCTION

This Exhibit 3 – Coordination Procedures is intended to govern Contractor, Engineer and Company in the administration and management of the Agreement.

Contractor shall use its own systems, methods and procedures in the administration of the Work. However, Company has certain requirements regarding Agreement administration, monitoring and coordination, consistency and project controls with which Contractor shall comply. These requirements are described in this Exhibit 3. Where necessary, Contractor shall adapt its own systems, methods and procedures to satisfy such Company requirements.

It is Company's intention that Company and Contractor work together to mutually agree on a set of methods and procedures for performing the Work. In this regard, Company will require a series of meetings in Company offices immediately following Effective Date. During the meetings, Contractor, Company and Engineer will review Contractor's proposed methods and procedures for executing the Work. Following this review, the Parties will agree on any modifications to Contractor's methods and procedures required to satisfy the requirements of this Exhibit 3.

The following additional Exhibits have been provided to specify Company requirements and Contractor responsibilities with respect to Health and Safety Requirements (Exhibit 5), Environmental and Regulatory Compliance Requirements (Exhibit 6), Quality Requirements (Exhibit 7) and Provincial Benefits (Exhibit 13).

2 EARLY ACTIVITIES AND GENERAL EXECUTION

SCOPE

This Section 2 sets forth minimum early activities associated with preparation for execution as well as general execution activities.

OBJECTIVES

Contractor shall employ a systematic management approach to the Work embracing sound management principles, including:

- a) Finalization of an Execution Plan as it pertains to the Work (as described in Section 2.4 below); and
- b) Understanding of and alignment with Company's objectives, priorities, and philosophies with the aim of Contractor developing appropriate plans and procedures.

CONTRACTOR DUTIES

Contractor shall:

- a) Review Contractor's proposed Execution Plan with Company. Update the plan with all Accepted changes and enhancements and maintain on an ongoing basis;

- b) Participate in meetings, as scheduled by Engineer, to mutually agree on methods and procedures for performing the Work. Meetings shall be held in Company offices and may be scheduled to begin within fourteen (14) days of the Effective Date and shall be completed within forty-five (45) days of the Effective Date;
- c) Provide all information requested by Company to support Company's appraisal of Contractor's performance of the Work, including performance of other members of the Contractor Group. Such information may include, without limitation, Contractor Group systems, methods and procedures for performing the Work; copies of calculations, working drawings, specifications, purchase requisitions and recommendations (if applicable); estimates; labor productivity data; schedules; procedures; and alternative studies;
- d) Contractor shall maintain close management alignment with Company and Engineer during execution of the Work;
- e) Actively support and participate in project reviews as required by Company and as they relate to the Work.

SPECIFIC REQUIREMENTS

Early Deliverables

A list of all early deliverables and the timing of their submission to Company is specified in Exhibit 4 - Supplier Document Requirements List.

Execution Plan

The Execution Plan forms an integral part of the Agreement. After the Effective Date, Contractor shall make all changes to the Execution Plan based on Engineer's comments and submit a final Execution Plan (based on Appendix L – Preliminary Execution Plan) to Engineer for Acceptance by the date specified in Exhibit 4 – Supplier Document Requirements List. The Execution Plan will serve as the basis for developing the detailed plans for the Work and shall conform to the requirements in Appendix L – Preliminary Execution Plan.

Contractor shall maintain the Execution Plan as a living, working document. Changes to such plan will be subject to the review and Approval of Company. As changes arise, Contractor shall identify and document critical issues and/or potential constraints that could adversely affect the accomplishment of Company's objectives for the Work and shall submit such changes to Company for Approval.

The Execution Plan shall:

- a) Document the results of the overall planning process for the Work. The Execution Plan is a framework from which will evolve execution strategies and approaches, work plans, risk identification and mitigation plans, detailed procedures, organizational structures, logic networks, schedules and other material needed by Contractor's Personnel to develop execution details and Contractor's plans for the Work, including detailed fabrication and construction plans;
- b) Document Contractor's objectives, priorities and philosophies that are based on and

- consistent with Company's objectives, priorities and philosophy for the Work; and
- c) Outline formalized processes to be employed to identify broad strategic issues, evaluate impact, develop mitigation measures/action plans, and to follow-up on results of mitigation measures/action plans.

Coordination Teams

As one of the early project activities, coordination teams will be established at various levels within Contractor's and Company's organizations. Contractor and Company will mutually agree on the composition of each team and agree on the frequency of meetings. If there is a failure to agree on such composition and/or frequency, Engineer shall have the authority to determine these matters.

The initial meetings of the coordination teams will be to:

- a) Develop positive working relationships between team members;
- b) Develop plans to meet objectives, guidelines for individual and team behaviours, and teamwork, and determine Contractor / Company success criteria;
- c) Identify and review, as appropriate by team, challenging areas or areas of opportunity which require special attention; and
- d) Establish the initial framework for the specific plans for the Work as referenced in this Exhibit 3.

3 ORGANIZATION, ADMINISTRATION AND REPORTING

CONTRACTOR DUTIES

Contractor shall:

- a) Submit proposed, and Accepted or Company Approved organization charts, identifying key positions required for executing the Work. These shall be included within the Execution Plan;
- b) Provide information required by Company and seek Company's Approval on matters as required by the Agreement;
- c) Participate in regular meetings with Company, Engineer and Company's Other Contractors to discuss the status of the Work, methods for resolving problems encountered or anticipated, and other topics pertinent to the Work; and
- d) Provide to Company Group Personnel offices, logistical support and facilities at Contractor's offices and the Worksite(s), as required by Company and Engineer (to be specified in Section 3.2.6 below, if required).

SPECIFIC REQUIREMENTS

CONTRACTOR ORGANIZATION

Within the time specified in Exhibit 4 - Supplier Document Requirements List, and to be included in the Execution Plan, Contractor shall submit a description of its project organization

for the Work indicating clear lines of decision making, authority and responsibility addressing as a minimum the following:

- a) Project management organization;
- b) Safety management organization both at home office and for the Worksite(s);
- c) Quality management organization, including Quality Manager, Worksite(s) quality organizations and vendor inspection organization;
- d) Regulatory and environment organization(s);
- e) Procurement organization, including purchasing, subcontracting and material management for both Contractor's home office and for the Worksite(s);
- f) Project controls including cost and schedule management for both Contractor's home office and for the Worksite(s);
- g) Technical organization, including engineering, design, constructability and document control;
- h) Construction Worksite(s) including engineering support, planning, cost and schedule control, material management, quality, safety and construction operations (including field supervision);
- i) Completions organization (if applicable); and
- j) Start-up organization (if applicable).

Each organization within the overall organization of the Work shall have key Personnel assigned and have designated authority and responsibility for the given portion of Work.

For each position designated as being key Personnel, the following information shall be provided:

- a) Roles and responsibilities;
- b) Job titles;
- c) Approval authority assigned to each position;
- d) Contact address(es) and telephone number(s); and
- e) Candidate's most recent resume.

Contractor shall update the organization charts, contact addresses and phone numbers as changes occur to the Work, as Contractor's overall organization changes or as requested by Engineer.

The organization charts shall clearly indicate how and to whom Contractor's organization for the Work reports in its home and/or any affiliated offices and the relationship of Contractor's organization for the Work to its corporate and/or departmental organization.

Listed below are Contractor's key Personnel for the management, control and execution of the Work. Contractor shall maintain up-to-date organization charts, which shall be submitted to Engineer in the event of changes.

POSITION DESCRIPTION (TITLE)	NAME
Project Director	Adam Budzinski
Program ROW Manager	Dean Sjodin
Manager of Stringing Operations	Vjeko Vidakovic
Program Safety Manager	Ron Matthews
Team 1 – Project Manager	Kelly Williams
Team 1 – Lead Construction Manager	Shane Eirickson
Team 1 – Foundation Construction Manager	David Lechkun
Team 1 – Tower Construction Manager	Jim Dooley
Team 2 – Project Manager	Nalin Mistry
Team 2 – Lead Construction Manager	Dave Torgerson
Team 2 – Foundation Construction Manager	David MacDonald
Team 2 – Tower Construction Manager	Joe Rideout
Team 3 – Project Manager	Adam Boroweicki
Team 3 – Lead Construction Manager	Steve Roberts (Irby)
Team 3 – Foundation Construction Manager	Dean Anglun (Irby)
Team 3 – Tower Construction Manager	Mike Dietz (Irby)
Corporate and Functional Support	
ROW Manager	Marc Ouimet
Corporate Safety (VP)	Andy Felczak
Quality Assurance Manager	Eric Winter
Survey Geomatics Manager	Lesley Sick
Environment and Permitting Manager	Sam Blair
Corporate Controls Manager	Sean Dunn
Project Services Manager	Fahim Moledina

Key Personnel shall be assigned on a full time basis and be committed to continue throughout the Term in order to maintain continuity. The appointment, transfer and replacement of key Personnel shall be subject to Engineer's prior Acceptance.

CORRESPONDENCE AND COMMUNICATION REQUIREMENTS

Correspondence and Notices

Company and Contractor shall jointly establish a correspondence plan and procedures which shall be periodically updated and kept current.

The Aconex module, "LCP Construction Management" shall be utilized to manage all written communication between Company/Engineer and Contractor. Aconex is an electronic document management system which is a secure on-line platform for storing, managing and distributing project information that can be accessed via an internet connection and a web browser (www.aconex.com). The implementation of Aconex Mail will be coordinated during the kick-off

meeting between Contractor and Engineer.

The Aconex module, "LCP Rev Controlled", will be utilized for all technical documentation (refer to the document entitled "LCP Supplier Document Requirements" provided in Exhibit 11 - Company Supplied Documents).

The Articles of this Agreement contain instructions regarding Notices. Contractor shall not receive nor accept instructions concerning the Work from anyone other than the Company Representative or his/her designee. Contractor shall not use meetings, oral discussions, etc. as a forum to submit Change Requests. Change Requests will be addressed using appropriate procedures set out in this Exhibit 3.

Company and Contractor Representatives

All formal correspondence, documents and Agreement deliverables required by the Agreement, including this Exhibit 3, from Contractor to Company shall be addressed to the Company Representative. Likewise all correspondence from Company to Contractor shall be sent to Contractor's Representative.

Company Representative

The Company Representative has the responsibility of managing the Agreement on behalf of Company, including Approval of Changes, amendments to the Agreement and issuance and receiving of Notices.

The Company Representative has the authority to stop the Work for the purposes of safety, quality and risk of damaging Company property under the care, custody and control of Contractor. Notification of stoppage can be addressed verbally, and then supported by writing. Contractor shall resume Work when appropriate actions are addressed to the satisfaction of Company. No compensation will be provided for Work stoppages of this nature.

The Company Representative may delegate any of his or her responsibilities to any nominated deputy. Notice of delegation shall be provided to Contractor's Representative and Engineer in writing.

The person appointed as the Company Representative is identified in Article 39 of this Agreement.

Engineer

Engineer's role and responsibilities are detailed in Article 11 of this Agreement. Company may delegate any of Engineer's responsibilities to any nominated deputy. Notice of delegation shall be provided to Contractor's Representative in writing.

Contractor's Representative

Contractor shall appoint a Contractor's Representative for the Work, who shall have full authority to receive instructions and administer the Agreement for and on behalf of Contractor, in addition to those authorities stated in the Articles of this Agreement. The person appointed as Contractor's Representative is identified in Article 39 of the Agreement.

The Contractor's Representative shall have the responsibility for receiving, acknowledging, countersigning and returning any instructions, decisions, Notices, authorizations and acknowledgements to Contractor under this Agreement, in addition to those responsibilities stated in the Articles of this Agreement. Contractor's Representative shall also be responsible for administering, monitoring, reviewing and coordinating all aspects of the Work on behalf of Contractor.

Contractor's Representative may delegate any of his or her responsibilities to any nominated deputy upon prior Notice to the Company Representative and Engineer. Notifications, information, authorizations, acknowledgements and decisions from any such nominated deputy shall be as if from Contractor's Representative.

REPORTS AND MEETINGS

Contractor shall submit reports to Company on the progress of engineering, procurement, and construction and on the status of other activities for the Work as otherwise provided below and other provisions in this Exhibit 3.

Plan of the Day

During construction activities, Contractor shall submit a Plan of the Day, which shall cover, at a minimum:

- Names, areas and contact information of field contact representatives;
- Listing of all crews working that day, including specific activities for each crew;
- Locations where each crew is working; and
- Outstanding issues requiring resolution.

Weekly Report

Contractor shall submit a weekly report ("Weekly Report"), which shall reflect the current status of the Work, progress and issues. The timing, format and content shall be as agreed between Contractor and Engineer, but shall address the following as a minimum:

- Brief summary of status of the Work;
- Management and administration;
- Significant items planned for the following weeks;
- Health, safety and environment;
- Quality management;

- Highlights and concerns including any required and implemented corrective action in all of the following main areas:
 - engineering
 - procurement
 - manufacturing
 - fabrication
 - construction
 - installation
 - completions;
- Interface activities;
- Status of Change Requests; and
- Receipt of major components and/or materials at the Site.

Monthly Progress Report

Contractor shall submit a monthly progress report (“Monthly Progress Report”) based on a cut-off date of the 25th day of that calendar month. The timing of the submission of this report shall be by close of business no later than the 5th calendar day of the following month. The first Monthly Progress Report shall be issued not later than forty-five (45) calendar days after the Effective Date. The format and content of the Monthly Progress Report shall be as agreed between Contractor and Engineer, but shall address the following as a minimum:

- a) Highlights in bullet point style of the significant accomplishments achieved and issues addressed during the reporting period;
- b) A description of problems or delays encountered or anticipated, and corrective actions initiated or contemplated to counteract or minimize the effect of such problem, together with the results of any corrective actions already taken;
- c) The Worksites’ safety status including health and safety statistics for the past month and for the Work to date. The content and format for the safety statistics are provided in Exhibit 5 – Health and Safety Requirements. Major safety problems shall be highlighted and action plans to improve conditions outlined. Safety initiatives undertaken during the past month and/or planned for the forthcoming month shall be discussed;
- d) Short narrative covering all significant events during the reporting period;
- e) Management, including mobilization, systems implementation, procedures development and other administrative activities;
- f) Current status of the Work. Progress data (progress curves, histograms, productivity information and Summary Schedules) shall be provided on graphs which show actual versus planned progress as further described in Section 9 of this Exhibit 3 for: (i) engineering, (ii) equipment and materials orders, (iii) equipment and materials deliveries at the Worksite(s), (iv) construction, (v) completions and (vi) overall Work progress. For activities that are behind schedule, an analysis of reasons for the slippage shall be included, together with a description of actions to be taken to recover;
- g) All constructability issues;
- h) The quality status including quality statistics for the past month and for the Work to date;
- i) Interface management status;

- j) Cost and financial reports as defined and/or specified in Sections 6 and 13 of this Exhibit 3;
- k) The status of planning, scheduling and schedule control, including coverage of relevant activities called for within Section 7 of this Exhibit 3;
- l) The status of Changes, if any, and the corresponding current value of the Contract Price including the effect of Change Orders and Change Requests;
- m) The status of procurement and subcontracting, including placement of Subcontracts (including Subcontractors' subcontracts of every tier), status of spare parts orders, performance of Subcontractors (including Subcontractors' subcontractors of every tier), and Subcontract administration matters (including Subcontractors' subcontracts of every tier);
- n) The status of items involving Authorities such as inspections, approvals, permits, clearances and licenses, as further described in Exhibit 6 - Environmental and Regulatory Compliance Requirements;
- o) Provincial Benefits report as described in Exhibit 13;
- p) Monthly risk report consisting of the following:
 - A structured narrative that describes major risk activities and events during the reporting period containing major changes in the Risk Register (as defined in Section 9.1(c) below) with a focus on medium and high level risks;
 - Highlights of five (5) to seven (7) most important package risk management activities and events; and
 - An updated Risk Register (as defined in Section 9.1(c) below); and
- q) Status of planned tests and/or hold points.

Final Contract Report

A final report summarizing the Work shall be submitted by Contractor to Engineer for Acceptance, the content and timing of which shall be specified by Engineer. Such an Accepted final report shall be submitted to Engineer by Contractor prior to Contractor's request by Notice of a Final Completion Certificate.

Meetings

Meetings of key Contractor's Personnel, and Engineer and Company Personnel, shall be held regularly.

Monthly and weekly progress meetings will be held, details of format and content of which will be as agreed between Contractor and Engineer. If there is a failure to agree on such format and/or content, Engineer shall have the authority to determine these matters.

Engineer may hold other meetings with Contractor to discuss matters of technical, interface management, health, safety, environmental, design, quality, verification, certification, documentation, engineering data, cost, accounting, scheduling, construction, progress and the like, and as may be otherwise required for the Work and the Agreement. Contractor shall ensure sufficient and appropriate qualified Personnel are available to attend.

In general, meetings shall adhere to the following guidelines:

- a) The agenda items for any meeting will be issued by Engineer to the Parties no less than two Business Days prior to such meeting. Both Engineer and Contractor shall ensure, in accordance with their respective responsibilities that reports, reproducible documentation and forward planning information relating to agenda items are issued in sufficient time to allow adequate preparatory study and evaluation;
- b) The meeting will address only the items covered by the agenda and any other minor topics relevant to the Parties and subject concerned;
- c) In those instances where matters of urgency need to be addressed, Company and Contractor will make every effort to address such items at the earliest opportunity; and
- d) It shall be the responsibility of Engineer to record minutes of all meetings unless otherwise instructed by Engineer. Minutes should be brief, indicate with whom the responsibility for action lies, the date the action was assigned and the date required for completion of such action. Minutes should also state the results of assigned actions outlined in previous minutes, including the actual date of completion of the action.

Photographs

Contractor shall provide photographs as Company may request of sufficient quality for possible inclusion in Company's publications depicting significant activities and general progress of the Work.

INFORMATION SYSTEMS AND TECHNOLOGY (IS/IT)

Contractor shall:

- a) establish and maintain an IS/IT infrastructure and associated computing environment to ensure overall reliability, performance and security control;
- b) provide access, for Engineer and Company Personnel, to any software applications and supporting services required in order for Engineer and Company to perform their work;
- c) maintain an upgrade path for electronic formats that will keep data formats compatible with that of Engineer;
- d) securely transfer data and information electronically to Engineer on a timely basis using industry recognized standards, processes, systems and methodologies;
- e) ensure control practices and risk mitigation plans are in place to provide protection and safeguard for all data and information related to the Work including but not limited to access management, data corruption, data loss, backup and disaster recovery procedures; and
- f) within thirty (30) days of the Effective Date, provide to Engineer a description of the IS/IT support organization and how it is structured to support the Work.

DATA

All documentation and information, including correspondence, notes reports, information identified and/or required by this Agreement, drawings, specifications, schedules, weekly, bi-weekly and/or monthly reports, databases, records, videos, photos and other documents

(hereinafter collectively referred to as "Data") shall be made available to Engineer and Company in electronic native format as well as hard copy. The transfer of Data will be by storage medium such as optical or magnetic discs, or other form specified from time to time by Engineer. Contractor shall undertake all reasonable efforts to ensure Data is provided in a form fully useable to Engineer and Company with well recognized industry standard applications.

Where the software necessary to enable Engineer and Company to fully utilize Data is based in whole or in part on Contractor's proprietary information/software, Contractor shall grant Company Group a non-exclusive, perpetual, royalty free, irrevocable and non-transferable (except to a permitted assignee of this Agreement) license to such information/software.

Where the software is not proprietary to Contractor and obtained through usage of software leased or purchased from third parties, Contractor shall, subject to Company Approval, arrange for and obtain for the benefit of Company Group a non-exclusive, perpetual, royalty free, irrevocable and non-transferable (except to a permitted assignee of this Agreement) license to use such software to enable Engineer and Company to fully utilize Data.

Throughout the Term, Company in conjunction with Engineer shall review Data to ascertain what data is to be passed to Company by Contractor for future use.

FACILITIES AND SERVICES FOR COMPANY PERSONNEL

Contractor shall provide Company Group Personnel with the following office facilities and services at Worksites, as may be required by Company and Engineer:

- **Refer to Exhibit 1 - Scope of Work**

4 INTERFACE MANAGEMENT

Contractor shall manage external interfaces with other organizations involved in the LCP, including Engineer, Company's Other Contractors and their subcontractor(s) and vendor(s) of every tier, Authorities and other entities associated with the Work.

OBJECTIVES

Contractor shall:

- a) Have primary responsibility for managing technical and execution interfaces and thus coordinating its activities with other organizations as required to effectively accomplish the Work;
- b) Identify major interfaces early in the Work through a structured process;
- c) Define the interface information needed for the Work. Contractor and other interfacing entities (including originating and responding organizations) shall then agree on roles, responsibilities and timing for providing agreed upon information or actions;
- d) Ensure that all communications with other organizations shall be clear, accurate, timely and consistent to accomplish their intended purpose of transferring information between

- organizations or ensuring agreed action is taken to progress the Work;
- e) Ensure that interface resolution issues with potential for impacts to cost or schedule shall be identified quickly and communicated to all interfacing entities, including Engineer, in order to minimize their impact; and
 - f) Cooperate with Engineer and comply with the requirements of Engineer's interface management system as it relates to the Work.

SPECIFIC REQUIREMENTS

Contractor shall:

- a) Develop an interface management plan and shall implement systems and methodology for ensuring the identification of originators and responders, quality, accuracy and timeliness of interface information;
- b) Incorporate the schedules for submittal of its deliverables (as determined by interface management activities) as milestones in Contractor's schedule for the Work. Contractor shall manage compliance with such milestones accordingly;
- c) Schedule and participate in interface coordination meetings with Engineer, Company, Company's Other Contractor(s), and their subcontractor(s) and vendor(s) of every tier, and other organizations, as required to properly manage interfaces; and
- d) Regularly advise Engineer on the status of resolution of interface issues. Contractor shall promptly elevate unresolved interfaces and interface issues to Engineer/Company for resolution.

5 NOT USED

6 COST MANAGEMENT

Cost Control of Accounts

Engineer will provide cost control accounts to Contractor within thirty (30) days of the Effective Date. The cost control accounts will be cross referenced to the compensation amounts outlined in Exhibit 2 – Compensation.

Cost Report

Contractor shall prepare a cost report to be included as a section of the Monthly Progress Report. Reporting will be consistent with the control accounts and payment elements contained in Exhibit 2 – Compensation. Within thirty (30) days of the Effective Date, Contractor shall submit to Engineer a sample cost report for Engineer's Acceptance. In general, the cost report shall address the following as a minimum:

- a) Contract Price and all changes thereto;
- b) Forecast final Contract Price (previous period, current period and monthly variance);
- c) Reimbursable cost status, if applicable;
- d) Change Order status;
- e) Contract incurred cost flow (actual/forecast); and

- f) Invoice and payment status, including cash flow forecast by currency.

Cost Management Plan

Where the Work includes significant elements of reimbursable activities, Contractor shall prepare and submit to Company, within thirty (30) days of the Effective Date, a cost management plan for Company review and Approval.

7 SCHEDULE MANAGEMENT

This Section 7 sets forth the minimum requirements for Contractor's planning, scheduling, measurement and reporting of physical progress, and schedule control activities for the Work.

DEFINITIONS

- a. **Earned Value Management**: A method to measure the value of Work performed. Earned value uses current budgets and progress-to-date to show whether the incurred values are on budget and/or whether the tasks are ahead or behind the Accepted Control Schedule Baseline Document. A method for measuring Work productivity and performance; it compares the effort of Work that was actually expended with what was physically completed.
- b. **Control Schedule (CS)**: The Control Schedule forms the basis to measure progress in which cost, schedule, scope and other performance criteria are formally compared against the Accepted Control Schedule Baseline Document for assessment of progress and performance. The Control Schedule forms the benchmark for comparison and identification of cost and schedule deviations. The Control Schedule shall represent the total Work execution and interfaces with others (Milestones, key dates, design, procurement, regulatory, fabrication and manufacturing, transportation, installation, construction and completion) covering the entire duration of the Work, and includes roll-up details of all Contractor's schedules. The Control Schedule is to be a schedule network, which is calculated using the critical path method. Contractor will ensure that the Control Schedule aligns with Exhibit 9 - Schedule. The Control Schedule shall be developed using Primavera P6 or equivalent. If software other than Primavera is used, the native file shall have the capability to be easily converted to Primavera P6 and shall be subject to the Acceptance of Engineer.
- c. **Milestone**: The start or completion of an activity in the performance of the Work and which is identified as such in Exhibit 9 – Schedule.
- d. **Control Schedule Baseline Document (CSBD)**: A series of schedules, s-curves, histograms, tables and narrative which together form the basis of the plan to complete the Work. The Control Schedule Baseline Document is updated and re-issued following re-baselining of the Control Schedule. The CSBD includes the Control Schedule, as well as critical and near-critical path(s). The Control Schedule Baseline Document shall provide supporting

documentation to the Control Schedule. It shall include all baseline assumptions regarding schedule durations, logic, installation rates, progress weighting and relevant material as deemed necessary by Engineer.

- e. **Summary Schedule (SS)**: The Summary Schedule incorporates all Milestones and is a roll-up of schedule information from the detailed Control Schedule such as engineering, procurement, construction, fabrication, installation and completions and any subject deemed necessary by the Engineer to adequately convey a rollup or the CS.
- f. **Schedule Development and Control Plan (SDCP)**: A formal document providing the approach to planning and schedule control including schedule development, analysis, forecasting, reporting, corrective action and the method for incorporation of Changes. The SDCP addresses the scheduling interfaces between Contractor and other members of the Contractor Group, as well as Contractor and Engineer. In particular, the plan shall provide a detailed description of Contractor's progress measurement system including how Contractor measures, verifies and reports physical progress of each major activity of the Work (such as engineering, procurement, fabrication, manufacturing, permitting, transportation, construction/installation and completion).
- g. **Monthly Cut-Off Date**: The month end date that Contractor uses as a basis to compile its progress during the month. The Monthly Cut-off Date will be agreed between Contractor and Engineer based on the nature of the Work. If there is a failure to agree on such date, Engineer shall have the authority to determine the date.
- h. **Monthly Risk Statement**: Indicates the major risks identified during the month that could represent a threat to the success of the Work, the contemplated mitigation measures for newly identified risks and the actions status pertaining to mitigation measures proposed for previously identified risks.
- i. **Monthly Progress Report**: The monthly report which is described in Section 3.2.3 of this Exhibit 3.
- j. **Weekly Report**: The weekly report which is described in Section 3.2.3 of this Exhibit 3.

CONTRACTOR DUTIES

With respect to planning, scheduling and schedule control of the Work, Contractor will:

- a) Prepare, implement and maintain a Schedule Development and Control Plan (SDCP) in accordance with the date specified in Exhibit 4 – Supplier Document Requirements List for the Work using methods and procedures that are in accordance with industry recommended practice (i.e., Association for Advancement of Cost Engineering);
- b) Impose the same Control Schedule and progress measurement requirements in the Agreement on other members of Contractor Group;
- c) Analyze and calculate earned quantities, man-hours and costs, and forecast and report the progress of the Work using industry recognized Earned Value Management practices as

compared to current Work plans and overall schedule, summarizing the results of the schedule analysis in the Monthly Progress Report, which shall include a Milestone listing with target dates and current forecast dates;

- d) Develop recovery plans and associated schedules if slippage is apparent, or as required by Engineer. Recovery plans will be reviewed with Engineer and implemented upon Engineer's Acceptance. Recovery plans will be monitored and adjustments made as needed to keep the Work on schedule;
- e) Incorporate the results of progress measurement and related status information into schedule forecasts, Weekly Reports and Monthly Progress Reports, as required under this Agreement;
- f) Provide access to all details of schedule preparation, progress measurement and schedule updates when requested by Engineer;
- g) Make changes in the schedule preparation, progress measurement and schedule control procedures at Engineer's request;
- h) Utilize Engineer's progress measurement definition strategy. Actual progress shall be based on physical Work completed measured against the current Work;
- i) Provide Engineer with the Control Schedule (CS) with the baseline estimate that will hold the mechanism of measuring progress in hard copy and electronic form, in accordance with the date specified in Exhibit 4 – Supplier Document Requirements List. The native electronic file shall include all information necessary to duplicate Contractor's schedule, progress measurement analysis and resource requirements. In addition to the electronic file, the schedule software settings, calendar definitions and application generated scheduling report shall be included;
- j) Take the initiative to propose potential corrective actions whenever there is an identified trend which indicates that a Milestone will not be achieved or indicates an opportunity to shorten the overall schedule, or counteract potential schedule slippages; and implement the action(s) as Accepted by the Engineer; and
- k) Provide a Control Schedule Baseline Document (CSBD) in accordance with the date specified in Exhibit 4 – Supplier Document Requirements List, with all supporting documentation of each schedule update to be validated with s-curves and reporting at levels such as engineering, procurement, manufacturing and installation, as Accepted by Engineer;

SCHEDULE DEVELOPMENT AND CONTROL PLAN (SDCP)

Contractor's Schedule Development and Control Plan shall cover all areas of schedule development and control, including development, analysis, forecasting, reporting and corrective action. In particular, the plan shall provide a detailed description of Contractor's progress measurement system.

Contractor's Schedule Development and Control Plan will, at a minimum, include:

- a) How Contractor's detailed schedule and current Work plans will be developed, reviewed and updated;
- b) Methodology that Contractor will use to analyze and forecast the progress of the Work relative to current schedules;

- c) How interface management will be addressed. Interface management includes all key internal interfaces within the Work as well as all key interfaces between the Contractor, other members of Contractor Group and Company's Other Contractors. The plan will define how interfaces are identified, stewarded and their status reported;
- d) How interfaces, outside of Contractor's control, could impact the Control Schedule;
- e) The number, types, uses, frequency of updates (and responsibility for updates) and level of detail for each of the various schedules the Contractor intends to use to control the Work;
- f) Methods for analyzing critical path and conducting float analysis;
- g) Procedure for re-baselining the Control Schedule (subject to Engineer's Acceptance);
- h) Coding system for schedules;
- i) The methods that will be used to measure physical progress of each of the various activities or groups of activities in engineering, procurement logistics, fabrication, manufacturing, construction, completions and installation. Methods for engineering shall specifically address use of computer aided design and drafting (CADD), both 2D and 3D;
- j) Procedures within Contractor's organization for review and verification of progress measurement information prepared at each Worksite;
- k) The methods to control over progressing of activities; and verification methods confirming that all activities reported as 100% complete are actually complete;
- l) The method for recognizing the impact of rework on apparent progress, during engineering, procurement, fabrication and construction and the method for specifically progressing and tracking the Work;
- m) The methods and procedures for incorporating the effects of Changes on the assessment of progress;
- n) The method for weighting and combining individual and overall progress measurements to arrive at the discipline and overall progress assessments for engineering, procurement, fabrication, installation, completions and other major activities related to the Work. Progress weightings shall be subject to Engineer's review and Acceptance, and once Accepted shall not be changed without Engineer's prior Acceptance; and
- o) Contractor plans to manage and report receipt of materials and/or components at the Worksites.

CONTROL SCHEDULE BASELINE DOCUMENT (CSBD)

Contractor shall prepare and submit to Engineer for its review and Acceptance the Control Schedule Baseline Document in hard copy, portable document format (PDF) and native electronic format. All information required to reproduce the Control Schedule Baseline Document including scheduling software settings, working calendars, application time conversion factors, and precedence and scheduling output reports from the scheduling software, will be included with the submission.

The Control Schedule Baseline Document shall be organized into an overall summary section and a detailed section for each component of the Work (such as engineering, procurement, manufacturing, fabrication, testing and handover). Each section shall be organized as follows:

- a) Assumptions underpinning the execution methodology and Control Schedule, as well as any issues that may impact the Work. This section will also include the basis for any

- planned changes to the Control Schedule;
- b) Summary Schedule;
- c) Progress curve and table;
- d) Critical and sub-critical path(s); and
- e) Detail schedule.

CONTROL SCHEDULE (CS)

A detailed Control Schedule for the Work will be prepared by the Contractor and submitted to Engineer for its review and Acceptance. Contractor shall develop the Control schedule in accordance with Company's work breakdown structure and code of accounts for the Work. The Control Schedule for the Work shall be aligned with the detailed estimate for the Work. The detailed schedule will contain sufficient detail to demonstrate how all activities affect the cost, Work and Exhibit 9 - Schedule.

The Control Schedule will show activities that provide sufficient detail in all areas of Work execution (such as Milestones, key dates, design, procurement, fabrication, manufacturing, transportation, installation, construction, completions and all relevant interfaces) to enable monitoring and control of the Work. Schedule forecasts will give a complete and accurate representation of the current status of the Work, including Change Orders and Change Requests, and the consequences of overrun and under run person hours, productivity and durations.

The Control Schedule shall be prepared and maintained based on input and requirements from Contractor's user groups such as project management, planning and controls, engineering, procurement, work package preparation, fabrication, transportation and logistics, construction, completions, Subcontractors (including Subcontractors' subcontractors of every tier), Engineer and Company's Other Contractors.

GENERAL SCHEDULING AND PROGRESS REQUIREMENTS

Contractor's planning, scheduling and schedule control activities for the Work will, at a minimum, include the following:

- a) A time-scaled critical path method (CPM) logic network that shall set forth the order and estimated times by which planned activities are to be completed. This network shall identify the critical and subcritical paths (a subcritical path is defined as any series of activities whose completion is within one (1) week of the critical path completion). The logic network shall clearly indicate all restraints and interrelationships and shall incorporate Exhibit 9 - Schedule;
- b) A description of those activities associated with material sources, other members of Contractor Group and fabrication. All interfaces will be incorporated into the Control Schedule;
- c) All schedule and progress information (CS, SS, tables, histograms, s-curves, document register, procurement plan, manufacturing schedule and support documentation) shall be issued on a monthly basis;

- d) Progress measurements such that the physical progress of the Work can be related easily to the Control Schedule activities. Progress shall be evaluated on discrete, identifiable deliverables for each Work activity weighted by budgeted person hours or other methods to determine a total percent for each activity. Physical progress measurement relates to the assessment of the proportion of actual Work accomplished towards completion of given components of the Work;
- e) The ability to assess progress for all progress earning activities required for each component of Work, regardless of source. As additional progress earning components are identified, they will be added to the base level of Work through the change management process, to be accomplished and progress measured and reported;
- f) Indicate the schedule calendars used to develop the schedule including, daily work hours, work week, shift schedule, scheduled facility shutdowns (if any) and holidays. Any planned non-work periods shall be clearly indicated and a narrative shall be supplied indicating the period of non-work and the rationale for the non-work period;
- g) Show status of all interfaces within the components of the Work (such as engineering, procurement, manufacturing, fabrication, construction and completions);
- h) Exclude home office and field support functions, such as project management, coordination, engineering office follow-up during construction, construction and fabrication management and supervision, warehousing, material handling and clean-up, from physical progress measurements;
- i) Produce and maintain a schedule network that is logically linked, with a minimal number of constraints utilized. Where constraints are required, the fewest possible constraints necessary to meet the required objective will be used. The reason for the constraint shall be noted in the notebook file for that activity. Constraints that affect the backward pass calculation of the network (“Mandatory Finish”, “Mandatory Start”, “Finish On Or Before”, “Start On Or Before”, “Finish On”, “Start On”) are to be strictly avoided, unless Accepted by Engineer;
- j) Use of activity lags is discouraged. Where the use of lags is considered, Contractor shall consider if the use of an activity to represent the lag is a reasonable representation of the condition being modeled. If a lag is used, the reason and rationale for the lag shall be noted in the notebook file for that activity;
- k) Scheduling option that retains the current logic (“retained logic”) of activities started out of sequence will be used. Where necessary, the logic for those activities for which the relationship is no longer applicable will be manually changed;
- l) Schedule time forecasting shall not be based upon the percentage of schedule completed. The scheduling control software function for linking remaining duration and such percentage shall be disabled;
- m) Control Schedule will be structured to provide five (5) activity code fields, for summarization and reporting purposes, for exclusive use by Engineer. Each code field will be ten (10) characters in length and will be titled LCP1, LCP2, LCP3, LCP4 and LCP5. Engineer will provide the applicable coding to Contractor for inclusion within these code fields. Contractor will populate and maintain these code fields for all schedule activities;
- n) Schedule calendars and activity codes will be prefixed with the six character package identifier and a dash (for example, “CT0327-“). This is to prevent potential data errors in the Engineer’s planning system;

- o) Schedule activity descriptions shall clearly identify the work associated with the activity, and shall be consistently applied throughout the schedule;
- p) Activity durations shall not, in general, exceed twice the update frequency;
- q) Start to Finish (SF) relationship types shall be avoided;
- r) Open ends within the schedule network shall be avoided;
- s) Network logic shall be consistently applied throughout the schedule;
- t) The "Work Breakdown Structure" (WBS) shall not be the only coding system used within the schedule network. Activity codes are required to enable effective schedule development, review and analysis;
- u) Gantt or bar chart displays shall have the current schedule bar assigned to position 1, with the baseline schedule bar assigned to position 2; and
- v) Engineer will have free and direct access to all information associated with Contractor's progress and performance management systems, including planning, scheduling, progress measurement, person hours, resources and productivity data.

PROGRESS REPORTING

Contractor shall provide Weekly Reports and Monthly Progress Reports as described in Section 3 of this Exhibit 3 and, with respect to progress reporting, as more fully detailed below:

- a) Weekly Reports shall include the following:
 - Number of daily resources (headcounts and man-hours) by trade;
 - Progress table including quantities/statistics for current engineering, procurement, and fabrication/construction/installation/completions activities;
 - A Primavera two (2) week look ahead schedule with activities in-progress and completed in the previous week; and
 - A resource histogram showing a two (2) week look ahead and actual resources the previous week.
- b) Monthly Progress Reports shall include the following:
 - Planning and schedule control reports will be updated and issued monthly. Reports shall include the Control Schedule, Summary Schedule, tables, resource histograms, progress s-curves, document register, procurement plan, manufacturing schedule and support documentation. Contractor shall supply a copy of the schedule using Primavera P6 or equivalent, as well as hard copy format. If software other than Primavera is used, the native file shall have the capability to be easily converted to Primavera P6 and shall be subject to the Acceptance of Engineer;
 - Deviations from schedule in time or progress, reasons for delays and deviations with recommended actions for recovery;
 - Status of planned tests and/or hold points;
 - Tabulation of project man-hours addressing planned, actual and forecast at completion;
 - Progress table including quantities/statistics for current engineering, procurement, and fabrication/construction/installation/completions activities; and
 - Identification of critical and sub-critical path(s).

8 CHANGES TO THE WORK

INTRODUCTION

This Section 8 sets forth minimum requirements for identifying and processing Changes in support of Article 14 of this Agreement.

Changes will be initiated in one of two ways:

- a) by completing a Change Request, in the form as attached to this Exhibit 3 as Appendix A – Change Request; or
- b) by the issuance of a Change Order (which includes a Field Work Order).

Change Orders will be in one of the forms set out in this Exhibit 3 - an interim document and a final document. The Field Work Order form is an interim document used for Company directed Changes issued at the Site. The maximum value of a Field Work Order, in the form as attached to this Exhibit 3 as Appendix K – Field Work Order, shall be limited to \$25,000.00. Company shall issue the final Change Order form for each Field Work Order or for a group of Field Work Orders. The final Change Order form shall also be used for Changes initiated by Change Requests and for any Change not subject of a Field Work Order.

Contractor shall specify its assessment of cost and schedule impacts in each Change Request or proposal presented in accordance with this Section 8.

If Company issues a Change Order (including a Field Work Order) to proceed with a Change on a reimbursable basis, Contractor shall prepare daily time sheets for Company's signature covering such Change and submit them to the Company within twenty four (24) hours where the Change is performed on Site, or within one (1) week where the Change was performed elsewhere, after such Change has been performed. Company's signature of Contractor presented time sheets shall not commit Company to any particular payment in respect of the Change, but shall serve as a record of events in the eventual resolution of any difference of opinion between Company and Contractor regarding the cost or schedule impacts of the Change. Contractor shall also present details of its assessment of any effect of the Change on the Control Schedule.

Company will be entitled to an equitable reduction in the Contract Price and/or an equitable adjustment of the Control Schedule in respect of any reduction in the Work pursuant to a Change Order and in accordance with the provisions of Article 14 of this Agreement.

Contractor is not entitled to recover any costs related to preparation and administration of Change Orders, responses to Change Requests or preparation of Change Requests.

Each Change Order shall be deemed to take full account of the cumulative effects on the Contract Price and of all prior Change Orders.

ENGINEER REQUESTED CHANGES

Company may issue a Change Order (including a Field Work Order) directly to Contractor or may request a proposal from Contractor for a contemplated Change through Engineer by issuance of a Change Request.

Upon receipt of a Change Request from Engineer, Contractor shall prepare a proposal for the Change Request and submit it within five (5) Business Days to Engineer for further processing. Contractor's proposal shall include:

- a) A detailed execution methodology for the proposed Change;
- b) A detailed schedule for the execution of the Change and the impact on the Control Schedule;
- c) An estimated price for the Change using the items in the applicable Schedule(s) of Exhibit 2 - Compensation or if such Schedule(s) is not applicable, a lump sum price for the Change (if Contractor proposes any other method of compensation it shall provide its rationale for that method); and
- d) Details of the impact on the Execution Plan, the Quality Plan, the health and safety plan referenced in Article 15.2 of this Agreement and the environmental protection plan referenced in Article 15.3 of this Agreement.

If Contractor cannot present the proposal for the Change Request to Engineer within five (5) Business Days of the receipt of the relevant Change Request from Engineer, Contractor shall promptly notify Engineer and provide reasons for the delay and the date the proposal will be ready. Contractor shall not unduly delay submission of the proposal to Engineer. Engineer, at its sole discretion, can reject any proposal not submitted in accordance with the requirements outlined herein.

Engineer will review Contractor's proposal within ten (10) Business Days and either Accept and return a Change Order (in the form as attached to this Exhibit 3 as Appendix B - Change Order) for Contractor execution or reject the proposal for resubmission or cancellation.

CONTRACTOR IDENTIFIED CHANGES

Contractor may request a Change by submitting a Change Request to Engineer. The Change Request will include:

- a) A detailed explanation of why Contractor considers that a Change has occurred along with detailed support to enable Engineer to easily evaluate and assess the merits of the Change Request. Contractor shall specify the relevant provision(s) of the Agreement which it interprets as the basis for the Change Request;
- b) A detailed schedule for the execution of the Change and the impact on the Control Schedule;
- c) An estimated price for the Change using the items in the applicable Schedule(s) in Exhibit 2 - Compensation or if such Schedule(s) is not applicable, a lump sum price for the Change (if Contractor proposes any other method of compensation it shall provide its rationale for that method); and

- d) Details of the impact on the Execution Plan, the Quality Plan, the health and safety plan referenced in Article 15.2 of this Agreement and the environmental protection plan referenced in Article 15.3 of this Agreement.

Contractor has the responsibility to identify, by the issuance of a Change Request, any change to the Work that it believes to be necessary for environmental integrity, or that will benefit Company in terms of capital or operating cost, or improved performance flexibility, safety or operation of the Work.

CHANGE ORDER PRICE

Contractor's proposed price for any Change will generally be stated as an estimate based on the rates in the applicable Schedule(s) in Exhibit 2 - Compensation or if such Schedule(s) is not applicable, then a lump sum price shall be proposed. If Contractor proposes any other method of compensation, it shall provide its rationale for such method. Contractor shall provide such substantiation as Company may reasonably request regarding such proposed price. Each lump sum price for a Change shall be determined using the rates and prices outlined in Exhibit 2 - Compensation or on a basis to be agreed between Engineer and Contractor if there are no applicable rates in Exhibit 2 – Compensation.

For any Change proposed to be compensated on a reimbursable basis, Contractor shall include an estimated total price for the Change in the Change Request or in its proposal in response to a Change Request. Changes performed on a reimbursable basis will be priced in accordance with Exhibit 2 – Compensation.

Each Change Order shall fully define the terms of payment and invoicing provisions. Contractor shall not be entitled to additional compensation in respect of:

- a) Personnel already assigned full time to the Work, except when such Personnel are paid overtime, shift premiums or their assignment to the Work is extended, specifically in relation to the Change; and
- b) Contractor's Items already assigned full time to the Work, except when the hire period of rented items is extended specifically in relation to the Change.

CHANGE IMPACT ON CONTROL SCHEDULE

Contractor will submit to Engineer, all necessary information to support any proposed impact of a Change on the Control Schedule, in both hard copy and electronic format. The information shall include detailed critical path analysis, identification and full accounting for the use of float and the current Control Schedule.

Each Change Order shall be deemed to take full account of the cumulative effects on the Control Schedule and all prior Change Orders. Due consideration will be given to cumulative effects that may not have manifested themselves in previous Change Orders, such as a Change that is accommodated by reducing available float. Any cumulative schedule effects assessed by Contractor shall be supported by detailed analysis to account for the use of float. This analysis

shall include an electronic version of the current Control Schedule that clearly highlights the schedule effects to enable Engineer to verify Contractor's analysis prior to the issuance of the relevant Change Order.

Contractor shall update the Control Schedule for Company's Approval within five (5) Business Days after Company's issuance of any Change Order affecting the Control Schedule.

CHANGE REGISTER

Contractor shall maintain, fully updated at all times, a register of all Change Requests and Change Orders (with Field Work Orders identified separately). The register will include:

- a) Change Request number and date;
- b) Change Order number and date and reference to a Change Request;
- c) Brief description of the Change;
- d) Status of Change Request and Change Order;
- e) Value;
- f) Effects on Control Schedule; and
- g) Brief description of the basis for the Change Request.

Each Change Request will be identified by means of a unique sequential reference number beginning with 1000 for any Change Request issued by Engineer and Company, and 2000 for any Change Request issued by Contractor. Each Change Order will be identified by means of a unique reference number, which will be assigned by Engineer.

All Change Orders that affect the Control Schedule shall be individually detailed, by reference number and summary description, in the successive Control Schedule updates issued by Contractor for Company's Approval.

Contractor shall submit the Change register in the Monthly Progress Report or more frequently as required by Engineer.

9 RISK MANAGEMENT

Requirements for ongoing risk management and reporting will be agreed between Contractor and Engineer at the kick-off meeting. If there is a failure to agree on such requirements, Engineer shall have the authority to determine these matters. Engineer shall have the authority to specify the type of risks (such as schedule, quality, cost, safety and environmental) which shall be reported by Contractor. Some risks will be identified as "internal" risks, not subject to reporting.

RISK MANAGEMENT REQUIREMENTS

- a) Contractor shall establish and implement a risk management system to identify, address and manage safety, health and environment, cost, schedule, quality and other execution

- risks, for the duration of the Work.
- b) Contractor's risk management system shall be based on the following principals:
- All risks shall be identified and captured in the Risk Register (as defined in Section 9.1(c) below);
 - All risk scenarios shall be evaluated for elimination or mitigation through appropriate measures; and
 - All higher and medium risk scenarios and associated risk management strategies shall be communicated and accepted by the appropriate level of Contractor's management.
- c) Contractor's risk management system shall include the following features:
- Contractor shall develop a risk management plan indicating the formal risk process to be followed during Work execution, with risk assessment approach and frequency. The plan shall also include assessments required for safety, health and environment and execution risks referenced elsewhere in this Exhibit 3;
 - Contractor shall develop and maintain a risk register ("Risk Register") to capture all details required to monitor identified risks. The format and content shall be subject to the Acceptance of Engineer. It shall be submitted as part of the Monthly Progress Report, along with other reporting requirements specified within this Exhibit 3;
 - Contractor shall perform risk assessments using qualified and knowledgeable Personnel. Contractor shall consult with Engineer regarding meeting target levels of safety. Contractor shall also include active involvement of Engineer's Personnel and external expertise, as appropriate;
 - Risk assessments and recommended prevention and/or mitigation measures shall be formally documented in the Risk Register;
 - Risk mitigation and prevention strategies for assessed risks in the higher and medium categories are required to be reviewed for acceptability by specified levels of Contractor's and Engineer's management. These strategies shall be supported by formal actions captured in an action log and be appropriate to the nature and magnitude of the risk, with decisions and updates clearly documented;
 - Results of formal risk assessments shall be considered in the preparation or review of emergency response plans and procedures; and
 - Follow-up processes to ensure that decisions have been implemented shall be formally documented and maintained in an action log. At a predetermined frequency, compliance reviews shall be undertaken to verify that formal risk assessments and follow-up actions are implemented.
- d) Where appropriate, Engineer shall be invited to observe and/or participate in risk assessments performed by Contractor. Results of risk assessments related to the Work shall be distributed to Engineer upon completion of any of the assessments included within Contractor's risk management plan.
- e) Contractor shall also participate in risk assessments conducted by either Engineer, Company or Company's Other Contractors when these risk assessments relate to activities for which interfaces exist with the Work or where Contractor is involved.

10 ENGINEERING REQUIREMENTS

INTRODUCTION

This Section 10 sets forth minimum requirements for engineering coordination in support of this Agreement, including Article 3 of this Agreement and the document entitled "LCP Supplier Document Requirements" provided in Exhibit 11 - Company Supplied Documents.

Contractor shall comply with document submittal and review requirements provided in this Agreement.

REVIEW AND ACCEPTANCE/APPROVAL OF CONTRACTOR DOCUMENTS

Throughout this Exhibit 3 and elsewhere in this Agreement, wherever there is a stated requirement for Approval by Company or Acceptance of a Contractor drawing, procedure, specification or other documentation, this shall mean:

- a) Contractor shall carry out its internal inter-discipline checking (IDC) to verify the quality of such drawing or document;
- b) After Contractor's IDC, and subject to such drawing or document being free of significant "holds", Contractor shall issue such drawing or document for Company's/Engineer's review and comments;
- c) Drawings or documents submitted for such review shall be free of significant holds. Related engineering required to allow Company/Engineer to review each such drawing or document shall be made available by Contractor, if not already in Company's/Engineer's possession;
- d) Contractor shall revise such drawing or document to take account of Company's/Engineer's comments as part of the Work;
- e) Contractor shall obtain Acceptance / Company's Approval of such drawing or document before it is issued for implementation;
- f) In relation to any documentation to be reviewed by Company/Engineer, Contractor shall allow a period not less than ten (10) Business Days for Company's/Engineer's review and comments;
- g) The review periods are based upon Contractor issuing quality documents in a regular flow; undue batching of large quantities of documents issued at irregular intervals will entitle Company/Engineer to an extended review period applicable to each batch;
- h) The presence or absence of Company/Engineer comments shall in no way relieve Contractor of its obligations, liabilities or responsibilities under this Agreement; and
- i) Company/Engineer shall have the right to raise additional comments at any time to address Contractor's errors and omissions, and Contractor shall incorporate such comments into the Work.

It is the responsibility of Contractor to maintain an electronic system for monitoring, recording and tracking all revisions and changes to such drawings and documentation.

At the start of each major phase or element of the Work (including engineering, procurement, construction, installation or completions), Contractor shall compile and issue to Company a listing of the types of documents and drawings that Contractor Group shall produce during that phase. Company shall identify the items that will need to be issued for Company's and/or Engineer's review/Acceptance/Approval/information (as applicable), and Contractor shall ensure they are issued to Company or Engineer (as the case may be) accordingly.

All applicable drawings or documents shall be issued at approved for construction (AFC) status prior to commencement of manufacture or fabrication of components.

Contractor shall provide copies of all drawings, calculations, documents and other data for review by Company and/or Engineer.

Contractor shall submit for Company's comment, Contractor's detailed execution plan for the first ninety (90) days of the Work, within thirty (30) days of the Effective date.

VARIATIONS FROM REQUIREMENTS

If any Shop Drawings show variations from this Agreement's requirements, Contractor shall identify and describe such variations in writing to Engineer. If Contractor fails to identify such variations, it shall not be relieved of the responsibility for executing the Work in accordance with the Agreement, even though such Shop Drawings may have been reviewed by Engineer.

TECHNICAL QUERY PROCEDURE

Requests for clarification or guidance related to technical details contained within Company Supplied Data, shall be formally presented by Contractor to Company as a Site Query (SQ). Refer to Section 11 below for details on the use of an SQ.

11 CONSTRUCTION MANAGEMENT

OBJECTIVES

In executing the Work, Contractor shall, and ensure that the other members of Contractor Group shall:

- a) Assign experienced and qualified project management Personnel and craft workers with demonstrated skills during the field work / construction phase of the Work and provide continuity of such Personnel throughout the execution of the Work;
- b) Maintain adequate controls and oversight during the field work / construction phase of the Work to ensure conformance with all requirements of this Agreement;
- c) Minimize Work execution risks and risks to Company's assets;
- d) Develop adequate contingency and recovery plans to mitigate impacts on schedule of unforeseen events (e.g. weather events); and
- e) Provide Worksite(s) that are safe, secure and free of industrial health hazards.

CONTRACTOR'S DUTIES

With respect to the Work, Contractor shall:

- a) Plan and co-ordinate the design, fabrication, transportation, installation, construction and completions of the Work with Engineer to ensure all interfaces are identified and managed;
- b) Identify execution risks and develop mitigation plans and procedures covering all reasonable events during the field work / construction phases;
- c) Conduct all engineering for field work, fabrication, transportation, construction and completions as stipulated in this Agreement;
- d) Prepare, maintain and implement:
 - emergency preparedness and response procedures;
 - detailed fabrication, construction, transportation and material management plans for major Worksites;
 - security measures at the Worksite; and
 - a health and safety program;
- e) Provide all construction and installation equipment, tools and temporary facilities required to perform the Work;
- f) Provide Personnel and facilities for all field testing, inspection, supervision and coordination activities associated with the Work;
- g) Support Company's construction management activities related to the Work; and
- h) Take all necessary precautions to avoid labour disputes and to minimize the disruption in the event of any dispute, all in compliance with Article 31 of this Agreement.

SITE QUERY (SQ)

The Site Query (SQ) process, as described in this Exhibit 3, shall be used by Contractor to facilitate the timely resolution of minor engineering and construction problems encountered at the Worksites. The SQ is used to formally transmit and co-ordinate technical queries with Engineer and to document the resolution to the query. Engineer shall not be involved in answering Site Queries which are entirely within Contractor's own responsibility.

Contractor may raise an SQ (in the form attached as Appendix H - Site query (SQ)) to clarify Technical Requirements which require a formal response. The SQ will include separate sections for Contractor's query and for Engineer's response. Any relevant documents that might assist those assigned to respond to the query in understanding the issue should be included or referenced with mark-ups as required. Contractor's SQ shall be approved by an appropriate level of authority within Contractor's organization and submitted formally to Engineer (distribution list to be provided). Contractor shall assign an SQ number based upon the Accepted numbering system which will be provided to the Contractor.

Engineer shall review the SQ and provide a response within the appropriate section of the SQ. It will be Contractor's responsibility to implement any actions associated with the response. Responses may simply be explanatory in nature and require no additional action. Where appropriate, an SQ response may be accompanied by a Site Instruction (in the form attached as Appendix I - Site Instruction) or an Engineering Change Notice (in the form attached as

Appendix J - Engineering Change Notice (ECN)). An SQ will remain open until any associated actions have been completed, to the satisfaction of Engineer.

Open SQs shall be reviewed at weekly Site meetings in order to resolve all matters relating to their resolution.

SITE INSTRUCTION (SI)

The Site Instruction (SI) process, as described in this Exhibit 3, shall be used to provide a formal record of an instruction or verbal agreement originated directly at Site from Engineer to the Contractor.

SIs (in the form attached as Appendix I - Site Instruction) will be provided to address the following items (examples only):

- a) Instructions to Contractor related to safety or quality;
- b) Confirmation of verbal instructions/notifications;
- c) Procurement activities;
- d) Site administration;
- e) Reporting requirements;
- f) Work clarification; and
- g) Instruction subsequent to a Site Query response.

Open SIs shall be reviewed at weekly meetings in order to resolve all matters relating to their implementation.

ENGINEERING CHANGE NOTICE (ECN)

The Engineering Change Notice (ECN) process, as described in this Exhibit 3, will be followed by Engineer to highlight the issuance of any engineering design change to the Contractor whenever:

- a) Issued for Construction (IFC) drawings or specifications are revised after their issue to Contractor;
- b) New IFC drawings or specifications are issued that are not listed in Exhibit 1 - Scope of Work; and
- c) IFC, sketches, documents or any such typical instructions are issued.

Engineer will generate an ECN, using the form found in Appendix J - Engineering Change Notice (ECN) of this Exhibit 3, to describe and communicate Issued for Construction (IFC) document changes to the Contractor. These changes will be described on the ECN form and accompanied by the associated drawings, specifications, sketches and related documents for implementation by Contractor. Where an ECN is the result of an SQ or a SI, it will reference the relevant document. The ECN will be assigned a unique number by Engineer for future reference and reporting.

12 COMPLETIONS

OBJECTIVES

In executing the Work, Contractor shall ensure that all members of the Contractor Group shall:

- a) Assign experienced and qualified system completion management personnel and craft workers with demonstrated skills during equipment manufacture, site preparation and site installation phases of the Work, and provide continuity of such Personnel throughout the execution of the Work;
- b) Maintain adequate controls and oversight during the equipment manufacture, site preparation and site installation phases of the Work to ensure safety execution and conformance with all requirements of this Agreement;
- c) Minimize Work execution risks and risks to Company's assets;
- d) Develop adequate contingency and recovery plans to mitigate impacts on schedule of unforeseen events (e.g. weather events , equipment delivery delays); and
- e) Provide Worksites that are safe, secure, and free of health hazards.

CONTRACTOR'S DUTIES

With respect to the Work, Contractor shall:

- a) Plan and co-ordinate the completion scope with Engineer to ensure all interfaces are identified and managed safely by means of toolbox talks, job safety analysis , livening up notices, permit to work, and electrical and mechanical isolation processes. Refer to Exhibit 5 - Health and Safety Requirements for full details of responsibilities;
- b) Identify execution risks and develop mitigation plans and procedures covering all activities during field mechanical completion (MC) phase;
- c) Provide manuals for:
 - Preservation; and
- d) Mechanical Completion; Provide detail procedures for:
 - Factory Acceptance Testing;
 - Preservation at factory and Site;
 - Mechanical Completion at factory and Site; and
- e) Site Acceptance Testing; Plan, schedule and perform all activities relating to, and document results of:
 - Factory Acceptance Testing;
 - Preservation; and
 - Mechanical Completion;

Section 7 (Schedule Management) provides the full detail of the schedule development requirements. For completions, the activities shall provide resourced logical sequence progression through MC, with clearly identified responsibility MC handover points;
- f) Prepare, maintain and implement:
 - Livening up Notice procedure;
 - Permit to work procedure; and
 - Electrical and mechanical isolation procedure.

Adequate numbers of experienced Personnel shall be provided to administer and supports these processes. Refer to Exhibit 5 - Health and Safety Requirements for full detail of responsibilities;

- g) Provide all test equipment, facilities, commissioning and start-up spares, tools, special tools, first fills, lubricants and temporary facilities required to perform the completions scope of Work;
- h) Provide Personnel and facilities for all field testing, inspection, supervision and coordination activities associated with the completions scope of Work; and
- i) Provide Personnel and facilities, in accordance with the terms and conditions of this Agreement, to support ready-for-operations Site activities (RFO) of Company.

13 INVOICING AND PAYMENT

OBJECTIVES

Contractor shall submit accurate, complete and detailed invoices that reflect the Work completed by Contractor, in a format that will be established by the Engineer and with the necessary supporting/verification documentation to enable Engineer to efficiently attest the invoices and recommend Approval and payment of Contractor's invoices by Company, and all in accordance with the Articles of this Agreement.

CONTRACTOR'S DUTIES

- a) Contractor shall submit invoices in accordance with this Agreement complete with Company Approved Payment Certificates and all supporting/verification documentation Acceptable to Engineer.
- b) Contractor shall submit to Engineer, a monthly report that summarizes invoices submitted and payments made, along with applicable dates of both the invoices and the payments and other pertinent information that Engineer or Company may require.
- c) Contractor shall submit to the Engineer, each month, a cash forecast report by currency for the following three (3) months. This report shall be submitted by the 20th day of every month.

PROCEDURAL REQUIREMENTS

- a) Contractor shall submit to Engineer one original invoice, along with one (1) PDF copy of the invoice and all required Billing Information. At Engineer's request, all supporting schedules and calculations supporting the invoice shall be provided in native file format.
- b) Each invoice shall be organized such that it is easily understood and:
 - contains a clear description of the completed Work being invoiced;
 - the charges can be easily and efficiently verified against the Agreement and the Billing Information; and
 - all charges are clearly cross referenced to the Billing Information.
- c) All invoice amounts shall be detailed based on Company's code of accounts.
- d) The invoice shall include the following information:

- i. Contractor's name, address and tax identification number (HST registration number);
 - ii. Invoice date and invoice number;
 - iii. Agreement number and name;
 - iv. Charges detailed by code of accounts along with cumulative value of all invoices for the Agreement detailed by Company's code of accounts;
 - v. Adjustments, if any, from prior invoices;
 - vi. Subtotal, tax (HST applicable to the invoice) and total;
 - vii. All invoices shall be in the currencies detailed in Exhibit 2 - Compensation;
 - viii. Complete and accurate supporting documentation, including without limitation Billing Information and any other pertinent information that Company may require to verify completion of the Work, the accuracy of the fees, charges and third party charges; complete with a summary sheet cross referencing all supporting documentation to the charges covered on the invoice;
 - ix. Approved Payment Certificate accompanied by all relevant supporting documentation (in the form as stated in Appendix D - Payment Certificate);
 - x. If Contractor is a non-resident, in accordance with Exhibit 10 – Declaration of Residency, Contractor shall note on each invoice whether any portion of the Work covered by such invoice was performed inside or outside of Canada for the purposes of Canadian income tax legislation, or such other information requested or required by Company to properly assess withholding requirements; and
 - xi. Where appropriate, Change Order amounts may be shown separately and the invoice will itemize charges associated with each Change Order, including without limitation, a detailed description of each item being invoiced. A copy of the Change Order shall accompany the invoice.
- e) Before Company pays an invoice, Company may request clarification or substantiation in relation to any charges on the invoice and Contractor shall promptly comply with any such request. Invoice review meetings (or pre-payment meetings) may be held to agree on charges to be included on an invoice.
- f) If an invoice is deemed incorrect by Company, Company is entitled to reject such invoice and shall provide reasons for the rejection.
- g) A Final Completion Certificate will be required before final payment will be made. When Contractor believes the requirements of Final Completion have been satisfied, as described in Article 25 of the Agreement, Contractor shall request by Notice a Final Completion Certificate. Such request shall be in the form as contained in Appendix C - Request and Final Completion Certificate.

Invoicing for Change Work

Contractor shall submit separate invoices for Changes, unless Engineer Accepts otherwise, with the Change Order number and date mentioned on the invoice. Invoicing provisions shall be specified on each Change Order. All Changes shall be subject to the compensation provisions and payment terms set out in Article 12 of this Agreement, Exhibit 2 – Compensation and Exhibit 3 – Coordination Procedures.

Contractor will not invoice Company for any amounts which result in the cumulative amount invoiced being greater than the Contract Price.

Under no circumstances will Contractor present invoices for a Change, nor will Company compensate Contractor for any Change, in the absence of a Change Order.

Banking Information

- a) Payments of invoices shall, where possible, be made by electronic funds transfer to Contractor's bank account, as specified in writing by Contractor to the Company Representative.
- b) Any changes in Contractor's banking information or payment instructions shall be submitted in writing to the Company Representative. The Company shall not be held responsible for errors or delays resulting from incorrect or delayed submission of changes in banking instructions by Contractor.

14 INFORMATION MANAGEMENT

SCOPE

This Section 14 provides the minimum requirements in relation to information management (IM) which includes the areas of records and document management and control.

OBJECTIVES

- A. To establish an effective IM environment for the execution of this Agreement, where people can work safely and collaboratively with a confidence that information, and the systems that manage it, are accessible, accurate, reliable, up to date and timely throughout the Term.
- B. For the function of IM and its associated processes, to be seen as an enabler and not a hindrance to project progress and success.
- C. To establish clear communication methods for the exchange of information, both technical and non-technical.
- D. To use standards (electronic formats, physical formats, data, numbering, etc.) to ensure a consistent information deliverable for incorporation into Company systems, regardless of origin.
- E. To produce and deliver a quality information asset that will support and enable the ongoing operation and maintenance of physical assets.
- F. To provide the people, processes and tools required to facilitate and enable efficient and effective IM practices for the execution of this Agreement.
- G. To ensure that adequate orientation, training and guidance is provided to all team members in the specific areas of IM and supporting systems.
- H. Personal, confidential and restricted information shall be handled using best practice protocol to ensure access to only authorized Personnel in both the physical and electronic

environments.

- I. No incidents of illegal information brokering as Contractor performs the Work.

CONTRACTORS DUTIES

Contractor shall:

- A. Develop an IM plan (including procedures, organizational charts, systems, training programs, etc.) to address the following areas of IM:
 - a. Administrative records management; and
 - b. Document management/control (engineering services, Contractor, procedural, etc.);
- B. Adhere to the documents included in Exhibit 11 - Company Supplied Documents;
- C. Provide statistical and status reporting for documentation and data as defined by Company;
- D. Ensure all IM related standards and procedures agreed between Company and Contractor are followed by Contractor's Personnel;
- E. Facilitate inspections and assessments of IM processes and systems by the Company Representative for Contractor Group;
- F. Provide process improvement suggestions throughout the Term where there are efficiencies to be gained; and
- G. Highlight and work to resolve any IM related issues relating to the Work.

COMPANY'S AUTHORITY

Company shall have the authority to:

- A. Provide general oversight to the IM components relating to the execution of this Agreement;
- B. Review and Approve plans and procedural documentation created by Contractor in support of IM for the execution of this Agreement;
- C. Conduct inspections and assessments of Contractor Group's IM programs and systems as appropriate;
- D. Provide statistical reporting requirements to Contractor as required;
- E. Provide applicable IM related standards to Contractor;
- F. Identify restricted information as appropriate;
- G. Provide process improvement suggestions throughout the Term where there are efficiencies to be gained; and
- H. Highlight and work to resolve any IM related issues or inefficiencies relating to the execution of this Agreement.

SPECIFIC REQUIREMENTS

ADMINISTRATIVE RECORDS

- A. Contractor shall maintain a distinct set of project related administrative records consisting of all non-revision controlled information received or created/generated in support of the Work. Administrative records shall be managed in an electronic content environment.

- Contractor shall provide reports of these records upon request from Company. Contractor shall provide copies of records as requested by Company at any point during the Term.
- B. Contractor may use existing file plans and classification systems within its own organization, but shall capture all communication with Company using Aconex.
 - C. Contractor shall maintain a correspondence register within Aconex.
 - D. Formal correspondence shall be by letter and shall be limited to one subject per letter. The subject line shall include reference to Agreement numbering as well as the specific subject.
 - E. All correspondence shall be sent by Aconex. Use of signed PDF documents is acceptable. Details on the use and application of Aconex will be provided by Company and addressed at the kick-off meeting accordingly. Contractor shall be aware of the following:
 - a. Aconex is a cloud based computer software program that can be accessed via an internet connection and a web browser (www.aconex.com).
 - b. Aconex Project Mail is a module within Aconex that can be used to send and receive emails similar in function to most other email software systems (i.e., Microsoft Outlook, Lotus Notes, etc.).
 - c. Tutorials for using Aconex and Aconex Project Mail are available at (www.aconex.com).
 - d. Aconex serves as an electronic project mailroom and archive.
 - e. All correspondence relating to the project can be created, delivered, recorded and archived by the system.
 - f. On Aconex, project mail is not held in individuals' folders but in a company mailbox, the equivalent of a central filing system.
 - g. Correspondence is available to all project participants within the organization and confidentiality can be enabled when required.
 - h. All project mail is delivered on company specific templates, maintaining a firm's identity within the project.
 - i. Aconex mail functions are very familiar, as they mirror standard email packages.
 - j. Files may be attached to any piece of project mail from the controlled documents register, or the local drive or network.
 - k. Hard copy letters and existing documents can be captured into the system through a scan/registration process, ensuring all correspondence is logged.
 - l. All project mail is automatically logged and cannot be deleted or modified once sent.
 - m. Mail can be filtered by a variety of attributes, free text and wildcards. Mail to or from any members within a company or project can be found instantly, ensuring accountability and full quality assurance.
 - n. Support for the use of this system can be provided from Aconex at 1-888-5-ACONEX or speak with any member of the LCP Information Management Team (LCPDCC@lowerchurchillproject.ca).

DOCUMENT MANAGEMENT/CONTROL

- A. Company will facilitate the document numbering upon submission by Contractor of the initial Supplier Document Register as per Exhibit 4 – Supplier Document Requirements List. All documents, and all pages and sheets within, shall bear this number and the associated revision number.

- B. All documents shall be prepared and submitted by Contractor in accordance with the document entitled "LCP Supplier Document Requirements" (as provided in Exhibit 11 - Company Supplied Documents) and as required under Exhibit 4 – Supplier Document Requirements List.

APPENDIX A
CHANGE REQUEST

APPENDIX B

CHANGE ORDER

**CHANGE ORDER (CO)
Between
Company and Contractor**

Agreement No: _____	CO No. _____
Agreement Title: _____	Rev. No: _____
Company: _____	CR No. _____
Contractor: _____	Date: _____
Description of Change:	
Supporting information that forms part of this Change Order:	
Change Includes: <input type="checkbox"/> Price <input type="checkbox"/> Schedule Adjustment Type: <input type="checkbox"/> Lump Sum <input type="checkbox"/> Unit Rate <input type="checkbox"/> Fixed Amount <input type="checkbox"/> Estimate <input type="checkbox"/> Reimbursable	Original Contract Price _____ Value of this Change Order _____ Previous Contract Price _____ _____ Total Contract Price \$ _____
Impact on Control Schedule:	
Revised Finished Date: _____	
This Change Order shall form and be read and construed as an integral part of the above-noted Agreement. The above adjustment to the Contract Price constitutes full compensation (including all impact costs) to the Contractor for the above Change.	
Issued by: Company _____ Signature: _____ Name: _____ Date: _____	Acknowledgement of Contractor Receipt: _____ Signature: _____ Name: _____ Date: _____

APPENDIX C

REQUEST AND FINAL COMPLETION CERTIFICATE

REQUEST FOR FINAL COMPLETION CERTIFICATE

Agreement No.: _____

Agreement Title: _____

Contractor: _____

To Engineer:

In accordance with Article 25 of the Agreement, Contractor hereby confirms that it has completed the Work and all the requirements of Final Completion (as described in the Agreement) have been met, all in accordance with the Agreement, excluding its Warranty obligations.

Contractor agrees that, as of the date of its confirmation below, the Contractor waives, remises, releases and discharges the Company of any and all Claims that are known, ought to have been known or discoverable by reasonable means by the Contractor, which Contractor has or may have relating to or arising out of this Agreement and the subject matter of this Agreement, and all facts and circumstances related to the Work, save and except:

- a) Only those Claims previously submitted by Contractor in writing and remaining unresolved prior to the date of Contractor's below confirmation, as listed below:

_____;

and

- b) The balance of the Contract Price payable, if any, upon the issuance of this Final Completion Certificate.

Contractor Confirmation:

Contractor confirms it has completed the Work in accordance with the above-noted Agreement.

By: _____
Contractor Representative

Acknowledgement of Engineer Receipt:

By: _____
Engineer

Date:

FINAL COMPLETION CERTIFICATE

Agreement No.: _____

Agreement Title: _____

To Contractor:

Company hereby confirms that the Date of Final Completion of the Work is **[date]**.

By: _____
Company Representative

Date:

APPENDIX D

PAYMENT CERTIFICATE

PAYMENT CERTIFICATE

Date: _____
 Agreement #: _____
 Agreement Title: _____
 Contractor: _____

Milestone / Monthly Progress
 Payment Description: _____

Milestone / Monthly Progress
 Payment Amount: _____

Work Executed for Monthly Progress / Milestone Completion criteria and status (list below):

Contractor:

Contractor hereby notifies Company that it considers that it has executed the associated Work or met the criteria for achieving the above-noted Milestone(s) and requests Company Approval.

By: _____
 Contractor Representative

Date:

Company Approval:

Company hereby Approves this Payment Certificate. Company Approval of this Payment Certificate does not relieve Contractor of any of its obligations under the Agreement.

By: _____
 Company Representative

Date:

APPENDIX E

NOT USED

APPENDIX F

NOT USED

APPENDIX G

NOT USED

APPENDIX H
SITE QUERY (SQ)

Lower Churchill Project	SITE QUERY (SQ)
----------------------------	-----------------

Company: [REDACTED]	Project No. [REDACTED]	Date [REDACTED]	Page of [REDACTED]	Rev. [REDACTED]
Project Name: [REDACTED]		Site Query No. [REDACTED]		
Contractor: [REDACTED]	<i>Distribution</i> <input type="checkbox"/> QC <input type="checkbox"/> Contract Administrator <input type="checkbox"/> Package Engineer <input type="checkbox"/> Resident Engineer <input type="checkbox"/> Contractor <input type="checkbox"/> Construction Manager <input type="checkbox"/> Document Control <input type="checkbox"/> Chief Inspector			
Agreement No.: [REDACTED]				
Agreement Title: [REDACTED]				

1. QUERY DETAILS

[REDACTED]

DOCUMENT NO.	REV.	TITLE

	TITLE	NAME/COMPANY	SIGNATURE	DATE
Prepared by:	[REDACTED]	[REDACTED]		[REDACTED]

2. QUERY ADMISSIBILITY (If Contractor Request)

[REDACTED]

	TITLE	NAME	SIGNATURE	DATE
Approved by:	[REDACTED]	[REDACTED]		[REDACTED]

3. RESPONSE / PROPOSED SOLUTION (If Applicable)

Comments:
[REDACTED]

	TITLE	NAME	SIGNATURE	DATE
Prepared by:	[REDACTED]	[REDACTED]		[REDACTED]
Approved by Site:	[REDACTED]	[REDACTED]		[REDACTED]
Approved by Home Office:	[REDACTED]	[REDACTED]		[REDACTED]

4. INSPECTION (CLOSE OUT)

Inspection: Work executed as per proposed solution Yes No

Explain:
[REDACTED]

	NAME	SIGNATURE	DATE
Inspector:	[REDACTED]		[REDACTED]
Chief Inspector:	[REDACTED]		[REDACTED]

APPENDIX I
SITE INSTRUCTION (SI)

LOWER CHURCHILL PROJECT	SITE INSTRUCTION (SI)
------------------------------------	------------------------------

Company: [REDACTED]	Date [REDACTED]	Rev. [REDACTED]	Page of [REDACTED]
Project Name & Location: [REDACTED]	Site Instruction No. [REDACTED]		
Contractor: [REDACTED]	<i>DISTRIBUTION (NAME PLUS DISCIPLINE OR COMPANY)</i> From: [REDACTED] To: [REDACTED] Copies to: [REDACTED]		
Agreement No.: [REDACTED]			
Agreement Title: [REDACTED]			
Plant Area / Bldg No.: [REDACTED]			
Reference Specification: [REDACTED]			
Reference Drawing No.: [REDACTED]			

The Contractor agrees that by signing acceptance of this Site Instruction, the contents hereof do not contain or imply any additional money or schedule effect in the above-noted Agreement whatsoever.

Instruction:
[REDACTED]

Reason:
[REDACTED]

	TITLE	NAME	SIGNATURE	DATE
Prepared by:	[REDACTED]	[REDACTED]		[REDACTED]
Accepted by:				

DISTRIBUTION

- | | | |
|---|--|--|
| <input type="checkbox"/> File
<input type="checkbox"/> Contractor
<input type="checkbox"/> Area Construction Manager
<input type="checkbox"/> Environment
<input type="checkbox"/> QA Coordinator | <input type="checkbox"/> Planner
<input type="checkbox"/> Estimator
<input type="checkbox"/> Chief Inspector
<input type="checkbox"/> Cost Controller
<input type="checkbox"/> Document Control (site) | <input type="checkbox"/> Resident Engineer
<input type="checkbox"/> Contracts Administrator
<input type="checkbox"/> Commissioning
<input type="checkbox"/> Other _____
<input type="checkbox"/> Other _____ |
|---|--|--|

APPENDIX J

ENGINEERING CHANGE NOTICE (ECN)

Lower Churchill Project	Engineering Change Notice (ECN)	Page 1 of 2	
		Revision	
		No.	Date
		00	

Company: Project:	ECN No.:
----------------------	----------

Agreement No.	Contractor
Agreement Title	

Distribution		
From	To	Copy to

Summary Description of Changes

Instruction to Contractor	
<input type="checkbox"/> Submit impact on contractual terms prior to proceeding with the work	<input type="checkbox"/> Lump Sum <input type="checkbox"/> Unit Price <input type="checkbox"/> Cost Plus
<input type="checkbox"/> No impact on the contractual terms, proceed with the work	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/>	

Received by Contractor		
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">_____</div> Name	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">_____</div> Signature	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">_____</div> Date

	Title	Name	Signature	Date
Prepared by:				
Reviewed by:				
Approved by:				

APPENDIX K
FIELD WORK ORDER (FWO)

LOWER CHURCHILL PROJECT	FIELD WORK ORDER (FWO)
------------------------------------	-------------------------------

Company: [REDACTED]	Date [REDACTED]	Rev. [REDACTED]	Page of [REDACTED]
Project Name & Location: [REDACTED]	Field Work Order No. [REDACTED]		
Contractor: [REDACTED]	<i>DISTRIBUTION (NAME PLUS DISCIPLINE OR COMPANY)</i> From: [REDACTED] To: [REDACTED] Copies to: [REDACTED]		
Agreement No.: [REDACTED]			
Agreement Title: [REDACTED]			
Plant Area / Bldg No.: [REDACTED]			
Reference Specification: [REDACTED]			
Reference Drawing No.: [REDACTED]			
Description of the Work: [REDACTED]			
Reason: [REDACTED]	Trend Type: Trend No.: Allocated Budget: Code of Account:		
Schedule Impact: [REDACTED]			
Work Start Date: [REDACTED]			
Lump Sum Price: [REDACTED]	Estimated Price: [REDACTED]	Unit Price <input type="checkbox"/>	Time & Materials <input type="checkbox"/>
Acknowledgment of Receipt: Contractor: _____ <div style="display: flex; justify-content: space-around; width: 100%;"> Signature Title Date </div>			
Company: <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;"> _____ Contract Administrator Date: _____ </div> <div style="text-align: center;"> _____ Area Construction Manager Date: _____ </div> </div>			

In no case shall this Field Work Order (FWO) exceed \$ 25,000

LCP-SN-CD-0000-SC-FR-00XX-01

APPENDIX L

PRELIMINARY EXECUTION PLAN



PROJECT EXECUTION PLAN

Project Name: CT0327: Muskrat Falls HVdc Transmission Line Construction

Prepared By: A Budzinski

Date (DD/MMM/YYYY): 23-June-2014

This document is provided to outline the approach of Valard Construction LP (Valard) for construction of the Muskrat Falls to Churchill Falls Transmission Line Construction contract CT0327.



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-
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APPENDICES

APPENDIX A – FOUNDATION SELECTION AND INSTALLATION DECISION PROCESS

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APPENDIX L – AMEC SOIL CLASSIFICATION AND FOUNDATION SELECTION



1 PROJECT OVERVIEW

Valard's project plan is strategically linked to the existing Muskrat Falls 315kV AC transmission project. This approach allows for the most effective and efficient use of project resources while ensuring that opportunities to improve the project budget and timeline are also acted upon.

For all clearing and access program related tasks, a Valard project manager will assume overall accountability for managing these project requirements. The project manager will be responsible for overseeing a crew consisting of both Valard and The Company resources to undertake all clearing related work on the right of way. In advance of these activities, Valard has proactively undertaken initial steps to construct a campsite at km 140. Once this camp is complete, required permits for all additional project camps will be secured in sequence to support clearing and construction activities.

A management team independent of the existing Muskrat Falls AC project will be dedicated to the project from the onset to support spread one related tasks between Muskrat Falls and the Strait of Belle-Isle. Once spread one is complete, the crew will remobilize itself to Newfoundland for the completion of spread two (the construction of the long range mountain segment). Furthermore, it is Valard's intent to accelerate the construction completion date of the MFAC project in order to remobilize this crew to complete spread three between km 630 and Soldiers Pond once again making efficient use of existing resources.

In addition to the individual construction management teams working on each of the two projects, a separate management team will be established and situated in St John's to support all reporting requirements and project related commercial activities for both projects. If necessary and in the event of any interim project delays, Valard will engage a third team of available resources from within its sister company Irby to support Valard's efforts. This team is comprised of the vital execution and management resources required to ensure project completion within the prescribed timeline.

Construction crews will be mobilized once all of the necessary ROW accesses are made available in order to undertake and complete all construction activities in accordance with the project schedule referenced and provided within the execution plan.



2 PROJECT OVERHEADS, SERVICES & TEAM INTEGRATION

This section describes the baseline of services to the project that Valard will provide for the project duration. It should be noted that some roles may not be present or available during certain periods in the project where individual tasks are reduced or eliminated.

Special emphasis will be applied to ensuring that the completion of the AC line construction is accelerated to take advantage of the project team's experience and project familiarity. The current plan is to accelerate the completion of the AC construction activities and then remobilize this team to create a second DC construction team to begin activities on this segment of the project.

A third team will be identified and utilized only as required by accessing resources from Valard's sister company IRBY. Further, this Team will only be called upon at the discretion of the Executive Project Sponsor and will only be considered through joint consensus between Valard and Nalcor.

2a) MANAGEMENT TEAM

Project Sponsor

- Provides a direct point of contact for the Company's management team or Project Sponsor to communicate with the upper management of Valard Construction.
- First mediator for any issues that may arise between Valard's Project Team and the Company's Project Team.
- Responsible for client relationship and ongoing customer experience during the course of the project.

Project Director

- Reports directly to the Project Sponsor
- Responsible for the entire project portfolio (AC, DC lines and any further related Nalcor or EMERA projects).
- Responsible for the coordination of resources and synergies between project teams.
- Responsible for drawing on the full resources of Valard Construction and Quanta Services into the project portfolio.
- Responsible for St. John's Office and local portfolio-wide resources.

Assistant Project Director

- Reports directly to the Project Director
- Directly responsible for supporting the Project Director as defined and as required to ensure a successful completion of all project deliverables.
- Liaises with the Company's Project Manager and any other management and project resources as defined by the Project Director in a supporting role.



- Coordinates resources and responsibilities between Valard and Quanta as required.
- Other responsibilities as defined and required by the Project Director.
- Part of St. John's Team.

Project Manager

- Reports directly to the Project Sponsor
- Directly responsible for a successful completion of all project deliverables.
- Liaises with the Company's Project Manager.
- Works closely with the Construction Manager to deliver the project in accordance with the Company's schedule while observing the subtleties of the Company's scope of work and any applicable laws or regulations.

2b) CLEARING TEAM

Clearing Access Manager

- Takes reports from the clearing and access coordinators
- Responsible for supervising their time and assignments
- Takes reports from the clearing and access coordinators
- Responsible for direct coordination with Nalcor
- Responsible for reporting progress directly to Nalcor as well as to Valard
- Responsible for the schedule
 - Cost tracking
 - Costs for Valard
 - Costs for Nalcor
 - Invoice preparation
 - Authority to stand down the clearing and access project.
- Responsible for documentation and chargeback of all of Valard's T&M work
- Responsible for administering the T&M and other aspects of Valard's contract with Nalcor.

Regional Deputy Clearing and Access Manager

- Assist the clearing and access manager in his function
- Oversee clearing and access activities on a regional level.

Clearing Supervisor

- Responsible for clearing and access on a localized level
- Day-to-day tracking of time and material contractors
- Day-to-day tracking of unit-price work
- Coordination of activities of various subcontractors to maintain the schedule



-
- Ensures compliance with all regulatory, safety, and environmental requirements on the part of both Valard and any Nalcor subcontractors.
 - Audit function with respect to all subcontractor deliverables.
 - Authority to stop/start work

Safety Manager

- Advise the Clearing and access manager on safety compliance issues
- Responsible for review and approval and maintenance of the project safety plan

Safety Personnel

- Advise the supervisor on regulatory compliance as it relates to safety.
- Responsible for review and approval of subcontractor safety manual(s) and programs.
- Authority to stop/start work on a crew level in the event that immediate danger is present.

Environmental Management

- Dedicated environmental resources will supervise clearing operations as part of Dean's team.
- It is expected that Nalcor will provide direction on what aspects are in and out of scope.

2c) CONSTRUCTION TEAM

Site Manager

- Works in partnership with the Project Manager and the Construction Manager through the project delivery.
- Labour relations while at site will be overseen and managed by the Site Manager fully supported by Valard's Human Resources department.
- Valard has extensive experience working with Project Agreements and unionized workforces; it is confident in its ability to deliver a successful project in cooperation with the IBEW and the TCEA

Construction Manager



-
- Primary leader of Valard's onsite construction complement.
 - Directly responsible for personnel safety , the quality of the installed product and the timely delivery of the product throughout the duration of the project.
 - Works in partnership with the Project Manager through project delivery.

Camp Manager

- The Camp Manager will be responsible for acquiring and maintaining the necessary workforce accommodations and environment.
- The camp manager will be in charge of ensuring the overall organization and efficient operation of Valard Construction camp facilities.
- He/she will be responsible for support services and catering while directing and coordinating Valard camp activities at site.
- He/ she will be responsible for dissolving the camps upon completion of a project.

Project Safety Manager

- Advises the Project and Construction Managers on the requirements of Valard's safety manual, applicable provincial and federal law, and the requirements of the Company with respect to safety.
- Liaises with the Valard, Company and subcontract safety personnel.
- Consistently and proactively reports safety conditions, issues and concerns to Valard Construction's Vice President for Safety.
- Organizes and administers all scheduled requirements of the project safety plan.
- Tracks project safety progress reporting and records to ensure adherence to the project safety plan.
- Tracks personnel training and competency records, and vehicle inspection records as they pertain to safety.
- Ensures all people and equipment meet all necessary requirements and ensures proper reporting and investigation.
- Manages and reports any safety-related incidents and works with the required resources to address the identified incidents.
- Manages Valard Safety personnel.

Project Quality Manager

- Responsible for developing, refining and managing inspection and test plans.
- Responsible for the project Quality Records, interpreting specifications and defining inspection requirements.
- Responsible for the timely completion of all inspections and inspection records.
- Responsible for ensuring all executed work is based on up to date drawings and specifications.



-
- Manages completion of all punch list items.
 - Responsible for maintaining as built drawings and survey co-ordinates.
 - Liaises with the Company's designated quality personnel.
 - Manages the activities and progress of any Quality Coordinators or Inspectors assigned to the project.
 - Manages the activities of any third-party Quality Monitors or laboratories employed by Valard Construction on the project.
 - Manages and reports any quality issues that may arise over the course of the project.
 - Responsible for reporting recognized project progress to the Project Manager.

Project Environmental Manager

- Manages Valard's responsibilities with respect to the Project Environmental Protection Plan.
- Liaises with the Company's designated environmental personnel.
- Manages and reports any environmental incidents that might occur on the project.
- Manages the efforts of the environmental monitors.

Project Land & Access Manager

- Responsible for acceptance of the right-of-way from the Company's representative.
- Responsible for all transactions on the project with respect to real estate (property rentals, permits, etc.).
- Responsible for preparation and implementation of the project access plan, in accordance with the environmental recommendations of the project Environmental Manager.
- Responsible to ensure access is prepared for construction.

Geotechnical Lead

- Responsible to conduct the geotechnical investigation for determination of foundation type.
- Works in cooperation with the Foundation & Anchors Supervisor to deploy the geotechnical investigation team and ensure that they are adequately supported.
- Coordinates information collected from the geotechnical team in the field.
- Responsible for foundation recommendation supported by geotechnical investigation at each individual structure site, inclusive of ensuring that it is tamped and tested.
- Coordinates with the Company to ensure recommendations have been accepted; works with the Company to overcome any deficiencies identified with the recommendations.



- Receives approvals from the Company and coordinates distribution of revised IFC structure lists.
- Responsible for managing acquisition of bearing strength of in-situ soils.

Foundation & Anchors Supervisor

- Works with the Geotechnical Lead to coordinate on-the-ground geotechnical investigation.
- Coordinates and oversees foundation assembly and installation.
- Oversees anchor installation contractor.
- Responsible for quality of project delivery with respect to foundation installation; responsible for enforcing the project quality plan.
- Responsible for foundation materials stored in the project material yards.

Structures Supervisor

- Coordinates and oversees structure hauling, assembly, and erection.
- Responsible for quality of project delivery with respect to structure assembly and erection; responsible for enforcing the Project Quality Plan.
- Oversees the heavy lift helicopter subcontractor.

Stringing Supervisor

- Aids in the development of the stringing plan.
- Communicates and executes the stringing plan.
- Coordinates and oversees the distribution of conductor, dressing of towers, establishment of equipotential bonding zones, pulling out of sock line by helicopter, hardline and conductor pulling, conductor sagging, conductor splicing, insulator clipping, conductor dead-ending and spacer installation.

2d) SUCCESSION AND ABSENCE PLANNING FOR KEY PERSONNEL

Valard Construction makes a point of assigning adequate project resources to allow for leadership to take time off without disrupting the project's flow.

All leadership personnel share their responsibilities with a designated subordinate who in turn shares their responsibilities with a further subordinate.

In addition to allowing for time off, this also shields the project against the possibility of personnel falling sick, leaving the project, or other unforeseen circumstances.

Leaders and subordinates sharing responsibilities will work opposing three-week shifts onsite, with one-week breaks in between:



- The shift creates a four-week cycle.
- Shifts are offset by two weeks – teamed leader have a week on the project together followed by time off so that there is continuity of management.
- There is always a senior leader available on the site to direct the work and address any issues that come up.

2e) WORKSITE CONDITIONS

i. Occupation of the Worksite

Valard Construction will occupy and complete work on the right-of-way seven (7) days per week for the duration of the project schedule, with the exception of breaks of approximately ten (10) days at the Christmas / New Year break in 2014 and 2015.

While the project is not staffed for the holidays, Valard will provide onsite camp attendants and make arrangements for project security.

ii. Shifts

All of Valard's onsite personnel – management included – will work a 21 & 7 shift (21 days of work followed by a 7-day break).

Standard hours of work will consist of 10-11 scheduled hours per day inclusive of travel between the marshaling areas at the camps and the work face on the right-of-way.

The project complement will be distributed across four shifts (titled A, B, C, & D) separated by one (1) week for the purpose of leveling the number of personnel on the site at any given time.

iii. Communications

Valard will establish FM repeaters at high points along the ROW for the purpose of establishing a project-wide communications network.

The repeater network will support a project wide general communication channel to be used for coordination as well as emergencies, regionalized channels and a dedicated channel for the stringing crew.

iv. Camps

All camp equipment will consist of assets already owned by Valard Construction. Valard currently owns and operates fourteen (14) individual camp setups, and has extensive experience in the establishment, operation and remediation of these facilities in remote locations (including such remote and inaccessible areas as James Bay, and challenging regulatory environments such as Northwestern BC and



Southern Ontario). Valard also has extensive experience in the operation of camp facilities under extreme winter conditions.

Camps will consist of single-occupant dormitories with communal private washrooms, in addition to kitchen units, lounge areas, mobile gyms and storage.

Valard will enter into a contract with a provider of camp catering services for all three camp locations, having extensive knowledge of remote area catering.

Catering service will consist of maid service for all rooms and the camp common areas, in addition to two hot meals per day and bagged lunches for personnel that will be onsite. Hot lunches will be served in the camp kitchen for project staff and camp staff working out of the project yard.

Valard will seek permits both to sink a well and to install a holding tank and septic field at each camp location.

Each camp location will be provided with telecommunications services. This will consist of voice, fax and data for the project office located within the camp, in addition to camp wifi. Valard has had preliminary discussions with Bell Canada that indicate that it will be able to tie into the newly installed fibre line along the Trans-Labrador Highway – if this is not available, communications will be established via satellite.

The project office in the camp will also feature an FM transceiver that will be monitored at all times during the day for the purpose of receiving and relaying emergency information.

v. Project Laydown Yards

Project laydown yards will be approximately ten (10) acres in area, ideally on a near-square plan.

Laydown yards will be setup for joint use, with one portion of the yard used for materials and another portion used for the camp, offices and maintenance facilities.

i. Project Mechanics and Maintenance Facilities

Valard will establish a temporary shop facility for maintenance of the fleet vehicles. The facility will consist of a modular tent and sea-cans with all necessary facilities to complete regular preventative maintenance on the fleet, in addition to providing a warm and dry location for any necessary major repairs.

The project will be staffed with 2 to 4 mechanics on rotating shifts to ensure that maintenance and repair activities are always supported. The mechanics will have the use of a shop pickup in addition to two service trucks equipped with tools, air and welders.



Valard will also provide the project with several lowbeds – some of which will be provided by local suppliers – for the transport of equipment along the right-of-way and back to the maintenance facilities.

ii. Logistics & Transportation

a. Mobilization & Material Transport

Valard's primary mobilization will be completed by Valard-owned or locally sourced transport trucks to be driven directly to the camp facilities and/or Goose Bay

b. Transportation of Material and Equipment within Labrador

Following completion of the mobilization Valard will leave (6-8) tractor-trailer units assigned to the project for the purpose of distributing materials along the right-of-way and moving equipment up and down the ROW.

c. Transportation of Personnel Along the Length of the Project

In General all personnel will be moved along the ROW in Valard vehicles. Valard will make arrangements with a local transport provider to transport employees between camps and the airport, when project resources are not available.

d. Flights

Valard will provide employees with flights as per the project agreement.

Shifts will be arranged for weekly changes so that groups of employees can be shuttled to the airport at Goose Bay for outside transport.

As the construction complement grows, Valard will seek to establish charters for employees between Goose Bay and points outside of Labrador that will make flights more convenient and maximize personnel downtime on the 7-day break. Valard will present Provincial Airlines and other local suppliers with the opportunity to provide these services.

Owned Aircraft

It is the intention of Valard Construction to dedicate one of its aircraft – a Cessna 425 Conquest – to the project. The Conquest will be based in Goose Bay and will be available for quick and easy transport for employees and managers between Goose Bay and St. John's. It will also be used to quickly source emergency parts for equipment from Quebec, the Maritimes and other locations as necessary. This additional piece of logistical equipment has been of tremendous benefit to Valard projects in the past.

**2f) SAFETY MANAGEMENT**

Valard will provide a dedicated project Safety Manager to the project; this individual will be responsible for administration of the safety program, as well as being responsible for addressing any issues related to safety or loss that might occur on the project.

The project Safety Manager will report indirectly to Valard's Vice President of Safety.

In addition to the project Safety Manager, Valard will provide sufficient Safety Coordinators to cover NL (NL?) requirements (dependent upon project stage and the number of activities ongoing at any given time). One of these will be a Senior Safety Coordinator who will work an opposing shift to the project Safety Manager so as to provide constant coverage.

Valard will provide the project with Level III EMT's and will provide these EMT's with appropriately provisioned emergency response vehicles for each region under construction. These EMT's will also be responsible for ensuring that all personnel dispatched to the project ROW return to the marshaling area every day. The Safety Manager and EMT's will have Medical Oversight at all times.

2g) QUALITY MANAGEMENT

Valard will provide the project with a dedicated project Quality Manager. This Quality Manager will be responsible for coordinating the project-wide ITP, ensuring the quality of project delivery and delivering the final quality record to the Company.

The Project Quality Manager will report indirectly to Valard's Corporate Quality Manager.

In addition to the project Quality Manager, Valard will provide a staff of inspectors to verify the quality of various activities identified in the ITP.

The Project Quality Manager will have access to a survey team to complete an as-built survey as well as to certify the position and orientation of foundations, and to survey the height of conductor sag.

2h) ENVIRONMENTAL MANAGEMENT

Valard will provide the project with a dedicated Project Environmental Manager. The Project Environmental Manager will report indirectly to Valard's Lands, Forest and Environment Manager.



The project Environmental Manager will be provided with a staff of environmental monitors that will:

- Monitor construction activities to ensure adherence to the Contract Specific Environmental Protection Plan.
- Work proactively to place and maintain environmental protection measures.

2i) LANDS & ACCESS MANAGEMENT

The project will be provided with a dedicated Lands and Access Manager that will be responsible for construction of access, and manage Ownership of the Right-of-Way (responsibility for lands under the stewardship of Valard Construction).

The Lands and Access Manager will have an assistant that will work an opposing shift to provide constant coverage on the project.

2j) COMMUNITY PARTICIPATION & LOCAL CONTENT

Valard Construction has an excellent record of working with local communities, and understands and will follow the hiring requirements set out in the IBA for the LCP.

While Valard Construction is committed to the development and success of Canadian Aboriginal communities and people, it is also sensitive to the wider historical record of unemployment across the Province of Newfoundland and Labrador, and the expectation that developments by the Company are expected to generate employment for residents of the Province in general.

3 SCHEDULING

The project will be coordinated through the effective use of the overall project schedule highlighted within appendix G. This schedule provides a clear timeline, which associates each of the key project tasks (ROW, clearing, camp mobilization, construction, etc.) with a sliding calendar to reflect both task start up and overall completion.

This execution plan has been woven into the project schedule utilizing its overall effectiveness to associate tasks within the execution plan with clear scheduled deliverables and resource requirements.

The Project Scheduler will be responsible for all aspects of the project schedule including clearing and access activities.

4 MOBILIZATION



4a) POST AWARD COORDINATION

Valard's Project Manager has been mobilized to St. John's to begin coordination activities with the Company's representatives. The key managers will also be sent to St. John's to begin preparing post-award, pre-construction deliverables.

All pre-construction deliverables as defined in the Supplier Document Register (SDR) will be completed in a timely manner and submitted for the Company's review through Aconex prior to the commencement of construction activities. These will include but not be limited to:

- A final work breakdown structure.
- A project management plan.
- A complete and accurate project schedule.
- A populated project risk matrix
- A complete project-specific environmental plan
- A complete project-specific safety plan
- A complete ROW Access plan
- A complete project-specific quality plan
- A subcontract-specific Environmental Protection Plan
- Executed subcontracts for any work that is outsourced.
- Individual activity plans for each element of the WBS
- Completed invoicing framework

In addition to the above listed deliverables, in advance of commencement of each activity type listed in the WBS, Valard will prepare a complete activity plan that addresses the individual activity safe work procedure, job safety analysis, inspection and test plan, and activity specific environmental measures, in addition to all other requirements of the contract related specifically to the activity.

4b) EXPLORATORY MOBILIZATION

The project Land and Access Manager has been mobilized to the site, along with the help they need to complete their responsibilities. These personnel have started the permit process for the establishment of transmission line construction and camp facilities.

The personnel initially mobilized to the site will also be responsible for initiating contact with the Company's site representatives and will meet regularly with them to coordinate the commencement of construction activities.

It is the intent of Valard Construction to establish yards having the following features:



- 150–250 bed dormitories along with the requisite support facilities and amenities.
- A 40,000 litre fuel storage facility.
- A temporary shop facility complete with permitted chemical containment facilities.
- Office facilities as required for the use of the Construction Manager and his team.
- Parking for the project equipment and the vehicles of any personnel that are commuting to the project in their own vehicles.
- Laydown facilities for the project materials.
- In the event a helicopter is needed for setting some structures, A barricaded helicopter landing pad and fuel storage large enough to accommodate a Sikorsky S-64 Skycrane will be established.

The exploratory mobilization team will be responsible for completing the permitting cycle for all of the project laydown/camp facilities. Upon completion of the permitting cycle for each camp, the exploratory mobilization will be considered to be complete.

The exploratory mobilization team will also be responsible for assessing access at the ground level and preparing/modifying the access plan in order to support the first construction activities.

4c) LOCAL OFFICES

Valard Construction has established an office in the city of St. John's that will exist for the purpose of contract administration and liaison with the Company, regulatory bodies of the province of Newfoundland and Labrador, and the local chapter of the IBEW. The Project Manager will be established full-time in St. John's and will make regular visits (bi-weekly) to the site in Labrador.

Valard will maintain a Construction Office at the main camp and a satellite office at additional camp locations for the management staff on site. A similar facility will be provided for the Company at each of the camps as per the contract.

4d) MOBILIZATION OF CAMPS AND EQUIPMENT

The majority of Valard's camp equipment and heavy machinery will be mobilized by truck to the project laydown yards and future camp locations.

All camp facilities will be owned by Valard Construction. These facilities will be shipped to Happy Valley and stored at Valard's staging site in Goose Bay until such time as the project yards are ready for their installation.

In the initial cargo moves, Valard will also mobilize an excavator and crawler-tractor for the purpose of handling and loading the camp facilities at its staging facility. If there is an opportunity to source this equipment locally, Valard Construction will do so and enter into the appropriate agreements.



It is the intent of Valard Construction to make use of nine camp locations:

1. DC Camp 1: located at km 140 South on Hwy 551
2. DC Camp 2: located approximately 52°08'26.47" N/57°40'59.59" W along the ROW.
NOTE: An all-season access road will be required to be constructed
3. Forteau Camp: located 2km West of Forteau
4. Plum Point Camp: located 1km East of the intersection of Hwy 432 & Hwy 430
5. Daniel's Harbour: located 10km North East of Daniel's Harbour
6. Moose Pond Camp: located 1km West of Moose Pond
7. Grand Falls Windsor Camp: located within GFW city limits
8. Clarenville Camp: located 5 km south-west of Clarenville
9. Cross Roads Camp: located 2km West for Cross Roads

Valard will have 5 camps running simultaneously and will leap frog the camps down the line to continue construction activities. All nine camp properties will be permitted and prepared during the period between award and construction startup, but initially Valard will only establish the DC Camp 1 to support the ROW clearing activities and the first construction activities.

In advance of moving the camp equipment to the camp locations, the ROW and access group will also be responsible for all camp and kitchen permitting, including but not limited to:

- Building permits & inspections
- Potable water system permits
- Fire department alarm inspections
- Land use permits
- Sewage system permits
- Commercial kitchen health inspection
- Any other permits deemed to be required for the establishment of a camp in Labrador.
- Shop petroleum collection/storage/recycling facility permits

Valard's camp group will be supported by the environmental group in application for all permits required to establish and inhabit the camps.

Camp sites will be prepared with an adequate approach for the project construction traffic, a complete turnaround area for highway tractors, and a secondary exit. All other access to the sites will be secured with a berm consisting of the displaced materials from the site pad.



Immediately following clearing and grading of the individual laydown yards, Valard will mobilize office trailers and well site facilities (individual self-contained sleeper units) to the site so that it can begin to house personnel at the site. Upon establishment of these facilities, the project construction management office will formally be moved to the project site, where it will remain until demobilization.

Following grading and access construction, the camp dormitories, kitchen and facilities will be installed. To the maximum extent possible, Valard will provide supervision and management of the construction of these facilities with the majority of work completed using local tradespeople as per the hiring protocols.

Following installation of the camp facilities, all weather- and winter-proofing will be completed, along with connection of communications, electrical and plumbing facilities. Following completion of these activities, Valard will make arrangements with the various permitting authorities to conduct the necessary inspection prior to inhabitation.

4e) MOBILIZATION OF ACCESS & ROW PERSONNEL

Concurrent with the exploratory mobilization, Valard Construction will mobilize its project ROW and access group to ground truth the project access plan.

The team will identify crossings and assess their suitability for temporary crossings under winter conditions, establish the project laydown yards and install all necessary off-highway access points. Applications for all types of permits need to complete the work will be applied for and in hand before work will commence.

Along with mobilization of the access group, Valard will mobilize its environmental team.

4f) HIRING LOCALLY

Valard will coordinate with the Innu Nation and the IBEW to hire locally as per the IBA and project hiring protocols.

This activity will provide Valard with a good overview of the skills available locally and will allow its Supervisory personnel to interact with some of the potential employees to evaluate their aptitude and motivation.

In cooperation with the Union and the Innu Nation, a list of potential hires will be created to be integrated with Valard's team of previously skilled labour.

The foundation and assembly activities offer the greatest possible potential to introduce new labour to the workforce, however there will be several opportunities for workers.

4g) MOBILIZATION OF FOUNDATION & ASSEMBLY CREWS



Following the establishment of adequate housing facilities, Valard will begin to mobilize foundation and assembly crews to the site.

Supervisory personnel will initially be mobilized to the site, with craft and labour positions filled from hiring protocols set out in the LCP agreement. April/May 2014 will see a ramp up of activities where several workers will be brought in to fill various positions including camp set up, foundation assembly, tower assembly, material deliveries etc.

Piling (Type 4) installation crews will not be mobilized until design has been approved. A soil investigation will take place for design purposes and will be submitted to the Engineer for approval. Once approval is received a piling crew will be mobilized.

Cranes and erection crews will not be mobilized until there is a sufficient number of towers assembled (approximately 200) to justify mobilization of the erection crews and equipment.

4h) MOBILIZATION OF STRINGING CREW

Valard's stringing crew will mobilize in the winter of 2015, making use of the same facilities as the foundation and assembly crews.

Stringing Crew mobilization will be deemed to be complete when all stringing equipment required for the project is onsite and ready for use.

5 SURVEY AND STAKING

5a) SURVEY - GENERAL

Immediately following the Company granting ROW access to Valard Construction, it will mobilize Valard Geomatics survey resources to the site and begin staking structure centers and offsets for the purpose of allowing the geotechnical team to go to work.

This survey team will start work at Muskrat Falls and proceed at a pace that keeps ahead of the foundation installation/geotechnical crews at a pace that preserves the stakes and monuments.

This team will also be responsible for site-proofing the Company's IFC structure locations.

The survey team will coordinate with the Company through Valard's Project Manager to make any necessary structure move recommendations.

This team will also be available to the ROW access construction team to identify and mark any environmental or heritage features that might not be immediately apparent to construction or access teams.

**5b) STRUCTURE SURVEY**

The survey team will proceed with structure survey in accordance with the requirements of the Survey Plan and staking sheets.

This team will also be responsible for site-proofing the Company's IFC anchor locations for position in any side-hills that might exist along the ROW.

The survey team will also provide any necessary offsets to allow installation teams to check their work as they go.

5c) ONGOING SURVEY

Throughout the project, Valard will have survey resources available to relocate stakes that might go missing or get knocked down, place anchor bolts, and any other survey-related duties that might be necessary.

The survey team will be utilized to provide as-built data to the structure erection teams for the purpose of accurately cutting guy wires in the project yard.

The survey team will also be utilized to confirm sag on the conductor, OPGW and OHSW.

5d) AS-BUILT SURVEY

The survey team will provide accurate as-built data on the installation of all anchors, centre-pins and foundations, in addition to any bridges, crossings or other features that are to be left in place and deemed pertinent by the Company.

6 CLEARING ACTIVITIES MANAGEMENT AND GOVERNANCE

Valard will ensure that overall project clearing requirements will be staffed adequately as to ensure a governance model (as highlighted in appendices B and C), which will support the most effective and efficient use of resources. This governance structure supports a joint mandate to reduce the use of human and financial resources where possible, translating into mutual cost saving benefits to both Valard and Nalcor. These benefits have been both discussed and agreed to by both Valard and Nalcor Senior Management.

Regular Valard generated progress reports will provide consistent and frequent updates which will be shared with Nalcor's project management team regarding clearing progress. Further, where there are opportunities to capitalize on schedule and resource usage, these will be acted upon under the discretion and directive of Valard, representing the interests of both Valard and Nalcor.

**6a) Clearing Project Leader**

The Clearing Project Lead will be responsible for all coordination and oversight of clearing activities and acting as the primary point of contact between Valard and Nalcor on all project related clearing activities.. In addition to having a project assistant to support on the ground activities, project coordinators will be stationed in both Labrador (4) and Newfoundland to manage the coordination of project resources associated with clearing activities. These resources can be quickly redeployed between regions as required or needed to support timeline improvements.

The Project Leader will split his time between Labrador and St. John's based on a schedule that is preapproved by the overall Muskrat Falls Project Director. Regular interaction with Nalcor personnel will also be encouraged to ensure that there is directly alignment between clearing activities and Nalcor expectations.

6b) Safety and Environmental Resources

A compliment of 4 safety resources will be committed to tree clearing efforts enabling a rotation schedule which will ensure that safety resources are always on site around the clock seven days a week. This same approach will be taken with respect to the use of environmental resources with 4 being committed to support a rotation schedule as well.

6c) Reporting**i) Weekly Reporting**

Weekly reports will be generated and presented to Nalcor in a format as determined and accepted by Nalcor. This reporting matrix will be fully integrated with construction activities to represent a real view of project progress in its entirety. These reports will also track expenses against clearing activity and progress on a unit and hourly basis.

ii) Monthly Reporting

A monthly reporting dashboard also meeting Nalcor requirements will be generated and submitted to Nalcor and the beginning of each month. This dashboard will highlight all key milestones and activities along with tracking markers, alerting of any progress deficiencies while also acknowledging opportunities for improvement.

7 PROJECT CONSTRUCTION ACCESS



Immediately following contract award, and the Company granting access to the project ROW, the Project ROW team will mobilize to begin preparing a construction clearing and access plan, including the supervision of clearing by the Company's subcontractors. Valard's ROW team will assess the ROW, complete the plan, and attain all permits or necessary permissions required to complete the work.

The construction access plan will identify additional access clearing requirements, the type and season of access, equipment and material requirements, water crossings and any issues that may affect the progress schedule. A three-week look-ahead schedule (current week plus two week look-ahead) will be created prior to access construction crews arriving on site and it will be updated weekly.

7a) Clearing and Brushing:

Valard's ROW team will oversee and coordinate the work of the subcontractor performing this work, and at the request of the company, be prepared to be a self-performer as well. Valard's single ROW access and construction team will manage and supervise the work of both the self-performed access construction as well as the Company's subcontractor's clearing crews on a limited basis and as directed by the senior project management team.

7b) Summer Access Construction:

Valard will use a combination of excavators, crawler tractors, rock trucks and gravel trucks to construct summer access. Access will be required to support tractor trailer units and large, wheeled cranes.

Culverts, rig mats or temporary bridges will be established on all water crossings. Corduroy and ballast or swamp mats will be established for short sections of wet areas where feasible to complete in the summer.

7c) Winter Access Construction:

Immediately following the establishment of frost conditions, the ROW group will begin compressing the snow pack along the ROW to drive the frost into the ground along the ROW between major water and geographic features. An ice road will be built where there is no year-round access established along active sections of the ROW connecting off-highway access points to each structure location.

Corduroy, temporary log fills and ice bridges will be established across all minor water, bog and fen features with the intent of maximizing winter access (this will mitigate some environmental restrictions).



As snow falls and frost sets in, the ROW group will use graders, water trucks, snow-cats and ice floats to establish a thick ice road base.

Over the course of the winter, Valard will provide graders and snowplows to maintain/preserve access along the ROW.

8 SOIL INVESTIGATION: SELECTION & INSTALLATION OF FOUNDATIONS

8a) GEOTECHNICAL INVESTIGATION

Immediately following the Company granting ROW access to Valard, the ROW access group will begin to establish access for foundation installation crews as defined in the Foundation Installation Plan below.

Geotechnical investigation crews provided by AMEC will accompany the grillage installation crews as they progress from structure to structure along the ROW. These geotechnical crews will execute this work based on the following guidelines:

- follow the process outlined in the Foundation Selection and Installation Process below to determine the appropriate foundation types at each structure.
- the Foundation selection and installation decision process will follow the same approach agreed to for the 315kV HVac MF to CF project, as shown in Fig 3.2.2-2 below.
- the work will be completed per AMEC's Procedure for Soil Classification, Foundation Selection, and Geotechnical QA/QC for Foundation Selection, shown in Appendix A.

The output of AMEC's soil classification process will be a soil inspection log that will be signed by the AMEC geotechnical representative on site, the Valard Foundation Foreman and the Company field representative. Copies of the soil inspection log will be provided in triplicate and a report, authenticated by a professional engineer, will also be provided separately per AMEC's procedure.

8b) FOUNDATION SELECTION AND INSTALLATION DECISION PROCESS

The Foundation selection and installation decision process will follow the same approach agreed to for the 315kV HVac MF to CF project, as shown in Fig 3.2.2-2 within Appendix A.

8c) FOUNDATION INSTALLATION



In the event that local suppliers cannot support the volume or are unwilling to provide reasonable pricing, Valard is prepared to setup and permit batch plants along the ROW to prepare its own concrete.

i) General

Foundation installation will be completed starting near Muskrat Falls and proceeding west. Both winter construction seasons will be used to maximize access to wet areas.

Separate teams will be dispatched for each foundation type, with construction occurring on all types simultaneously.

ii) Anchors

Valard Construction will enter into a contract with Northstar for the installation of grouted anchors.

Anchor installation will begin as soon ROW access and final staking have been completed on enough sites to keep crews busy and proceed through to completion.

The anchoring subcontractor's will provide installation crews to meet the daily productivity rates per the project baseline schedule.

Following breakup, anchoring activities will continue through the summer.

Anchor installation will be completed as per the installation plan and in accordance with the foundation selection and installation decision process.

A Valard Construction Quality Coordinator will be present for the completion of pull tests to confirm the strength of the installed anchors. A record of the results will be supplied to the Company.

v. Grillage Foundations

All grillage foundation work will be performed by Valard Construction and installed as per the Foundation Installation Plan.

Grillage foundation materials will be hauled from the material yard out to the site as their installation is confirmed by geotechnical analysis. A survey team will be dispatched to layout the excavations for grillage foundations as they are confirmed.

A small team with an excavator will lead the installation process. This team will excavate the foundations to depth, and then work with a surveyor to layout and compact a level bottom.



The excavation team will scrape off surface organics and put them aside prior to excavation.

A separate team will assemble the grillage foundations in-situ; this team will be equipped with trucks for movement along the ROW a tele-handler to manipulate the steel and a 17-ton crane for hoisting and holding members.

A surveyor will be available as the installation proceeds to ensure that the finished grillage assembly is correctly placed.

A QC team will ensure that the base of excavation, placement of grillage assembly and backfill requirements meet Company drawings and specifications.

Following backfill of the excavations, native organics stockpiles at the outset of the excavation will be spread over the disturbed soils with the excavator and tamped flat.

It is understood that excess materials resulting from placing the grillage in the excavation will be spread around the backfill site and will form a low mound at the structure location.

iii) Rock Foundations with Overburden

All rock foundation work will be performed by Northstar and installed as per the Foundation Installation Plan.

Following identification of a rock foundation at an overburden location the survey team will lay out the excavations.

Initially, surface organics will be removed from the excavation location and stockpiled.

The excavator will remove soil as required to expose the rock face and create a safe excavation.

The surveyor will mark the location of rock bolts/anchors on the rock face.

Rock anchor shafts will be drilled by an excavator mounted with a rock drill.

When the shaft has been drilled to depth, a team will place the anchor bolts and centering supports, and backfill the shaft with grout.

Grout mixture will be prepared in a heated temporary facility or purpose-specific vehicle.

Grout will be of a fast-drying variety that will allow for continuation of the work.

Following grout placement, a crib formwork will be established on the rock face for the placement of the concrete pad; a surveyor will confirm the corners, elevation and orientation of the pad.



The concrete pad will be placed making use of the same measures as above.

When the concrete has solidified to the extent necessary to support itself, the crib-form will be removed, and the structure base will be installed on the face of the pad.

The surveyor will complete the calculations and make the determination/recommendation on the length of the stub to be cut.

The stub leg will be cut to the length required and the cuts edges treated with Galvicon or Zinga.

The stub leg will be installed on the base.

An excavator will backfill the excavation in 300mm lifts and compacted to the required spec.

To the maximum extent possible local fill will be used to backfill the excavations.

Following backfill of the excavations, native organics stockpiled at the outset of the excavation will be spread over the disturbed soils with the excavator and tamped flat.

A QC Team will confirm that the grouted anchors, concrete pads and stub angles are per Company drawings and specifications.

iv) Rock Foundations without Overburden

All rock foundation work will be performed by Northstar and installed as per the Foundation Installation Plan.

Following the identification of a surface rock location, surveyors will mark out the site.

The installation crew will remove and stockpile any surface organics and remove any uneven rock to produce a workable surface for the rock installation.

The surveyor will mark the location of rock bolts/anchors on the rock face.

Rock anchor shafts will be drilled by an excavator mounted with a rock drill.

When the shaft has been drilled to depth, a team will place the anchor bolts and centering supports, and backfill the shaft with grout.

Grout mixture will be prepared in a heated temporary facility or purpose-specific vehicle.

Grout will be of a fast-drying variety that will allow for continuation of the work.



Following anchor/bolt placement, the rock face will be cleaned and the rebar cage and formworks for the foundation pedestal will be installed on the site.

Concrete will be placed in accordance with all requirements of the contract and specifications.

The structure will be backfilled and compacted. Any stockpiled organics will be replaced on the surface.

A QC Team will confirm that the grouted anchors, concrete pads and stub angles are per Company drawings and specifications.

v) H-Pile Foundations

A separate document with the complete design for H-Pile Foundations will be submitted for review and approval by the Engineer before any work begins.

Valard will enter into a contract with Northstar to design, supply and install the piles.

H-Pile Foundation installation will begin after June, 2014 and will follow identification and confirmation of Type 4 foundation locations by the geotechnical engineer.

Following identification of a Type 4 foundation location, the surveyor will mark out the pile locations.

NorthStar's patented track-mounted pile-driving units will install driven piles.

A hauling crew will deposit piling material at the piling location. Piles will be driven into the ground and all necessary information gathered. Piles will be spliced using CWB-approved welders and methods.

Upon reaching rejection or the design limit reaction, the driver will move onto the next location.

A separate crew will mark piles at height and cut them off; welders will then install a top plate using CWB-approved procedures. These welds will be inspected by a qualified welding inspector.

A surveyor will provide markings on the piles and the stub legs will be installed by welders or by bolts (to be determined by engineer).

vi) Borrow Backfill

To the greatest extent possible, Valard will seek to make use of local backfill as taken from excavation or in the immediate area of excavation (per the Company's definition of 'Native Fill').



Where Native Fill is deemed to be unsuitable for backfill, Valard will backfill excavations with import borrow backfill that has been analyzed and approved for use by the geotechnical consultant.

Borrow backfill will be sourced from gravel pits along the highway adjacent to or on the right-of-way.

viii) Cribbing

Where cribbing is identified as a foundation requirement, Valard will endeavor to complete this work in the winter.

Valard will make use of the Company's provided cribbing design.

9 ASSEMBLY & ERECTION OF TOWERS

This section describes Valard's intended methods for assembly and erection of the lattice towers..

It is the intent of Valard Construction to assemble the guyed tangent and self supporting structures at the structure location and erect them with a crane.

9a) ASSEMBLY YARDS

Assembly yards to fly towers will only be established on the right-of-way in the event that access to a structure location with a crane is not possible.

These yards will be established in such a way as to ensure overall public safety along adjacent roads and facilities; given the double-width of the new ROW it is not anticipated that this will be a problem. Yard locations will be chosen to avoid flying loads over the Trans-Labrador Highway or the 138kV line that runs parallel to the project.

9b) STEEL STRUCTURE HAULING

Structures will be hauled out to the structure locations directly from the Company's Marshalling yard. Valard will take control and custody of the steel bundles at the marshalling yard and will sign for confirmation of the bundles' apparent condition. At this time Valard will not be responsible for confirming the presence and correctness of each member in a given bundle.



Upon arrival at the structure locations, the bundles of steel will be offloaded and arranged into the approximate locations of the assembled towers, and then 'shaken out' (bundles opened and individual members examined). At this point Valard will take stock of and confirm the contents of each bundle and report any discrepancies to the Company.

It is anticipated that there will be missing members (and extra members) in the bundles when they are examined. Valard will assign two personnel to coordinate any steel shortages or overages with the Company at the Marshalling Yard. Given the sheer bulk of the steel ordered – and barring the possibility of any systematic errors in the manufacturing or bundling process – it is anticipated that these resources will be able to mitigate any bundle discrepancies and avoid extra costs for the Company related to mis-fabricated steel or missing steel.

9c) **STRUCTURE ASSEMBLY**

ii) Guyed Structures

Guyed structures will be assembled in one piece at the structure location. Once the structure is complete a crew will attach the guy wire before erection.

For structures featuring extensions, the complete tower will be constructed.

Bolts will be installed making use of torque limited impact devices. Torque will be limited either by device selection (i.e. by making use of a device that is incapable of creating the installation torque), or by the use of torque-stick extensions.

Every bolt on the structure will be torqued by hand.

All torque wrenches used on the structures will be monthly inspected and calibrated to ensure accuracy. The wrenches provided to personnel will not be adjustable, but will rather be tuned to the recommended installation torque of the bolts being installed in the tool crib.

Following assembly, a separate team will inspect completed structures. This team will confirm torque on 5-10% of the bolts and complete a visual inspection of 100% of the tower.

The inspection team will coordinate its efforts with any inspection resources assigned by the Company. This will allow the inspector's to observe Valard's inspection team, and will also ensure that a large gap does not form between the assembled towers and the inspected towers.

Inspected and completed towers will be clearly marked as ready for hoisting in MBOS once all supporting QA documentation has been received.

iii) Self-Supporting Towers



Self-supporting towers will be assembled at the structure location; this statement applies to all self-supporting towers, as well as all double-circuit towers.

Self-supporting structures will be assembled in three steps:

1. Assembly of pylon panels on the ground
2. Assembly of the tower head (members above the bend, or narrowest part of the tower).
3. Partial erection to the bend (installation of ground-assembled pylon panels and securement with cross-members).
4. In some circumstances the complete tower may be assembled or “boxed in” before erection.

Transverse pylon panels will be assembled on the ground, inclusive of extension members.

Panels will be arranged in such a way as to be reachable by a crane stationed at the foot of the tower location.

The tower head will also be assembled on a ground – usually by a separate crew.

Bolt installation, torque and inspection will be completed in largely the same manner as for the guyed structures, with the exception of the fact that 20% of the tower bolts will be torque-confirmed.

Tower-head torques will be confirmed on the ground, with the exception of fasteners immediately surrounding the bent-leg splice. Likewise the transverse-face fasteners.

After the lower pylon panels have been assembled, they will be hoisted in to place and loosely bolted to the structure foundation.

The pylon panels will be hoisted into their final installation position (i.e. at the angle specified in the drawings) and secured with temporary guy wires. These guy wires will be attached to temporary anchors or to a piece of heavy equipment.

A rigging plan will be completed for the guy wires to ensure that they are of sufficient strength to maintain the tower’s angle prior to commencement of securing. This plan will form the basis for similar lifts along the line.

After the panels are brought to their final position, crews will tighten the foundation bolts and begin installing cross-members on the parallel faces of the pylon.

Before the uppermost cross-members are installed, no personnel will climb the partially-assembled towers; all work at height will be completed from a basket.

Cross-member bolts will be torqued as they are installed, and inspected when the complete structure is erected to the bend.



Upon completion of the assembly activity for self-supporting towers, the tower pylon will be 100% complete to the bend, and the tower head will be on trestles adjacent to the tower, ready for the final erection activity.

9d) **STRUCTURE ERECTION**

i) Guyed Structures – Guy Assembly Activity

Following completion of the structure foundations and anchors at each structure location, a survey team will complete an as-built survey.

The as-built survey of each structure location will be interpreted to provide the length of guys at each guy and structure location.

Guy wire will be cut in the yard and pieces specifically assigned to a tower number and position.

Guys will be hard-terminated in the laydown yard at one end and installed on the tower at the site prior to erection.

ii) Guyed Structures – Erection Activity

Valard will make use of a crane of suitable size for the erection of the guyed towers. Once the structure is upright the tailing crane will be cut free and the structure will be placed on the foundation.

In the event the structure must be flown, structures will be installed making use of an air crane of sufficient size for the lift.

The pilot will be provided with a registered radio frequency to be used exclusively for structure setting operations.

For all helicopter operations, the pilot will have a single point of radio contact on the ground; this individual is generally the erection Supervisor, and is known as the 'Air Boss'.

Valard will provide two 'hooking' crews, assigned to work with the helicopter operator in the fly yard to connect the structure rigging to the helicopter hoist.

Valard will provide several structure erection teams (as required to pace the helicopter) at the tower sites to 'catch' the towers and secure the guy wires.

After the structure is hooked, the helicopter will proceed to the location of its installation.

When the helicopter arrives at the installation location, the catching crew will touch the tower with a grounding wire to dissipate any static picked up in flight. When the static is cleared, members of the catching crew will move in to grab the guy wires



The Air Boss will provide feedback to the pilot while the catching crew guides the tower onto its pin.

When the tower weight is borne by the foundation, the catching crew will affix the guys to their respectful anchors by means of temporary grips.

When all 4 grips are secured and the tower is approximately plumb, the air boss will signal release to the helicopter pilot who will release the hoist and return to the assembly yard for another tower.

iii) Guyed Structures – Plumbing Activity

A separate crew will follow the erection crews down the right-of-way tasked with confirming the plumb of the installed towers.

The Supervisor will position a guy attendant at each guy anchor location; each of these will install a chain jack between a point approx. 450mm up the guy wire and the anchor's eye.

A surveyor will sight the tower plumb in from two approximately orthogonal positions.

The Supervisor will give direction to the guy attendants to transfer the load on their guy wire to the chain jack.

The Supervisor – in communication with the surveyors – will direct the guy attendant to pull in or let out their individual chain jacks a single stroke at a time until the tower is indicated to be plumb by both surveyors simultaneously.

When the tower has been confirmed as plumb, the Supervisor will direct the guy attendants to install permanent lower grip on their guy wire and verify tension on each guy wire is per specification.

When all guys are secured by the permanent grip, the Supervisor will successively direct the guy attendants to transfer the load on their guys to the permanent grips.

When the tower is completely released and plumb, the guy attendants will cut off any excess guy-wire stub making use of electrically-powered press-shears and install the guy guards as per the drawings.

Following completion of this activity and documented inspection by QA, the tower is 100% complete and ready for conductor.

iv) Self-Supporting Towers

A hoisting and rigging plan will be created for this activity for every structure type to be lifted. It is anticipated that the most appropriate cranes to be used for this lift



will be an 80-ton Tadano All-Terrain crane and a 30-ton Mantis Tracked Carrier Crane.

Two cranes are required to lift the tower head off the ground: a primary hoist and a tailing crane that ensures the lower members of the tower head are not damaged as the tower tilts to the vertical position.

In advance of lifting, a crane pad will be constructed and/or the ground condition will be confirmed. In places where there are identified soft surface soils, the preference will be to install tower heads over the winter to ensure a hard base under the cranes.

The primary lift crane will be positioned as close as possible to the tower foundation; the tailing crane will be positioned in such a way as to allow it to swing into line with the primary erection crane as the structure is lifted.

Rigging will be assembled and placed on the structure at pre-determined rigging points.

Climbers will be positioned near the bend in genie lifts in preparation to move in to bolt in the tower when the load comes into place. All necessary fasteners to complete the tower will be placed in buckets secured to the upper pylon corners.

Both cranes will 'float' the load above the ground.

The primary lift crane will slowly draw the top of the tower up while the tailing crane works to move the bottom of the tower into line under the lift crane.

When all tension has been released from the tailing crane, the tailing crane is released, rigging lowered to the ground and disconnected. It will lower its boom and move away from the structure.

The tower head will be lifted over the structure and positioned making use of tag lines. When the structure is almost in place, the climbers will transfer to the tower from a man basket, making use of double-hooking techniques to ensure continuity of fall arrest, and/or will perform this work from the basket. The workers will guide the tower head into its final position and will place bolts at each corner to secure it, while directing the hoist movements (as always, only one crewmember will direct the crane).

Once the tower head is in its final position and pinned, the erection crew will install one-half of the bolts into the bolt holes and tighten. When one-half of the bolts are installed and tightened, tension will be released from the hoist and one of the climbers will move up the tower to release the rigging.

The remaining bolts at the joint will be installed, tightened and torqued, as well as any other fasteners in the flexible area near the bend.



Following completion of this activity and documented inspection by QA, the tower is 100% complete and ready for conductor.

10 INSTALLATION OF CONDUCTORS, OHSW AND OPGW

10a) STRINGING PLAN

In advance of stringing, the stringing Supervisor will create a complete stringing plan that will identify the locations of temporary butt down sites along the whole length of the line. The final plan and procedures – and those reflected below – will conform to the tension stringing measures described in IEEE 524 and technical specifications, and all butt-down operations will be conducted inside Faraday cages installed along the ROW.

Note that if the Company should determine that slack stringing is the preferred method for the installation of conductor, this plan will be altered and re-submitted.

i) Conductor

Conductor is the primary focus of the activities. The Stringing Plan will provide for installation of 3300m and 4000m reels of conductor on the basis of tension stringing methods. Slack stringing methods may also be used in the installation of conductor.

ii) OHSW

The Contractor's plan calls for joint installation of the OPGW and OHSW, but it will be Valard's intent to install OHSW concurrently with the conductor's if they are both provided on similar length of reels.

iii) OPGW

The OPGW will be installed by a separate team using dedicated equipment (setup for a single conductor, with bull-wheels and blocks all oversized to meet the OPGW diameter requirements), and can be completed before or after the conductor and OHSW is installed. The OPGW will sometimes be installed from within the conductor butt-down enclosures, and sometimes at purpose-built OPGW butt-downs. These smaller sites will make use of the same tension bearing anchors as the OHSW anchor in the larger enclosures and will feature the same length of insulated walkway between the equipotential zone and the open right-of-way.

10b) BUTT-DOWN PREPARATIONS

In advance of construction, Valard will prepare butt-down site drawings.



- These drawings will feature the design of the tension-bearing anchoring facilities and all rigging to connect the butted-down conductor to the ground.
- These drawings will feature the design of the equipotential zone that will surround the stringing operations.
- These drawings will specify the placement of the stringing equipment within the enclosure.
- These drawings will specify the length of the insulated walkway required to access the equipotential zone.

Butt-down sites will consist of heavy steel mesh pads interwoven and bonded with copper conductor. The group of pads will be surrounded by a fence, which in turn will be surrounded by a buffer area. A second fence will surround the buffer area. An insulated walkway will connect the inner bonded area to the open right-of-way.

Installation of the butt-down site will also include installation of the conductor anchors with the capacity to hold line tension.

Butt-down sites will be installed by dedicated resources that will prepare the sites in advance of the stringing crew arriving onsite.

The butt-down sites will be salvaged after conductor at a given location is spliced and released. This will be completed on an ongoing basis with the materials recycled.

10c) PREPARATION OF ROW FOR STRINGING

A utility coordinator will be assigned to the preparation of the ROW for stringing.

This individual will also supervise the installation of the butt-down sites.

The utility coordinator will be a Red Seal Lineman, and will coordinate the following:

- Third-party utility locates.
- Outages and hold offs (recloser blocking) for the purpose of crossings and connections.
- Coordination of all protective measures to be undertaken for crossing roads and other public facilities (rider structures, crossing plans, signage, etc.)
- Before the stringing team arrives on a pull section, all preparation activities will be completed, protective measures installed, outages planned and butt-down sites installed.

10d) DRESSING THE TOWERS

Refers to the activity of installing the insulators and hanging stringing blocks on the towers.



All helicopter work performed for this activity must be completed by a Valard-approved close support helicopter and pilot. For the current project the preferred type design is the Hughes 500D or 500E, having a Transport Canada approved modification for offset centre of gravity. Valard has an annual agreement with Vortex Helicopter Corporation for the provision of this service but will allow for the ability to provide this service either directly through a service provided at its discretion. This option will be considered if Valard does not realize the expected progress under its existing contract with Vortex. This approach also ensures that Valard is able to enforce necessary changes as required to ensure that the project schedule and budget are being managed to

All communications for this activity is via a radio channel dedicated to helicopter use. All personnel carry transceivers.

This activity is completed by several teams of three men that are helicopter-transported between structures.

In advance of tower dressing, the insulator strings are dropped off – in their crates – at each structure location. The strings are then assembled at the structure location, and kept clean and off the ground making use of the crate materials.

Assembly includes attachment of the lowermost ball to a stringing block.

The stringing blocks with appropriate OSD rubber lined sheaves, gated for helicopter installation of sock line will be used.

Stringing blocks fitted with running grounds will be placed at roughly every 8th structure (to be determined at planning stage).

The helicopter will pick up the linemen – one or two at a time – who will stand on the skid of the helicopter for the ride up to the tower's bridge. At all times they will be fastened to the helicopter by means of a short fall-arrest strap.

The helicopter will transport them to the top tower where they will attach a fall arrest line via a 3-way release to the tower. They will then unhook their fall arrest line from the helicopter and step off the skid onto the tower's overhead horns. This will be repeated until three linemen are on the tower.

Each lineman will climb towards one of the phase attachments (double-hooking all the way) and prepare to receive the clevis end of the insulator to secure it to the tower.

The helicopter will return to the foreman's position on the ground where the foreman will hook an insulator string to the helicopter's long-line; the helicopter will then hoist the insulator string and block into position where it will be received by one of the linemen, installed and secured.

When all three phase insulators are installed, the helicopter will deliver the OPGW and OHSW sheaves in turn, which will be similarly fastened by the linemen on the tower.



When all three phase insulators and the two overhead sheaves are installed, the linemen will make their way to the top of the horns where they will be picked up by the helicopter and moved to the next structure to repeat the process.

Note that all light and medium angles will be treated as running angles for the purposes of stringing. Valard will consult with the design engineer to confirm the placement of davits or slings to distribute force without damaging the tower in the event conductor tooling holes are not available.

10e) FLYING THE SOCK LINE

As with tower dressing, the sockline is pulled out by a Valard approved supplier of close support helicopter work. The supplier for this activity will be Vortex Helicopter Corporation of Trois-Rivieres Quebec. However, as previously referenced, Valard reserves the right to either self perform this service or at its own discretion, direct the use of an alternative helicopter service provider as determined by Valard.

All communications for this activity is via a radio channel dedicated to helicopter use. All personnel carry transceivers.

The sock line will be stored and let out from purpose-specific rope winders mounted with a light tensioner and capable of tow-way operation.

Sockline consist of 40,000 lb. 'Ugly Rope' dielectric rope of approximately 1" in diameter.

The rope winders will be positioned inside the butt-down areas, but equipotential bonding is not required at this stage because the ropes are dielectric.

The helicopter will hover over the rope payout where the operator will attach the rope to a steel lead line. The lead line is attached to a task-specific cleat on the lower fuselage of the helicopter on the pilot's side so that it can be monitored as the line is paid out.

After connecting the rope, it will be paid out by the tensioner and pulled out by the helicopter, which will always operate at a higher level than the tower height.

The tension is set such that the ropes maintain a height similar to the final sag height of the conductor.

At each structure, the helicopter will fly past the structure and then lower itself to feed the lead line sideways along the guide and through the gate in the block. Each block is equipped with a red indicator flag that raises after the lead line has settled into the guides. When the flag comes up, the pilot carries on to the next structure.

For the centre conductor, the ropes are passed through the centre of the tower by means of a C-Hook or Needle, both devices hook onto the tower bridge while projecting past the structure on the other side. Once secured, the line is released from the helicopter, allowing the machine to fly around to the other side, reconnect to the device, re-set the device for the next structure and then carry on.



This process carries on until the helicopter reaches the next butt-down site, where a lineman catches the rope with a hook and fastens its eye to the butt-down.

At the pay-out end, the rope is secured to the butt-down by means of a grip, and the tension transferred with a chain jack.

The rope reel is then offloaded from the re-winder, and another rope loaded to start the process over until lines have been pulled in for all three phases and the OHSW.

Rope will be pulled out for the OPGW separately because of the different length reels supplied by the OPGW Manufacturer. This will be a separate activity by a different crew.

10f) PULLING THE HARD LINE

After all ropes have been pulled out, the stringing crew will position itself to pull in the hardline.

All communications by the stringing crew will be carried out on a registered dedicated channel that will be broadcast over a repeater.

The stringing crew will make use of the following equipment:

- 12 kip Single Drum Puller-Tensioner (Rope Puller)
- 12 kip Single-Drum Puller Tensioner (OHSW Tensioner)
- 50 kip Bullwheel Puller (Puller)
- 10 km Hard Line Take up Reel
- 4x12 kip Tensioner
- 2x 4-drum Reel Trailers

At the reel-end of the rope, the rope reel will be mounted on the rope puller and the slack line behind the butt-down reeved onto the bullwheel.

At the loose-eye end of the rope, the hardline will be reeved through the puller, and the rope's eye will be joined to the hardline by means of a swivel. Tension will be transferred to the hardline with a chain jack; after a length of hardline is tensioned in front of the puller, a running ground will be affixed to the tensioner and the runners bonded to the hardline.

The crew will use a chain jack to transfer tension from the buttdown to the rope puller, and the rope puller will begin to pull the hardline in.

Using a truck, quad or by foot, the Supervisor will follow the swivel as it travels along the length of the pull section back to the roper puller. The Supervisor will play close attention and call out meters over the stringing radio channel as the swivel approaches each stringing block.

If the swivel does not pass cleanly through a block Supervisor will direct the rope to be backed off and the problem investigated.



The Supervisor will also observe as the hard line clears any running grounds to ensure that they have functioned properly and closed on the conductor.

When all blocks have been cleared and the hardline is approaching the buttdown area, a lineman will position himself with a ground and hot-stick (the other end of the ground will be bonded to the equipotential zone) at the end of the bonded zone where the hardline is approaching. When the hardline is within reach, the lineman will bond the ground chain's duckbill to hardline.

Tension on the grounded hardline will be transferred over to a wire rope sling on the butt-down anchor, and affixed with a grip. The tag-end of the hardline is left loose on the ground.

The conductor is then pulled back, and the process repeated 2 more times.

Note that for the OHSW, the wire is placed on a puller-tensioner and reeved through the bullwheel at the tensioner end, then pulled back just like the hard line.

10g) PULLING THE CONDUCTOR

As above at all times communications are maintained over a dedicated frequency between the various teams.

The conductor is positioned on one or both of the reel trailers, and two loose ends are reeved through two drums of the tensioner.

Once the conductors are through the tensioner, they are affixed to a weighted running board by means of two swivels and grips, and this is in turn affixed to the hardline in the same way.

The two conductors are also bonded through a running ground at the front of the tensioner.

A chain jack is used to transfer tension from the butt-down to the running board now positioned on the front of the tensioner.

With tension established throughout the system, the Supervisor will give the signal to begin pulling. Tension on the tensioner will be preset for 3% of conductor UTS, and the puller will begin pulling at a rate of 7 km/h.

As with the hardline pulls away from the tensioner, a lineman will remove the ground affixed to it as it crosses the threshold leaving the tensioner site.

As previous, the Supervisor will follow the running board and call meters into each block. If any problems are encountered, he will bring the operation to a stop and investigate.

When all of the travelers have been cleared, and the conductor is approaching the butt down site, a lineman will wait at the threshold of the equipotential zone and bond each conductor as they cross the threshold.



While tension is still applied by the tensioner but before the last 30 feet of conductor are pulled in, the tension on the tensioner-end of the conductor is transferred to the butt-downs, and any remaining conductor reeved through the tensioner or cut off. Usually only a few feet of conductor are left behind the grip affixing the conductor to the anchors.

Assuming that a previous section of wire had been pulled in and tensioned, the cut reel-end butts of the conductor are matched up to the butts of the conductor left from the previous section, and splicing sleeves are installed.

Compressive sleeves are squeezed in a pattern so as to keep the sleeves straight.

Personnel having explosives tickets install implosive splicing sleeves.

Tension on the new conductor is transferred to the previous pulling section by means of a chain jack, and the last length of conductor is pulled into the pulling site. The conductor at the pulling site is now under tension throughout the site and secured to the butt-down by means of the grips that previously held the tension of the conductor.

When the conductors are in range, just beyond the front of the puller, the tension will be transferred to two wire-rope slings affixed to the buttdown anchors, and the running board will be disassembled.

This process is repeated twice; when the pulling operation is complete all three double phases and the OHSW will be secured within the pulling site, and the puller will be turned around to face the next pull.

The tensioner and rope puller are moved approx. 12 km down the right-of-way in preparation for pulling the next section.

10h) FLYING THE CONDUCTOR

With all of the equipment moved out of the way, and all conductors pulled through the pulling section, a let-up block is installed on the anchors at the tensioning site. A winch line affixed to a crawler-tractor is passed through the block and connected to a saddle that maintains downward tension on the conductor.

Sufficient tension is applied to remove the tension from the remaining wire ropes and grips, and these are removed, leaving the straight spliced conductor with the sleeves installed secured to the ground by the saddle.

At the pulling end, tension is transferred from the anchors a double ended wire rope sling that is passed through an evening block that is in turn affixed to the arm of an excavator.

The Supervisor positions himself at the tangent structure two spans back from the current pull site to observe the plumb of the insulators. When he is positioned, he directs the excavator to increase the tension on the two conductors.



The excavator will begin to slowly move away; meanwhile the Supervisor observing plumb will direct the winch operator at the tension site to begin releasing tension on the winch that holds the saddle. When the tension on the saddle is released completely and the insulator is still plumb, the conductor has reached approximate tension.

10i) CONDUCTOR SAGGING

Conductor sagging operation will be completed making reference to the Contractor's specified number of control spans, IEEE 524 Standards and technical specs.

Conductor sag will be established making reference to a tension meter and sag boards. Sag will be confirmed by a surveyor.

When the final sag is established, tension will be transferred to wire rope grips affixed to the butt-down location or to a deadend structure, as applicable.

At final sag, the conductor will be within the Contractor's established allowance for height and differential height.

10j) CONDUCTOR DEAD-ENDING

All conductor dead-ending activities will be completed from baskets installed on cranes.

Recall that in most cases, the deadend structure will be treated as running angles for conductor stringing purposes.

Conductor tension at the deadend location is transferred to a wire-rope sling by means of a chain jack. This is completed on both sides of the deadend simultaneously.

While the conductor tension is being transferred, an observer will be in contact at an adjacent tangent tower to watch for deflection of the suspension insulator.

Once the tension is transferred and established, the loop between the sides of the deadend is cut.

The deadend tension insulators are assembled on the ground and then hoisted into place in a cradle. The cradle is supported by the conductor tension and the structure.

Once the cradle is in place, the stub end of the conductor is measured against the dead-ending sleeve and cut to length. It is then inserted into the sleeve and the sleeve permanently installed (either by implosive or compressive means).

This process is repeated for the other sub-conductor.

With both sub-conductors terminated, the tension on the bundle is transferred to the insulator string by means of a chain jack. As previous an observer will watch an adjacent tangent structure for deflection of its insulators.

Once all conductors are deadended, the jumpers will be installed on all phases.



10k) OPGW DEAD-ENDING

At all OPGW splice locations, the OPGW will be deadended on either side of the tower and run along the leg in accordance with the Company's drawings.

The end of the fibre housing will be sealed and the excess conductor coiled and secured near the base of the tower.

A separate fibre-splicing crew will follow the OPGW clipping & deadending crew and bring the cut ends into the splice box, then complete trimming of the outer armour and termination at the housing.

Fibre splices will be completed by qualified splicers and OTDR images will be preserved for the Contractor's records. Readings will be taken after each splice is completed to verify continuity.

10l) CONDUCTOR CLIPPING

Once the line is brought to sag, crews are dispatched to begin clamping the conductor into its permanent yokes and saddles at each tangent and running angle location.

Prior to touching or changing anything at the bottom of the insulator, the conductor is marked for centre using a non-acidic grease marker.

The bundle is supported by means of a chain jack and saddle attached to the structure. Once it is supported, a crane is used to take on the weight of the traveler.

The side gate is opened, and the traveller is swung away from the bundle. It is placed at the base of the structure for collection by the dressing crew for reuse.

The yoke plate and saddles are installed at the bottom of the insulator. Armour rod is installed on each sub-conductor making reference to the centering marks previously applied.

Each sub-conductor is installed at the centre of the armour rod in its saddle.

The installation is checked for plumb.

If there are no concerns, the process is repeated twice for the other phase conductors, and again (minus the insulator plumb) for the OPGW and OHSW.

At the time of conductor clipping, spacers and/or dampers for the forward segment of conductor are hung from the conductor by straps adjacent to the finished saddles.

It should be noted that neither deadending nor conductor clipping are predecessor activities for one another, however, the clipping activity must be completed, as per IEEE 524 Standard, on a stringing segment before spacing can occur.

10m) CONDUCTOR SPACING

Conductor spacing is completed from carts equipped to ride the conductor bundle.



These carts are equipped with counters to identify the distance along the span so that the spacers and other measures can be accurately placed.

Valard's carts are equipped with measures to allow them to pass under clipped insulators, as well as small gas engines for propulsion.

Typically carts are placed at the beginning of a stringing segment by a crane and the operators move along the line in parallel, installing spacers and replenishing their supply at each clipped insulator.

Spacers will be periodically checked by a surveyor to ensure accuracy of installation.

10n) CLEARING THE STRINGING SEGMENT

A stringing segment is considered to be 100% complete when all conductors are at final sag, all insulators are clipped in, all deadends are terminated, all spacers are installed and an initial inspection has been completed.

At this stage, the utility coordinator will close out the protective measures taken along the right-of-way, including the removal and remediation of rider poles and the removal and remediation of the butt-down locations.

11 COUNTERPOISE INSTALLATION

Counterpoise will be installed roughly concurrently with foundation installation.

Counterpoise will be installed with a plowcat where possible.

Where rocky ground conditions demand that the counterpoise be installed on the surface, it will be laid in crevices and surface features to the maximum extent possible.

Installation will be as per the technical spec provided. All resistance measurements will be confirmed by a soil resistivity meter. At the time of resistivity check, the tower foundation will be connected to the counterpoise; the tower may or may not be installed, but the OHSW or OPGW will not be connected.

12 PERMITTING

Clause 2.15 – Permits under Exhibit 1 – Scope of Work, specifies in general which permits the Company will obtain. The Contractor is responsible for all additional permits for its Work as detailed in Exhibit 6 – Environmental and Regulatory Compliance Requirements, Appendix A, where responsibility for completing permit applications is by the Contractor.



LCP approval to develop the Project is based on the Environmental Impact Statement (Nalcor, 2012) delivered under a Joint Review Panel (JRP) Environmental Assessment (EA) regulatory review process.

Approximately 50 additional permits, authorizations and/or approvals have been identified and/or obtained for the LCP (See Exhibit 6 - *Environmental and Regulatory Compliance Requirements*, LCP Document 505573-0000-51AF-I-2139 Rev. 5). LCP will hold all necessary permits and clearances for Project development; however, Valard is responsible for anticipating and completing any additional permit applications required for construction-related activities, such as the development and operation of camps, staging areas, ROW access, traffic management, fuel storage facilities, etc. Valard shall provide completed permit application packages to the LCP Permits Coordinator (Krista Trowbridge) for internal review and submission to Regulatory agencies. LCP also pays any fees associated with obtaining these permits.

The exception to this process is for permit applications that require that the contractor and/or designate with appropriate certification must apply for directly via the regulating body – these include applications for electrical permits and propane systems associated with construction camps. In these cases, Valard and/or the designated sub-contractor completes and submits the require permit application, and provides copies of both the application and subsequent approvals to the LCP Permits Coordinator for tracking. Valard also maintains a ‘Permit Matrix’ for tracking Project permit requirements, application status, approvals, expiry/renewal dates, etc.

Valard and its Subcontractors shall not undertake any work unless the appropriate permit has been obtained.

A blanket permit to ‘Alter a Body of Water’ was issued to Nalcor Energy LCP by the Newfoundland and Labrador Department of Environment and Conservation Water Resources Management Division on October 22, 2012, which allows for the development of all LCP stream crossings required for clearing and access construction (Permit No. ALT6655-210120). All permit conditions are to be followed by Valard; permit conditions require that records of crossing activities be maintained. Valard will document crossings and an annual report summarizing crossing activities will be submitted by LCP to the regulator on or before January 31 of each year.

These permits will be handled by our Environmental & permitting group headed by Environmental & Permitting Manager, as well a Project specific Environmental Manager assisted by Environmental coordinators. The LCP Permits Coordinator will maintain an up to date record of Project permits and provide copies of all permits and/or amendments obtained by the LCP to the Valard Environmental Manager or designate. Relevant environmental and/or construction permits will be kept on-site as required by permit conditions.

All applicable Federal and Provincial Legislation requirements will be followed.



13 REMEDIATION & RECLAMATION OF ACCESS ROADS

As sections of the project come up with all activities 100% complete, Valard will seek – following an inspection by construction and environment – to have them returned to the custody of the Company.

Following inspection of completed facilities by the Company, the Land and Access group will oversee deactivation of the the right-of-way. This will consist of a complete right-of-way review and cleanup to remove any garbage or discarded tools, followed by a structure-by-structure removal of the access facilities.

As it withdraws from the right-of-way, the ROW will redistribute overburden on its deactivated roads, remove temporary crossing facilities and re-profile cuts made to sidehills.

The goal of the deactivation process is to return the right-of-way profile to the condition found at the outset of the project (post-clearing).

Similarly, the ROW and access group will be entrusted to oversee deactivation and remediate the rented camp facilities.

14 DEMOBILIZATION

The Muskrat camp will potentially be the first facility demobilized and remediated. After the camp is moved, the yard will be deactivated. It is anticipated that both of the other camps will remain in use right up to project completion, at which time the camp equipment will be demobilized, and the properties similarly deactivated.

As activities are completed and resources are no longer required, Valard will stockpile them at its maintenance facility at one of the camp or laydown yard locations, and begin the process of going through them for pre-transport maintenance.

Upon completion of structure erection activities, the majority of the construction complement will be demobilized, leaving only 50-60 personnel working on stringing activities and the requisite management and support staff.

It is anticipated that Valard will easily complete deactivation, remediation and demobilization of both sections by October 1st, 2016.

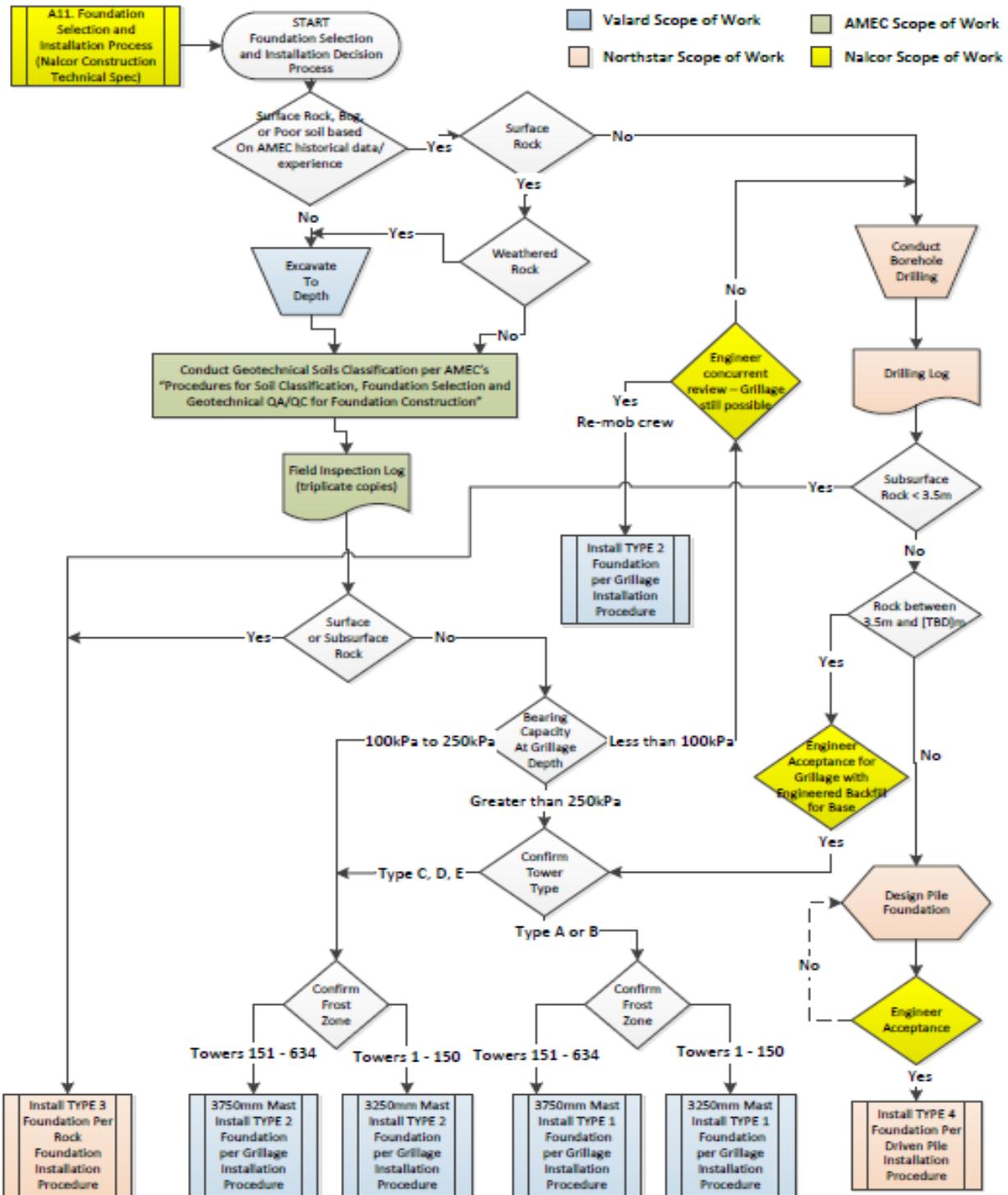


APPENDIX A –

FOUNDATION SELECTION AND INSTALLATION DECISION PROCESS



Figure 3.2.2-2 Foundation Selection and Installation Decision Process





APPENDIX B

DC EXECUTIVE TEAM ORGANIZATIONAL TEAM



Project Org Chart – CT0327

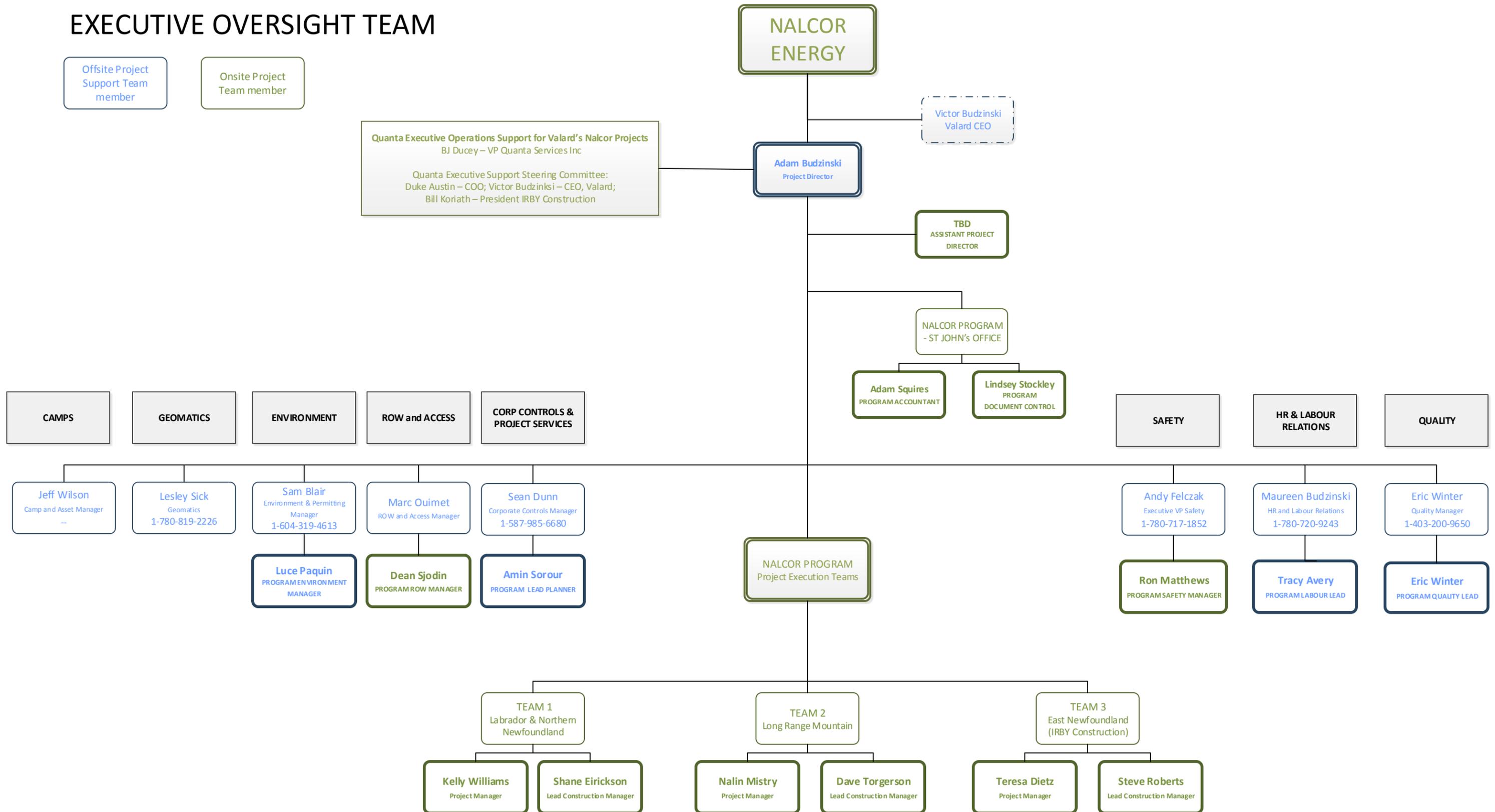
350kV HVdc Transmission Line

EXECUTIVE OVERSIGHT TEAM



Quanta Executive Operations Support for Valard's Nalcor Projects
 BJ Ducey – VP Quanta Services Inc

Quanta Executive Support Steering Committee:
 Duke Austin – COO; Victor Budzinski – CEO, Valard;
 Bill Koriath – President IRBY Construction





APPENDIX C

ROW ORGANIZATIONAL TEAM



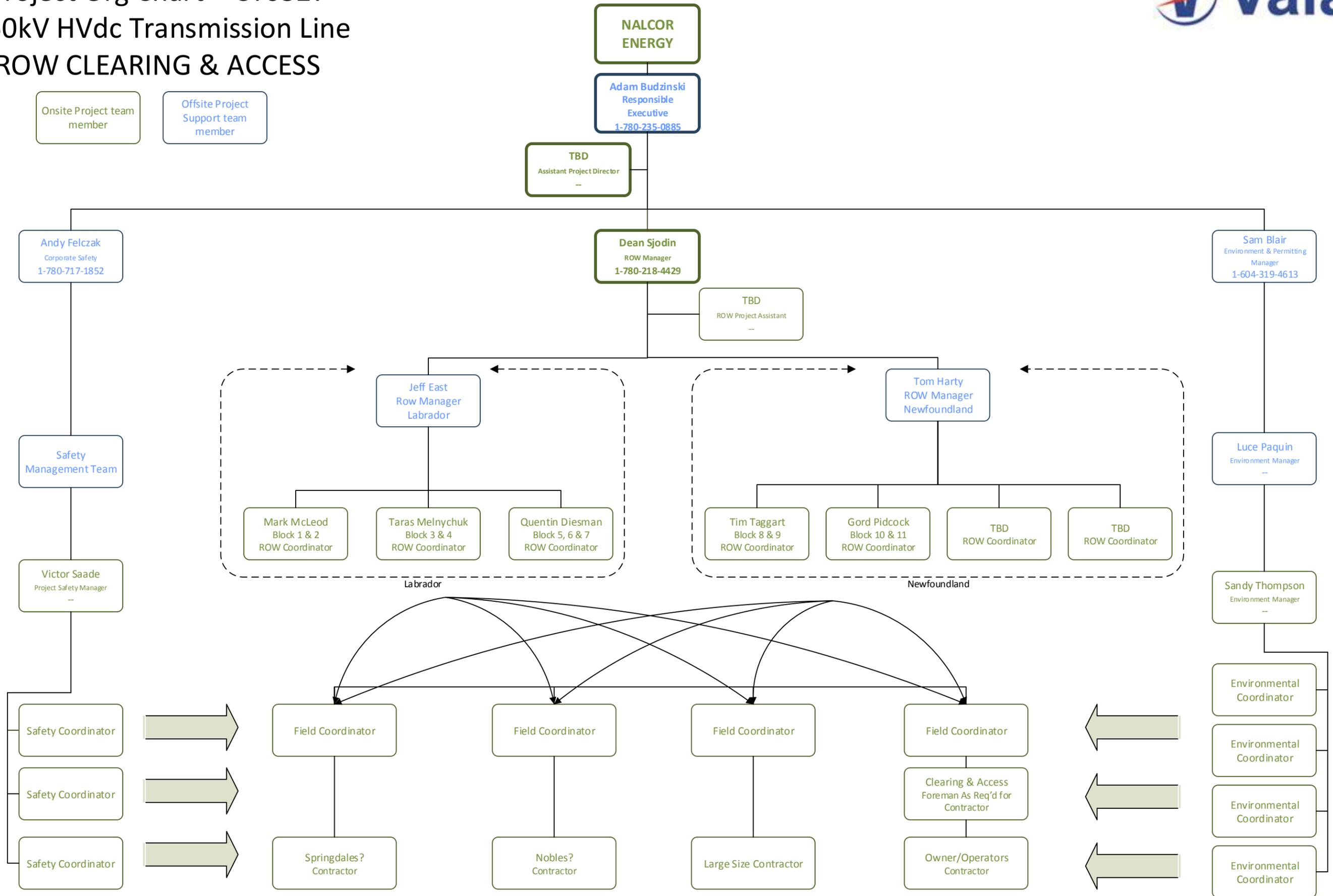
Project Org Chart – CT0327

350kV HVdc Transmission Line

ROW CLEARING & ACCESS

Onsite Project team member

Offsite Project Support team member





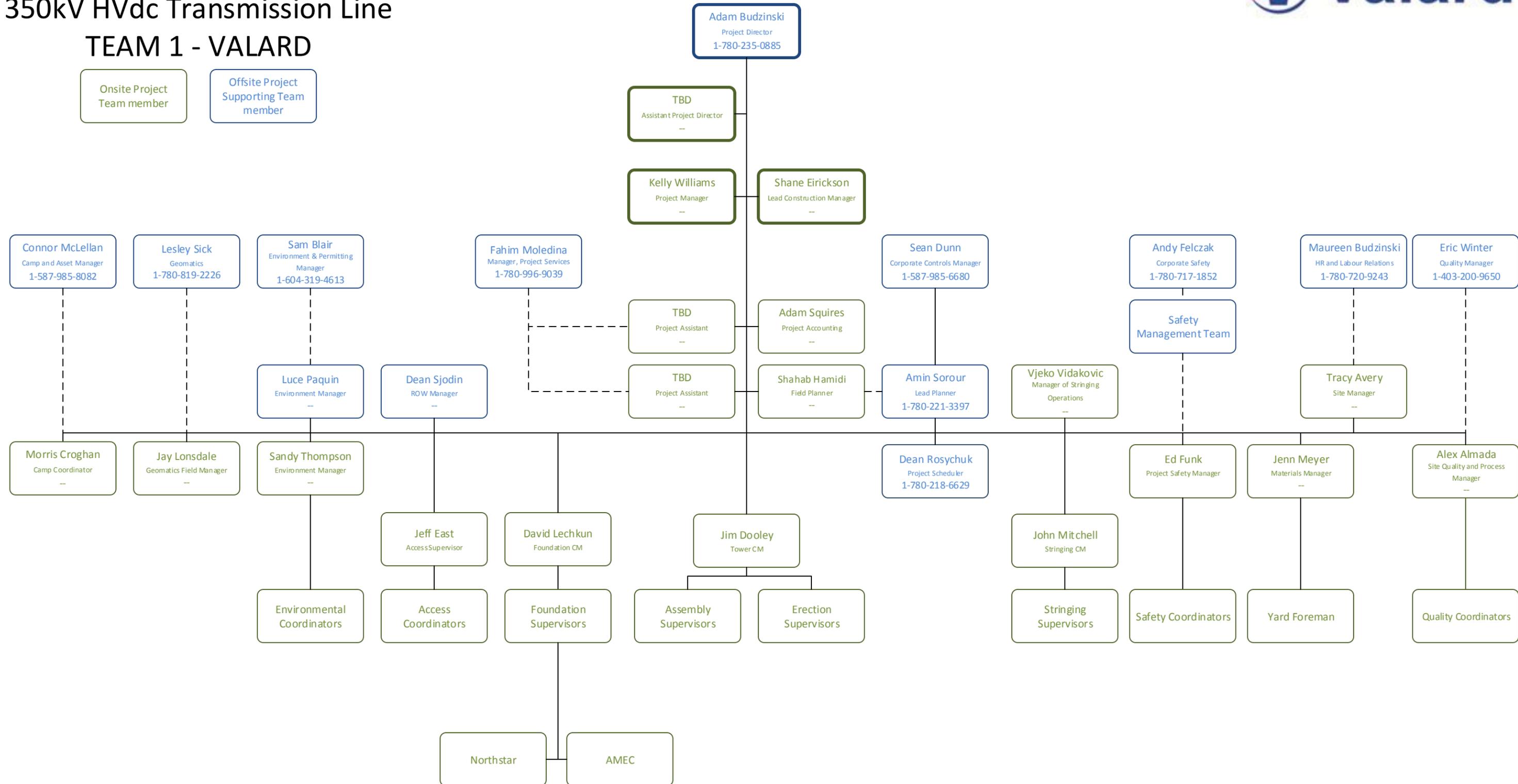
APPENDIX D

DC ORGANIZATIONAL TEAM 1



Project Org Chart – CT0327 350kV HVdc Transmission Line

TEAM 1 - VALARD





APPENDIX E

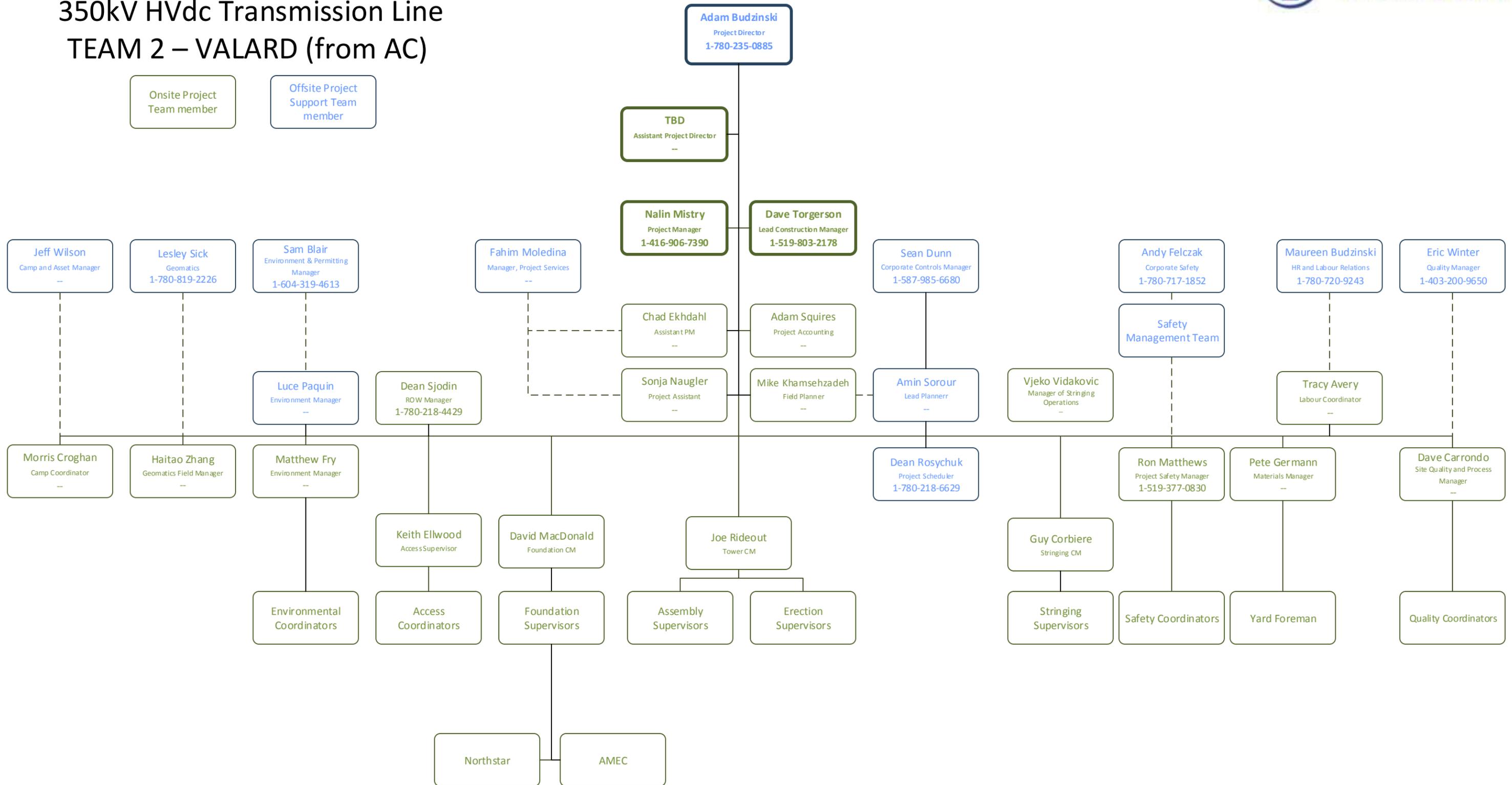
DC ORGANIZATIONAL TEAM 2



Project Org Chart – CT0327

350kV HVdc Transmission Line

TEAM 2 – VALARD (from AC)





APPENDIX F

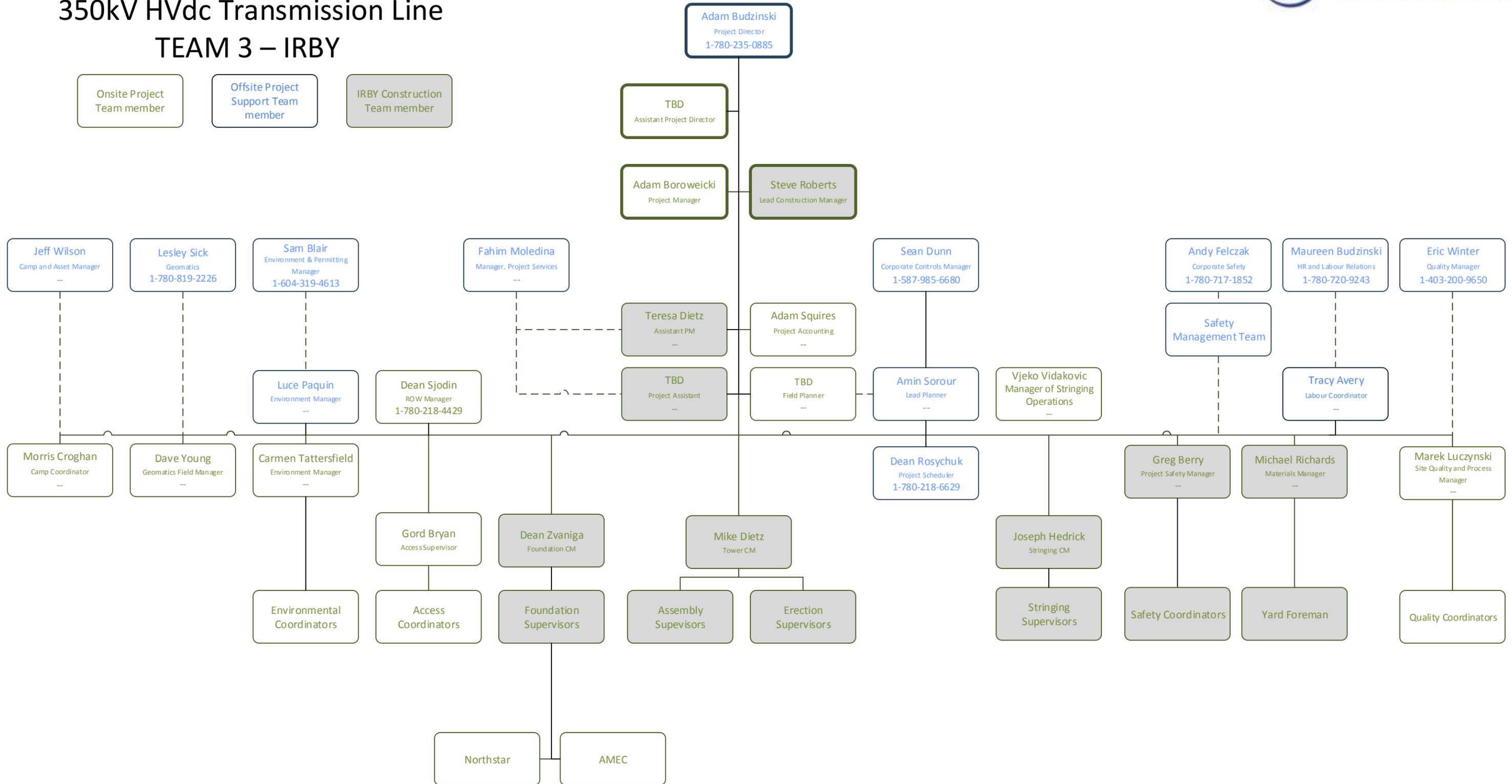
DC ORGANIZATIONAL TEAM 3



Project Org Chart – CT0327

350kV HVdc Transmission Line

TEAM 3 – IRBY

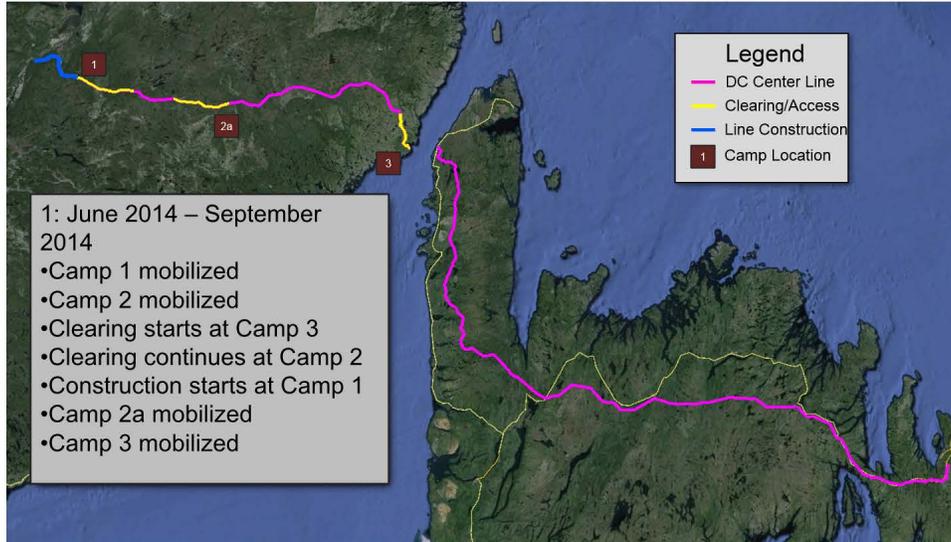
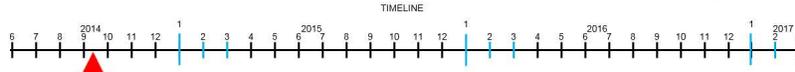




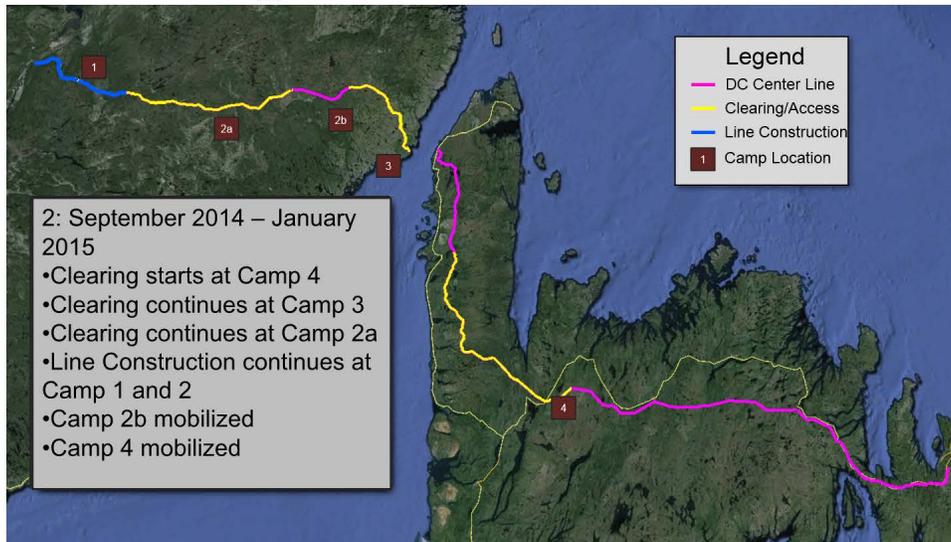
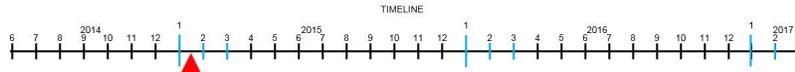
APPENDIX G

DC PROJECT TIMELINE

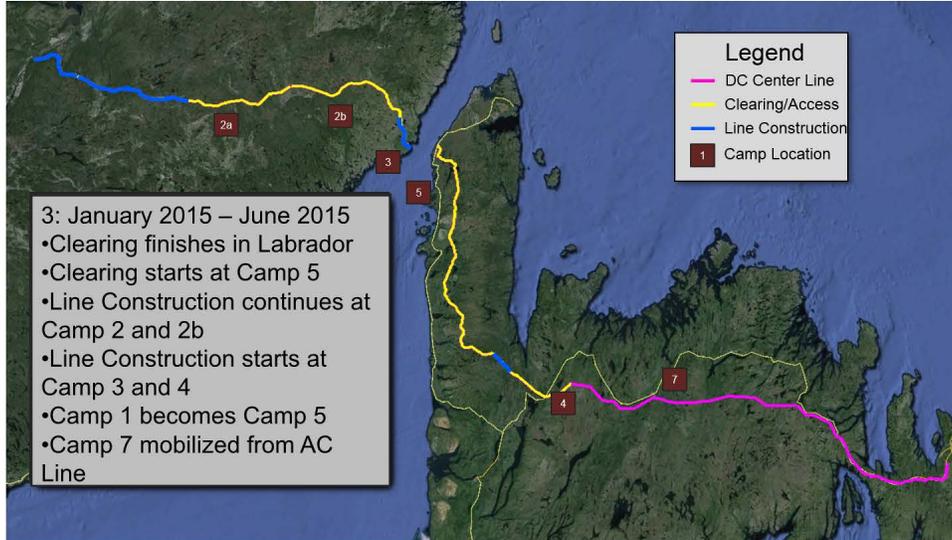
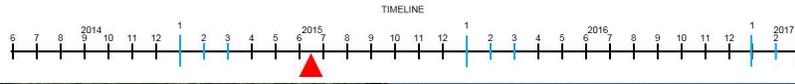
Schedule Overview



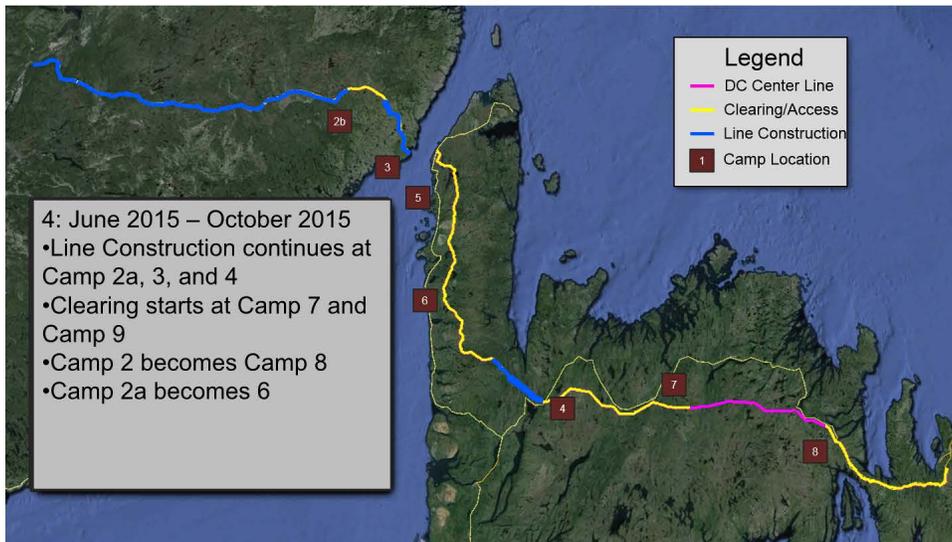
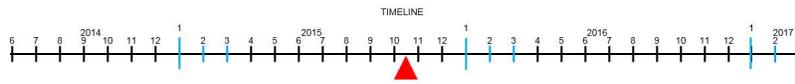
Schedule Overview



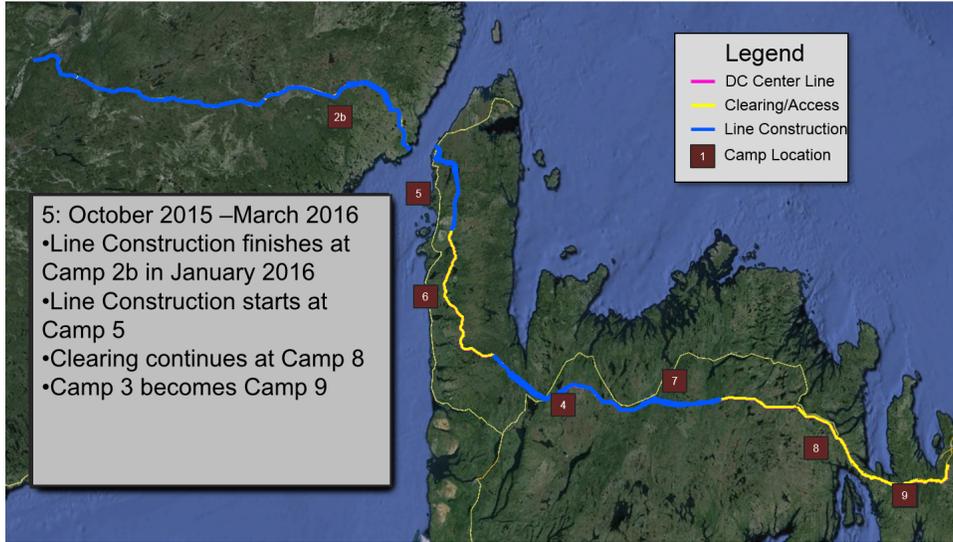
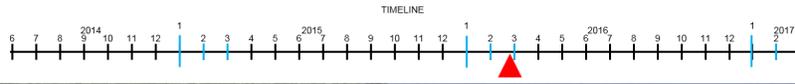
Schedule Overview



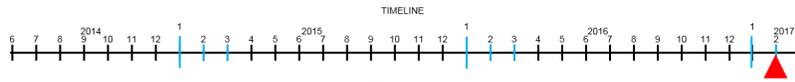
Schedule Overview



Schedule Overview



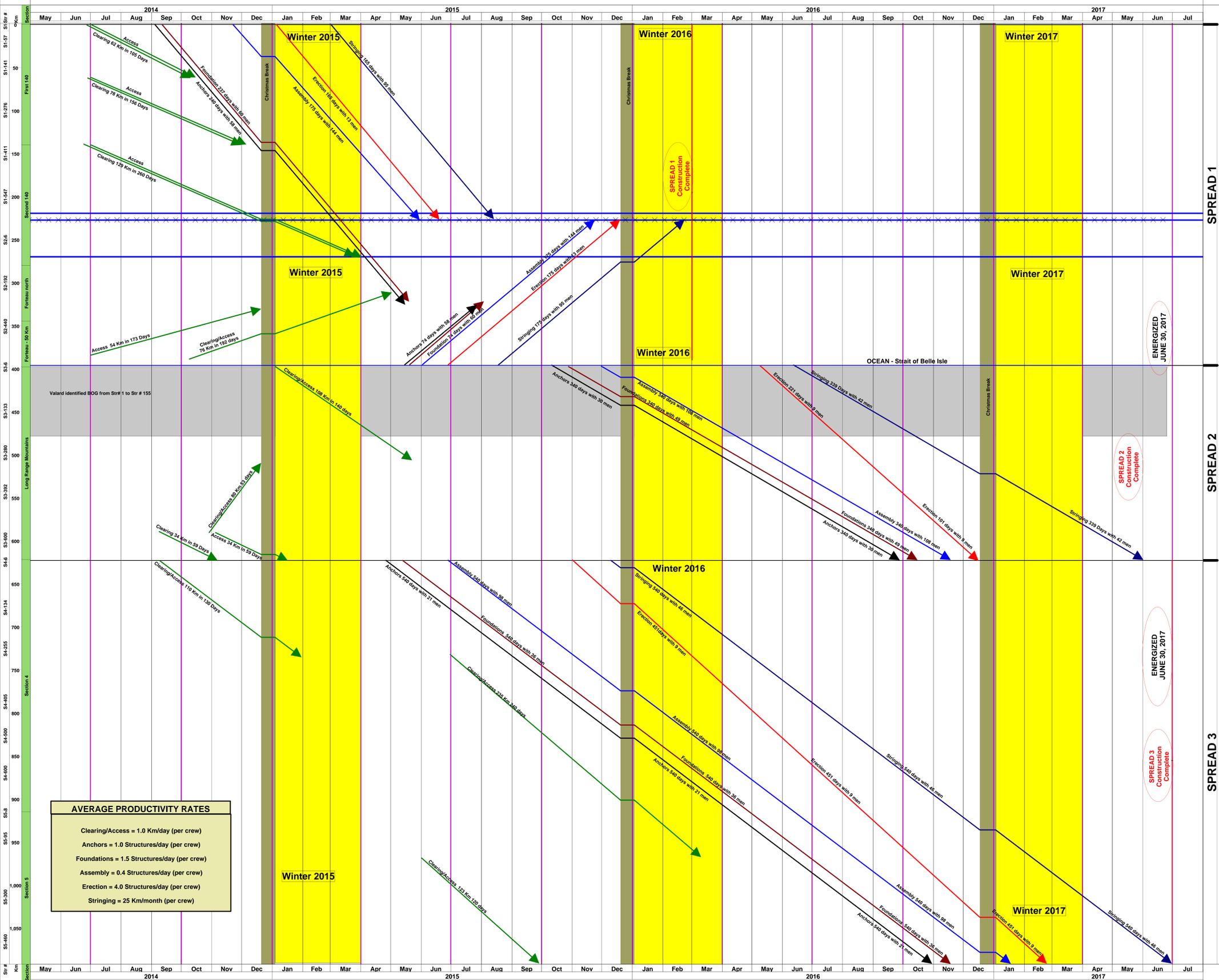
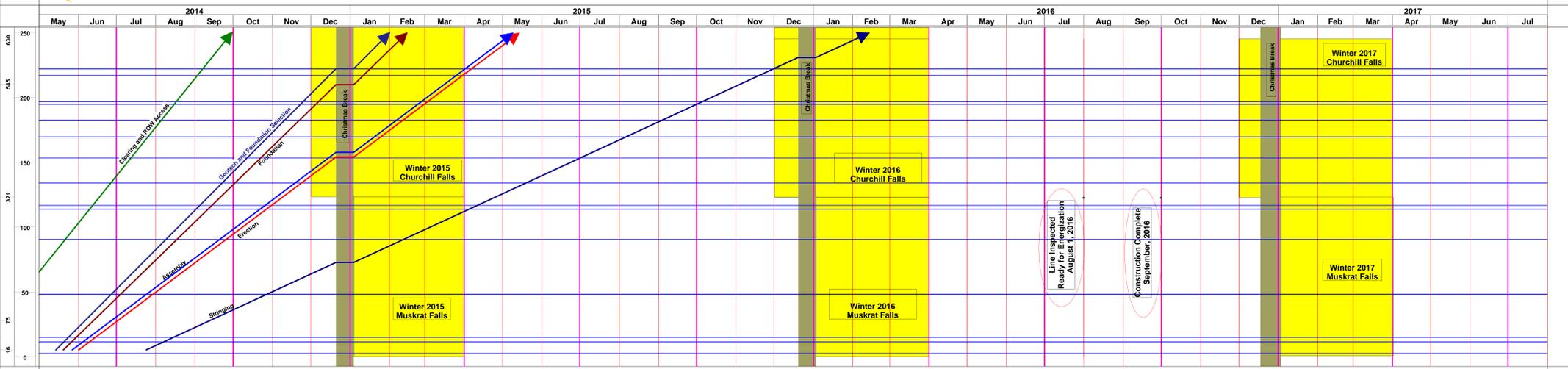
Schedule Overview





APPENDIX H

NALCOR COMBINED AC/DC PROJECT SCHEDULE





APPENDIX I

NALCOR DC TILOS SCHEDULE

Muskrat Falls to Churchill Falls - Baseline Development - Rev 01 - What If - 01				Summary Schedule // Activities Type Gant																												25-Jun-14 09:18		
Activity ID	Remaining Duration	Start	Finish	2014							2015							2016							2017									
				Dec	Jan	F	Mar	Apr	M	Jun	Jul	Aug	S	Oct	Nov	Dec	Jan	F	Mar	Apr	M	Jun	Jul	Aug	S	Oct	Nov	Dec	Jan	F	Mar	Apr	M	Jun
Muskrat Falls to Churchill Falls	664.0d	17-Dec-13	20-Feb-16	20-Feb-16, Muskrat Falls to Churchill Falls																														
CH0007LCP4: GEO Geotechnical Investigation	130.0d	17-Dec-13	20-May-14	20-May-14, CH0007LCP4: GEO Geotechnical Investigation																														
CH0007LCP4: FDN Structure Foundation	351.0d	17-Dec-13	14-Feb-15	14-Feb-15, CH0007LCP4: FDN Structure Foundation																														
CH0007LCP4: ASY Structure Assembly	422.0d	19-Dec-13	11-May-15	11-May-15, CH0007LCP4: ASY Structure Assembly																														
CH0007LCP4: ERC Structure Erection	421.0d	26-Dec-13	14-May-15	14-May-15, CH0007LCP4: ERC Structure Erection																														
CH0007LCP4: STG Deadend to Deadend Stringing	474.0d	24-Jul-14	13-Feb-16	13-Feb-16, CH0007LCP4: STG Deadend to Deadend Stringing																														
CH0007LCP4: RCL Reclamation & Cleanup	444.0d	05-Sep-14	20-Feb-16	20-Feb-16, CH0007LCP4: RCL Reclamation & Cleanup																														

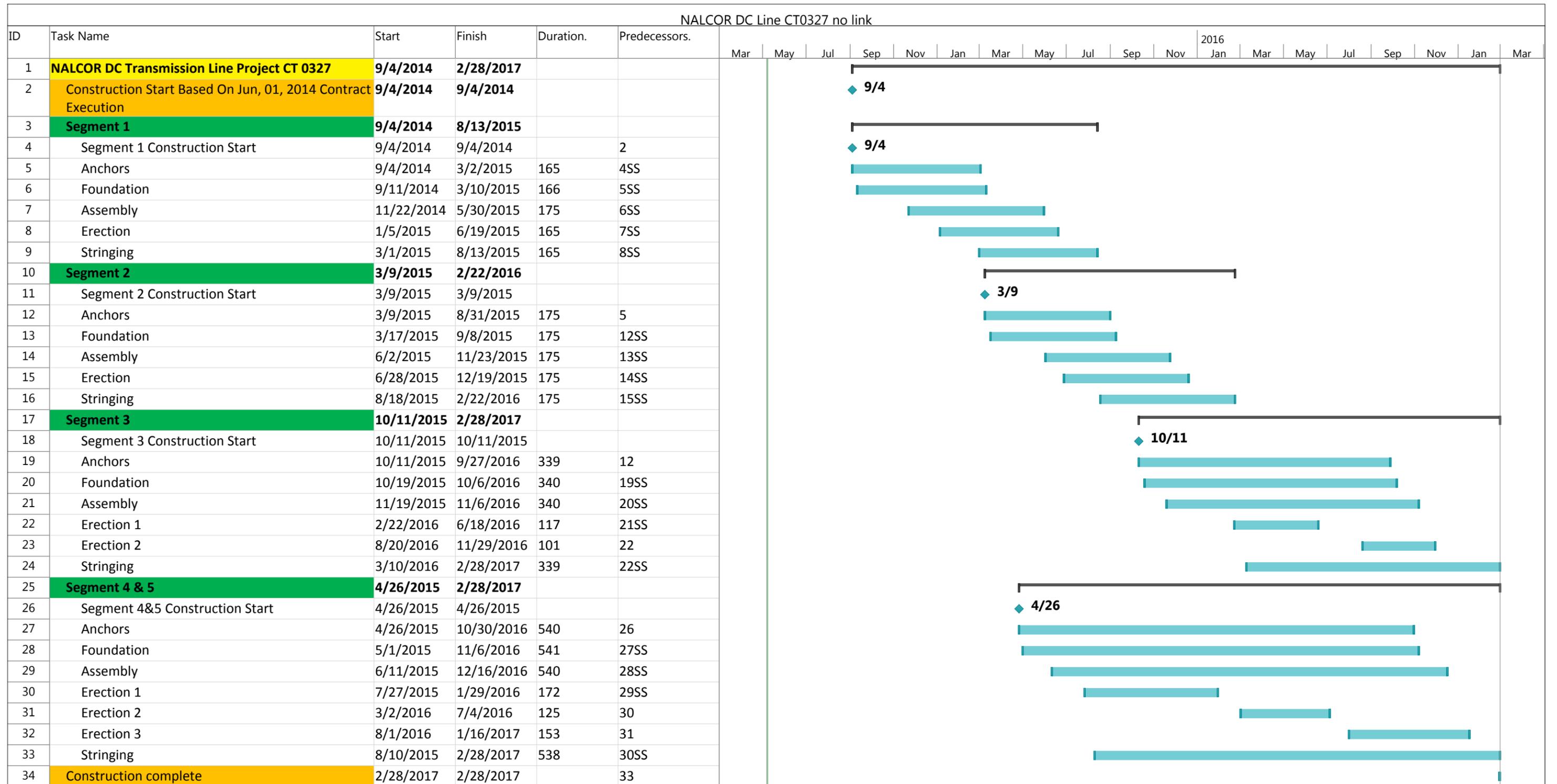
Actual Work
Summary



TASK filters: ASY, ERC, FDN, GEO, RCL, STG.

© Oracle Corporation

Date	Revision	Checked	Approved
25-Jun-14	Rev 01	DR	AS



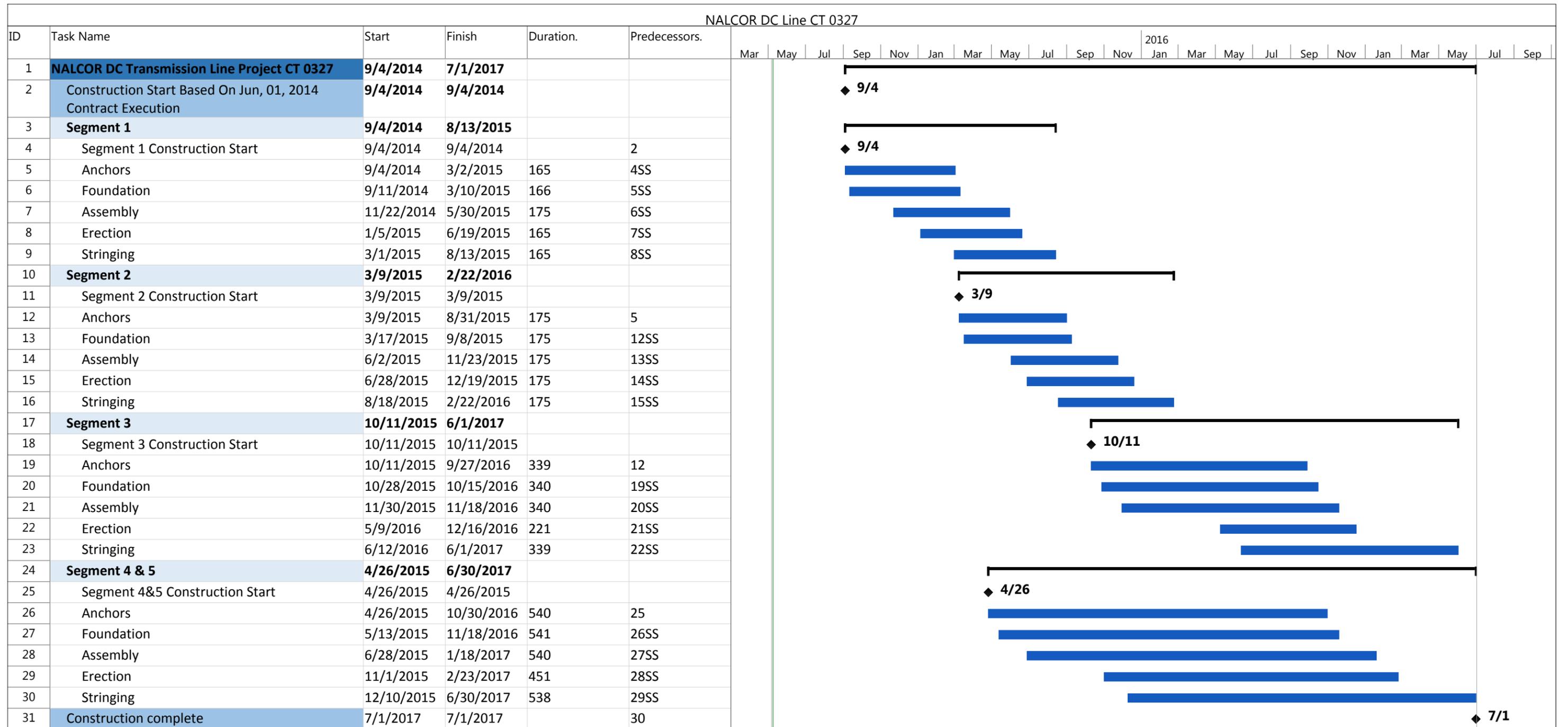
1. Conceptual summary schedule for high level planning
2. All owner required deliverables to support dates shown
3. Clearing, Access and Camps under seprate conAtract, to support dates shown

5/8/2014 , Rev. 00 Checked: DR Approved: SD	 VALARD A QUANTA SERVICES COMPANY	Task		Project Summary		Manual Task		Start-only		Deadline	
		Split		Inactive Task		Duration-only		Finish-only		Progress	
		Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
		Summary		Inactive Summary		Manual Summary		External Milestone			



APPENDIX J

NALCOR DC LINE TIMELINE ZERO FLOAT



1. Conceptual summary schedule for high level planning.
2. All owner required deliverables to support dates shown.
3. Clearing, Access and Camps under seprate contract, to support dates shown

5/9/2014, Rev 1.0 Checked: DR Approved: SD	 A QUANTA SERVICES COMPANY	Task		Project Summary		Manual Task		Start-only		Deadline	
		Split		Inactive Task		Duration-only		Finish-only		Progress	
		Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
		Summary		Inactive Summary		Manual Summary		External Milestone			



APPENDIX K

VALARD PROJECT RESUMES



ADAM BUDZINSKI

SUMMARY OF
EDUCATION &
QUALIFICATIONS

SPECIALIZED SKILLS

- Extensive experience in the management and analysis of transmission projects across Canada.
- High Voltage Transmission Line Construction
- Project Management on large projects

EDUCATION & TRAINING

- BSc. Eng (Electrical),
- AME-S License,

EXPERIENCE

AESO – Contracted to
ATCO Electric Ltd.

Eastern Alberta Transmission Line (September 2014)

Edmonton Alberta to Calgary Alberta, Canada

Project Sponsor

AESO – Contracted to
ATCO Electric Ltd

Hanna Regional Transmission Development (July 2013)

Hanna Region, Alberta Canada

Project Sponsor

AESO – Contracted to
ATCO Electric Ltd

North East Transmission Development (October 2013)

Northeast Alberta/Fort McMurray & Wabasca Areas in Canada

Project Sponsor

AESO – Contracted to
ATCO Electric Ltd

North West Transmission Development (2010)

Peace River, Alberta

Project Manager

BC Hydro

Northern Transmission Line (May 2014)

Near Terrace, BC Canada

Project Sponsor

Hydro One Networks Inc.

Bruce x Milton (2012)

Tiverton, ON to Milton, ON

Project Manager

ADDITIONAL RELEVANT EXPERIENCE

Yukon Energy Corp.

CSTL Phase 1 Project (2008)

Central Klondike Region

Project Manager for the construction of 100km of 138kV H-Frame c/w 30km of 25kV improved



<p>AltaLink LP</p>	<p>appearance distribution line to Minto Copper Mine Site.</p> <p>New Amelia Connection (2007)</p> <p><i>Alberta's Industrial Heartland Region</i></p> <p>Project Manager for the construction of 2 x 230kV Lattice Tower connection to new BP upgrader facility c/w substantial 2x 230kV self-supporting dead-end in-line with existing line.</p>
<p>Suncor Energy Inc.</p>	<p>Firebag Phase III Transmission Line (2008)</p> <p>Oilsands Region, Alberta Canada</p> <p>Assistant Project Manager for EPC construction of 50km of 2x 260kV Lattice Transmission Line connecting the Suncor Oilsands Plant to the Suncor Firebag Plant.</p>
	<p>EMPLOYMENT HISTORY</p>
<p>Valard Construction LP <i>Edmonton, AB Present</i></p>	<p>President</p> <ul style="list-style-type: none"> • Valard Construction LP: Author of ISO-9001:2000 compliant Quality Manual addressed specifically to the requirements of transmission line construction. • Estimator, contributor, and author of tenders for 100+ transmission projects; significant awards include: <ul style="list-style-type: none"> - Suncor Energy Firebag Phase IV Transmission Line Project - Atco Electric Three Hills – Michichi Project - AltaLink Dry Creek Project - AltaLink New Amelia Project - BCTC Fort Saint John Reinforcement Project - AltaLink 104L Phase II Project - Coast Mountain Hydro Forrest-Kerr Project - SaskPower Rush Lake Creek 2x 230kV Transmission Line <p>Project Manager</p> <ul style="list-style-type: none"> • Hydro One Networks Inc., Bruce x Milton Reinforcement Project, Southern Ontario: Construction of 180 km of 2x 500kV, 4-bundle 735kcmil Erie Compact Lattice Transmission Line connecting Greater Toronto to the Bruce Nuclear Plant Inc. station terminations in two 500kV transformer stations, modifications to 500kV bus work, several 230kV modifications at crossing locations and crossing of Hwy. 401 • Yukon Energy Corp., CSTL Phase I Project, Central Klondike Region: Construction of 100km of 138kV H-Frame c/w 30km of 25kV improved appearance distribution line to Minto Copper Mine Site • AltaLink LP, New Amelia Connection, Industrial Heartland Region: Construction of 2x 230kV Lattice Tower connection to new BP upgrader facility c/w substantial 2x 230kV self-supporting dead-end in-line with existing line • AltaLink LP, Dry Creek Reinforcement Project, Airdrie, AB: Construction of 4.5 kms of 2x 138kV Steel Monopole Transmission Line • AltaLink LP, Yasa/Bretville Station Connections, Edmonton, AB: Construction of 138kV connections into two new stations on the Petro-Canada refinery sites inc. modifications of existing circuits and crossing of Hwy. 216 (Project Manager)



- Suncor Energy Inc., Firebag Phase III Transmission Line, Oilsands Region, AB: EPC Construction of 50km of 2x 260kV Lattice Transmission Line connecting the Suncor Oilsands Plant to the Suncor Firebag Plant (Assistant Project Manager)
- Bell Communications, Alberta Supernet OSP Scope Various Regions (AB): Construction of several hundred kilometers of optical fibre backbone and connections to over 500 government buildings in 3 districts of 9 (Hwy. 2 North, Hwy. 2 South and NE Alberta) for the Alberta Supernet Project (Assistant Project Manager)

Other Roles

- Tollhouse Energy / Katabatic Power: Delegation to Washington, DC for presentations to the Federal Energy Regulatory Commission and interested State Representatives and Senators discussing several FERC-Registered merchant transmission projects (technical advisor for constructability-related issues)
- Washington Group Northern: Delegation to Denver, CO for negotiation of inclusive program for the construction of transmission line and substation foundations as well as construction of all transmission lines for the Firebag Phase IV Project (Lead Negotiator)
- Katabatic Power, Mount Hays Wind Farm Feasibility Study: Conceptual design and cost estimate for collector system and substation (Estimator)
- Columbia Grid: Delegate to Columbia Grid Planning Meetings in Portland, OR
- Royal Oak Mines, Kemess Transmission Line Project, MacKenzie Forest District, BC: Construction of 190km of 230kV Guyed-Y Transmission Line (Groundman – Hauling, Anchoring and Erection Activities)
- Various streetlighting projects and distribution maintenance contracts (Groundman)

**SparAviation/L3
Communications**
Edmonton, AB

Aircraft Maintenance Engineer

Modifications to and maintenance of all manner of aircraft from Cessna 140 to Boeing 747-475.



Vjekoslav Vidakovic

POSITION

Manager, Stringing Operations

SUMMARY

- 36 years of experience in transmission line construction.
- Knowledge of fundamentals of contracts and experience in managing contractors under the terms of a contract.
- Expert technical stringing knowledge and experience

EMPLOYMENT HISTORY

Valard Construction LP

Calgary, AB
2013 – Present

Manager of Stringing Operations

- 287kV T/L-NTL-BC Hydro and 500kV T/L EATL-ATCO, AB

Valard Construction LP

Hanna, AB
2013

Stringing Manager

- HRTD 240 kV ATCO

Valard Construction LP

Toronto, ON
2012 – 2013

Project Manager

- 115kv Underground cable Toronto

Valard Construction LP

Toronto, ON
2011 – 2012

Construction Manager

- 500 kV T/L Milton-Bruce

Viscas Corp.

Joint Venture of Fujikura Ltd and
The Furukawa Electric
Japan
2007 – 2011

Project Manager

- 765 kV T/L Mercury-Perseus-Eskom SA- Certificate of Achievement for exceeding compacted target in financial year 2008.
- 765 kV T/L Hydra-Gamma 1&2-Eskom SA-Certificate of Achievement for exceeding compacted target in financial year 2009.
- 765 kV T/L Hydra-Gamma 1&2-Eskom SA-Safety, Health & Environmental Award-Runner-up for outstanding commitment to safety.
- 765 kV T/L Hydra-Perseus-Client-Eskom SA- Excellent Health and Safety Achievement Award contributing to 765 kV T/L projects in achieving 3.5 million man hours without having lost time injuries.
- Overseas Transmission Projects
- Responsible for establishing and managing of the site construction organizations (3 independent sites-average distances from site to site is 500 km).
- Provide leadership in the performance of all activities related to construction work including contract administration, quality control, planning and cost control, materials management, office management, labor relations, security and HS&E.
- Responsible for selecting and issuing of orders to sub-contractors and various suppliers.
- Responsible for ensuring constructed product meets approved design specifications and drawing, in accordance with project plan.
- Maintaining ATP's relations with client, sub-contractors and other 3rd parties.
- Upholding ATP's contractual and regulatory responsibilities as prime contractor.
- Producing and submitting monthly invoice and monthly progress/programed reports to client and company management.
- Participating and taking leading role in Safety and Environmental Meetings, briefings and trainings at site. Being legally responsible for HS&E standards of the company at particular projects.
- Making estimates and submitting tenders for new projects as well as research of the market for



Fujikura Ltd
Japan
1993 – 2007
Various Positions

transmission lines worldwide.

- Producing and approving with client of required method statements, inspection and test plans and other safety, health, environmental and QA/QC documents.

Site Manager (1993 – 1997)

- 400 kV T/L Black Point Power Project-CLP-Hong Kong (approx. project value= 130 million USD), including extensive slope stabilization and rehabilitation works.

Project Engineer (1997 – 1998)

- In charge of research and estimates for new business-Fujikura Office-Tokyo, Japan. Estimates and preparation of new tenders in Indonesia, South Africa, Namibia, Burma, Thailand, Taiwan, Romania and Malaysia.

Chief Site Manager (1998 – 2002)

- 345 kV T/L for IPP HPC, KKPC & MPC-Taiwan Independent Power Producers (approx. projects value=120 million USD)

Chief Site Manager (2002 - 2003)

- 400 kV T/L Athene-Pegasus (guyed towers) for ESKOM-South Africa (approx. project value=10.5 million USD)

Construction Manager (2003 - 2005)

- 500 kV T/L for Tanjung Bin Power Plant Malaysia (approx. value=33 million USD)

Project Manager (2005 - 2007)

- 500 kV T/L for Jimah Power Plant-Malaysia (approx. value=67 million USD)

Energoinvest
Bosnia & Herzegovina
1978 – 1993
Various Positions

Stringing Coordinator (1978 – 1980)

- Transmission lines, 220, 400 kV, Bosnia & Herzegovina

Assistant Site Manager (1980 - 1981)

- 275 kV T/L Rawang-Chenderian-NEB-Malaysia (approx contract value=15 million USD)

Assistant Site Manager (1982 - 1982)

- 220kV T/L Kidatu-Mufindi-Tanzania (approx. 320 km, approx. project value=45 million USD)

Stringing Coordinator (1982 – 1984)

- 110, 220, 400 kV T/L Grid – Croatia & Bosnia Herzegovina

Assistant Site Manager (1984 - 1986)

- 132 & 275 kV T/L for Kapar Power Plant-NEM Malaysia (approx. contract value=40 million USD)

Site Manager (1987 - 1989)

- 132 & 275 kV T/L South Malaya Project-NEB-Malaysia (approx. contract value=44 million USD)

Site Manager (1989 - 1990)

- 400 kV T/L Bosnia & Herzegovina (Zvornik-Visegrad 400 kV T/L)

Site Manager (1990 - 1993)

- 115 & 230 kV T/L for EGAT-Thailand, 3 lines (Tha Tako-Khoen Len, Nam Pong-Udhon Thani, Tha Tako-Lampang T/L (approx. project value= 30 million USD)

**LICENSES &
CERTIFICATION**

- Certified Project Management Professional (PMP)
- Completed "Fundamentals of Project Management Course" (MGTM1080-Conestoga College Kitchener-36 hrs.)
- Technologist-Electrical Engineering

**ADDITIONAL
EDUCATION / TRAINING**

- Project Management
- First prize for Innovative Construction by South African Steel Institute for erection of Composite Cross-rope Towers.
- Certificate of Achievement for exceeding compacted target in financial year 2008, 2009
- Health & Environmental Award in 2009
- Excellent Health & Safety Achievement Award contributing to 765 kV T/L projects in achieving 3.5 million man hours without having lost time injuries


TRACY AVERY

POSITION Site Labour Coordinator

-
- SUMMARY**
- Tracy has 14 year experience in the power line construction and maintenance industry.
 - Certified in Construction Safety Officer from NLCSA
 - Extremely organized and able to work well under pressure
 - Works well with others and is able to work independently without direct supervision
 - Confident and comfortable speaking to large groups of people
 - Very eager, fast learner and enjoy teaching others
 - Proficient in Microsoft Word and Excel
 - Excellent knowledge of Simply Accounting and Jonas

**EMPLOYMENT
HISTORY**
Valard Construction LP Program Site Manager and Labour Coordinator

*Edmonton, AB
Sept 2013 - Present*

- Client interaction
- Ensuring safety requirements are met and following
- Production from construction group
- Day to Day on Site activities
- Labour Relations with union

Emera Utility Services Area Manager

*Goobies, NL
2011 - 2013*

- Overseeing daily accounting operations
- Performing monthly safety meetings and inspections and scheduling maintenance of vehicles
- Performing employee reviews
- Arranging annual inspection of lifting tools, including fall protection, and ensuring supervisors were in compliance with safety plan.

Green's Service Station Ltd. General Manager

*Goobies, NL
May 1999 - December 2011*

- Performed all Accounting, Fleet, Health Safety and Environment, and Human Resource duties
- Scheduled maintenance of vehicles, performed monthly safety meetings, Employer Co-Chair of OH&S Committee, project costing, ensuring training needs met, labour relations with union, accounts payables, accounts receivable, payroll and month end report.

F&S Investments Ambulance Dispatcher/Bookkeeper

*Clareville, NL
February 1999 - May 1999*

- Duties included dispatching local ambulances during night shift and performed light accounting duties.

The Career Academy

St. John's, NL
May 1996 – August 1998

Assistant Registrar

- Duties included distributing student loans and collecting tuition payments, preparation of tuition and book tax forms.

**LICENSES &
CERTIFICATION**

- Certified Construction Safety Officer through NLCSA August 2013
- Standard First Aid I CPR expires August 2016
- Environmental Awareness , no expiry
- Early & Safe Return to Work, no expiry
- Occupational Health & Safety Committee Training , no expiry
- Leadership for Safety Excellence
- Principles of Loss Control & Audit Training
- Harassment Training
- Introduction to NL OH&S Certification
- Power Line Hazards, expires August 2016
- Construction Worker Safety
- Fall Protection (NL 2 day)

**EDUCATION &
OTHER TRAINING**

- **Construction Safety Officer Certification, NLCSA (2013)**
- **Computerized Accounting Diploma, The Career Academy (1995)**

**SHANE EIRICKSON****POSITION**

Construction Supervisor

SUMMARY

- Shane has over 23 years of experience in the industry.

EMPLOYMENT HISTORY**Valard Construction LP**

Calgary, AB

2004 - Present

Construction Supervisor

- 3 144kv Transmission Lines and foundations for 5 Substations
- Firebag Suncor Construction Manager
- Kearl Lake Construction Manager
- Mt Milligan Construction Manager
- North East Loop Construction Manager
- HRTD Construction Manager
- EATL Construction Manager
- CNRL Horizon-260kv Transmission Line
- Supervised right of way construction and the installation of 138kV transmission line conductor

Material Distribution Foreman

- Supervised material delivery and coordinated pole setting on 120km of 138kV in Attawapiskat, ON

Supervisor

- Supervised building and stringing of 3 to 8 25kV pole taps in Red Earth, AB

Anchor and Pole Setting Supervisor

- Installed anchors and set poles in Tumbler Ridge, B.C.

Framing Foreman

- Framed 65km of 144kV Wishbone structures with 25kV underbuild and reported construction progress in Consort, AB

Setting Foreman

- Coordinate with supervisor on daily work schedule and project work schedule, set poles with backhoe, boom truck and helicopter and operate puller for tension stringing in Squamish, B.C.

General Foreman

- Coordinate with supervisor on daily work schedule and project work schedule, manage materials, install binche pipes in re-bar encased 5000 km³ duct bank for 4.5Km of 138kV underground in Canmore, AB

Project Supervisor

- Coordinate daily work schedule and project work schedule and progress for 60km of 144kV with 25kV underbuild in Three Hills, AB

General Foreman

- Schedule crew's work and organization for 186km of 244kV lattice and steel H-Frame

Project Supervisor

- Manage crews, assemble schedules and manage work for 138kV line for 60 miles from Gulf Port Glenboro, MB to U.S. border

General Foreman

- 138kV steel line construction from Winnipeg, MB to Brandon, MB

Manitoba Hydro

Winnipeg, MB

1998-2000

Transmission Line Inspector

- Inspect contractors work on 138kV and 230kV transmission lines and the plowing of 165 km of Fiber Optics

**Remcon Construction**

*Regina, SK
1997*

Crocus Construction

*Minnedosa, MB
1990-1996*

Setting Foreman and Puller Operator

- Construction of 230kV bundle 795 conductor line form Regina, SK to Saskatoon, SK

Setting Foreman and Puller Operator

- Setting foreman, puller operator on wood golfports and steel H-Frames, assembling and erecting steel lattice towers, tension stringing 266 to 1143 conductor

**LICENSES &
CERTIFICATION**

- Construction Safety Training System
- High Energy Joining Blasting Operations Permit
- Equalpotential Bonding and Grounding Training
- Level B CPR
- Flagperson Training
- Radial Book Digger Training
- Transportation of Dangerous Goods
- WHMIS



Shahab Hamidi

POSITION

Project Planner/ Scheduler

SUMMARY

- Over 10 years of experience on EPC and PC projects as Project Controls Engineer in each side; Client, Owner Representative and Vendor
- Experienced analyzing contractor- prepared delay claim
- Integration of EPC vendor schedules with overall Program Integrated Master Schedule; review the quality of submissions; analyze and resolve coding, structure, or other discrepancies, import schedule, assess progress, and develop variance analysis
- Fully conversant with development of WBS structure, Resource allocation, Histograms, S-Curves, Progress Measurement Systems, Change Management & Critical Path Analysis
- Performance Measurement Skills with key emphasis on EVM (Earned Value Management)
- Working knowledge of Project Management across all knowledge areas based on the PMBOK
- PMP (Project Management Professional) in process
- Proficient in Primavera Project Planner (P6), MS Project 2010, TILOS (Linear Scheduling)
- Advanced working knowledge of MS Office, AutoCAD
- BSc. In Mechanical Engineering, qualified for P. Eng.

EMPLOYMENT HISTORY

Valard Construction LP
Edmonton, AB
April 2014 -present

Senior Field Planner

- Provides technical support and works collaboratively with project managers/constructino managers to ensure that the project schedule is maintained to client's satisfcatoin
- Prepare and maintain L1, L2, L3 and L5 schedule reports for Operations Team and Management regarding project activities and produce consolidated progress reports and analysis with bar charts, S-curves, manpower histograms.
- Develop schedules in various formats such as Primavera, Excel and MS project for the project during all stages of the project.
- Define and optimize critical paths, perform total/free float analysis and notify project management status of critical activities and schedule risks
- Conduct recovery plans, contingency planning and schedule compression techniques
- Support monitoring of contract actual progress versus planned progress, family of curves and key performance indicators, provide exception reporting, and recommend actions for mitigation

Options Engineering Ltd.
Toronto, ON
2012 - 2014

Project Planner/ Scheduler

- Developing the level 4 (task detailed) schedule reflects the project execution strategy using Primavera P6
- Developing the hierarchy of schedule reflects the project delivery document level
- Ensure the schedule is structured with appropriate coding to provide all necessary control and reporting functionality
- Preparing and keeping up the monthly manpower, resource histograms and quantity curves
- Establishing the project schedule baseline to record client approved changes, against which execution performance can be determined for variance reporting and milestone accountability
- Measuring the actual progress so that it can be compared to the baseline to provide a means of assessing project execution performance
- Updating the status of the project, Progress S-Curve, and Critical Path
- Determining the status of project execution against the baseline and identifying any schedule slippage
- Conducting Schedule trend analysis to determine whether progress is tending to improve or



**Kasra Pole Fars – Engineering
& Construction Co.**
Iran
2010 – 2012

Senior Project Planner/ Scheduler

- deteriorate, and determining corrective actions and developing action plans
 - Develop What if Scenarios evaluate the impact of potential changes and/or prepare contingency plans
 - Developing and updating various progress reports includes Critical Path and Variance Issue
 - Preparing and providing information on various forecasts, reports and look-ahead plans on a monthly basis
- Handled mega (EPC) & (PC) projects of Water Transmission line to Azadegan Oil Station & Refinery and completion of water line to Cheghard Iron Ore.
 - Developed and maintained project master schedules and various area coordination schedules for the assigned scope of work with Primavera (P6)
 - Monitored, reviewed and analyzed of the schedule and status of subcontractors during all phases of the project included the analysis of any schedule deviation and corrective action
 - Identified and reported the activities which had critical or potential impact on schedule
 - Liaised with cost controller and other functional managers as required by the project
 - Worked with construction project manager to maintain the critical path
 - Develop projects monthly status reports to control project schedule
 - Responsible for prioritization and forecasting for EPC construction projects
 - Reviewed, signed and load approved trends into the project schedule
 - Communicate with site construction management team on a regular basis to confirm the construction schedule and look ahead plans

**Fars Combined Cycle Power
Plant**
Iran
2003 – 2004

Project Engineer

- Developed and maintained CPM schedule for PC project
- Interfaced with project manager and other disciplines to obtain data for use in schedule development and maintenance
- Updated and status schedule and supplied report data for project progress reports
- Prepared Manpower plan, Progress charts/ graphs and Potential Problem Area reports
- Assisted in the analysis of Problem Areas, and provided recommendation for corrective action

**LICENSES &
CERTIFICATION**

- 2000 – Bachelor of Science: Mechanical Engineering – Heat & Fluids
- 2011 – Primavera Project Planner (P6) Certificate
- 2013 – PMBOK Certificate, 5th Edition
- 2013 – Bid Proposal and Management
- 2013 – MS project (2010) Certificate
- 2013 – LEED AP BD+C Training and Project Experience Certificate
- 2014 – Construction Safety Training System – CSTS-09



SEAN DUNN, P.ENG. PMP

POSITION

Corporate Controls Manager

SUMMARY

- Professional Engineer and Project Management Profession with over 10 years of experience in a range of engineering and supervisory roles.
- Consistent top performer with proven experience successfully managing large teams and leading a broad range of projects.
- Former Military Engineering officer recognized for outstanding leadership while commanding missions in Afghanistan.

EMPLOYMENT HISTORY

Valard Construction LP
Edmonton, AB
2013 - Present

Corporate Controls Manager

- Manage the Corporate Controls team responsible for providing executive management with visibility and analysis on all major projects across the company. Responsible for supporting project teams and providing project controls expertise, especially scheduling resources. Supervise a team of project managers, schedule/planners and War Room staff.
- Established the Corporate Controls department and Valard War Room.
- Implemented the use of Tilos linear project management software.
- Developed and Earned Value analysis system to tie quality, accounting, scheduling and field reporting systems into one database for EV reporting.

ATCO Electric LTD.
Edmonton, AB
2010-2013

Senior Project Engineer

- Provide project management expertise to all phases of the \$1.6 billion EATL project. Direct and manage Bechtel Canada under the Project Management Agreement (\$100 million contract) for all transmission line construction (\$1 billion scope). Supervise 7 direct reports including the project scheduler. Manage all aspects of the work execution release packages including planning, scheduling and weekly reporting to ATCO senior management. Developed the initial project execution plan and construction planning matrix that formed the basis for the project's line construction execution strategy. Reported to the Vice President, EATL Line Construction Contract Administration and filled this role during his absences.
- Developed the scope of work and unit rate pricing for the largest contract in ATCO's history (\$450 million).
- Supervised two Engineering consultant teams on the development of 4 material handling yards (\$17 million).
- Selected as the department representative for a new companywide HSE working group.
- Played a key role in the evaluation of Bechtel's baseline schedule and baseline cost estimate (\$1 billion).
- Personally initiated and implemented the use of TILOS linear project management software at ATCO Electric.
- Member of ATCO's PMO manager review committee to provide approval on all new processes and templates.

**Mistaya Construction Ltd.**

*Canmore, AB
July 2010 – January 2011*

Project Manager

- Project Manager and Owner's Representative for the Town of Banff Recreation Centre Renovation Project. Responsible for the total project budget of \$33 million. Scope of work included the new construction of a hockey arena, curling rink, associated public use areas, and renovation of existing hockey arena and facilities.
- Led the project team that consisted of the prime consultant (GEC Architects), construction manager (Stuart Olson Dominion Construction), and Town of Banff staff.
- Project achieved Phase I occupancy in Nov 2010 on schedule.

ATCO Electric LTD.

*Edmonton, AB
November 2009- July 2010*

Lead Construction Engineer

- Managed a team of 14 direct reports responsible for the construction and contract administration of all large projects and transmission capital maintenance projects at ATCO Electric, including the Senior Civil site Engineer, Construction Supervisors (7) and Contract Administration staff (6).
- Implemented a number of new project management tools as well as the development of a formal transmission line commissioning process.

ATCO Electric LTD.

*Edmonton AB
January 2009 – November 2009*

Project Manager, Large Distribution Projects

- Responsible for large distribution (25kV) projects with a total budget of \$20 million. During tenure in this position, 6 projects (\$13.5 million) were completed – all under budget and ahead of schedule. Led multi-disciplinary project teams (engineering, construction, lands, forest operations, industrial sales) throughout all phases of the project – kick-off, field checks, plan development, estimating, engineering, construction, reporting and close-out. Projects provided electrical distribution to municipalities and large oil and gas companies.
- Managed 4 separate 25kV distribution projects to provide electrical service for Statoil, Canada's SAG-D development in Northern Alberta. During post completion review meetings, the customers Vice President stated that the project could not have been executed better from a management perspective.
- Managed the city of Cold Lake 25kV distribution line move for the highway 28 twinning. Completed all aspects of contract development and tendering.
- Implemented an improved cost tracking method that allowed a new distribution line project to use earned value reporting throughout construction – the first time this was used on a project at ATCO Electric.

Department of National Defense

*Canada
1999 – 2009*

Operations Officer

- Assisted in managing the Army operations group at the Edmonton base headquarters. Accountable for training and deployment of 4,000 personnel in Western Canada. Worked cross-functionally with other units and provided direction to 15 unit operations officers. Reported directly to the G3 (i.e. Chief of Operations).
- Commanded a 30-person control center for a month long training exercise that prepared 3,000 soldiers for deployment to Afghanistan. Directed 10 subordinate Combat Units, of approximately 250 people each, in the execution of 24 hour a day operations.
- Successful command of the control center achieved record incident response times and met all training objectives on time and within the allocated \$8 million budget.

Engineer Troop Commander

- Commanded a team of 40 soldiers and tradesman, with 6 direct reports, and controlled \$3 million in assets. Deployed to Afghanistan for 7 months as a member of the 300 person



Canadian Reconstruction Team for Kandahar Province. Worked with Canadian government and non-governmental agencies, multi-levels of the Afghan government departments, and other militaries. Provided a full range of security and engineering support under austere conditions in a high threat environment.

- Awarded the prestigious Task Force Commander's commendation for commanding the first IED Hunting Mission ever conducted by Canadians. With 4 days' notice, developed the tactics, trained the team of Canadian and Afghan soldiers, and successfully led the 50 man mission immediately following 3 separate attacks on coalition forces.
- Designed and implemented an improved waste water disposal system after the existing system failed, threatening the operability of the Canadian Reconstruction Team. Developed an original solution under tight timelines and with limited resources.
- Supervised a diverse team of soldiers and tradesman. Managed several project and was accountable for initial assessment, division of work, procurement of materials, implementation and supervision. Projects included construction of housing and office buildings, a new camp kitchen facility which tripled previous capacity, electrical overhaul of the camp, and the design and construction of camp security systems.
- Commanded the rapid response team that deployed to emergency situations. Provided immediate problem solving skills in reaction to critical situations, such as enemy activity. As the on-scene commander, liaised with other militaries and all levels of Afghan government departments.
- Supervised a team of military divers in the execution of specialized underwater engineer tasks such as underwater demolitions, recovery operations, and bridge reconnaissance.

LICENSES & CERTIFICATES

- APEGA Professional Engineer and PMI Project Management Professional
- ATCO Safety Leadership Program
- ATCO Contractor Management Training Program
- Construction Safety Training System, WHMIS and TDG
- ATV/UTV Training Course
- Army Combat Diver Supervisor
- Military Officer Professional Management Courses

EDUCATION AND TRAINING

- Bachelor of Engineering, Civil Engineering, Royal Military College of Canada, Kingston, Ontario (2003)
- Graduate Certificate, Project Management, University of Alberta, School of Business, Edmonton, Alberta (2008)



	Sandra Blair, MSc., ASCT, EP
POSITION	Environment and Permitting Manager
SUMMARY	<ul style="list-style-type: none"> Sandra maintains over 15 years' experience in resource management, environmental impact assessment, permitting and compliance for major projects.
EMPLOYMENT HISTORY	
Valard Construction 2013 to Present	<p>Manager, Environment and Permitting – client and regulatory liaison, permitting and compliance on major transmission line development projects across Canada. Development of project proposals, estimates, budgets, Environmental Protection & Mitigation Plans, incident investigation and reporting, management of environmental monitoring staff and subcontractors on current Projects including:</p> <ul style="list-style-type: none"> BC Hydro - Northern Transmission Line (NTL) 287 kV 344 km (>\$100M) SaskPower – I1K Island Falls to Key Lake 240 kV 300 km T/L Nalcor - HVac Churchill Falls to Muskrat Falls 315 kV 250 km T/L Altalink (Burns & MacDonnell)- Pike -Christina Lake Development 240 kV 100 km T/L ATCO Bonnyville to Bourque 54 Km 240 kV T/L
AngloAmerican, Peace River Coal 2012	<p>Project Environment Specialist - Roman Project</p> <ul style="list-style-type: none"> Feasibility Study Team – Environmental Compliance BC Environmental Assessment (EA) review for proposed Roman Project Mines Act Permit Amendment (MAPA) Planning for Trend-Roman Operation Selenium Management Planning for Trend-Roman Operation Environmental Effects Monitoring (EEM) Program Management Effluent Permit applications & compliance.
BC Hydro 2008-2011	<p>Senior Environmental Coordinator – Generation Engineering Capital Projects, responsible for environmental and permitting on major projects:</p> <ul style="list-style-type: none"> Bennet Dam (GMS) Units 1-5 Turbine Replacement (\$300M) Peace Canyon Turbine and Generator Upgrades (\$100M) GMS Station Services Replacement (\$100M) GMS Spillway Slope Stabilization (\$100M) GMS Transformer Replacements (\$50M) GMS Units 6-8 Capacity Increase Peace Canyon Transformer Replacements Kootenay Canal Emergency Slab Leak Repair Sturdy Creek Dam De-commissioning
Kitselas Resource Management 2011-2012	<p>Senior Resource Biologist - Referral review and consultation for Major Projects within Traditional Territory</p> <ul style="list-style-type: none"> Participant/advisor in Federal and Provincial EA reviews (Energy, Pipelines, Port Expansion) Design and implementation of fish and wildlife studies Environmental compliance and permitting for forestry and resource operations.



**Cambria Gordon Ltd.
Environmental Consultants
2006-2008**

Environmental Project Manager - providing resource management services to clients in Industry, Government and First Nations

- RioTinto Alcan - permitting, environmental management plans (EMP) and monitoring for RTA's Kitimat/Kemano/Nechako Reservoir operations, transmission line vegetation management.
- Advisor and Technical Input – Alcan Five-Year Pollution Prevention (P2) Report, Annual Report, Fluoride and Sulphur in Vegetation Assessment, Fluoride Emissions Working Group.
- Coast Mountain Power - Environmental Impact Assessment for Forrest-Kerr Hydroelectric Project
- BC Hydro - Water Licence Requirements for Falls River Operation
- Environmental Assessment Joint Panel Review for Kitselas First Nation – Pacific Trails Pipeline (KSL Looping Project); Enbridge Northern Gateway Pipeline Project.

**Acer Resource Consulting
(McElhanney) Ltd.
1999-2006**

Biologist - Environmental consultant providing biological assessments, riparian area classification, fish and fish habitat inventory, wildlife inventory/assessment (mountain goat, grizzly bear, moose), vegetation management plans, quality assurance reviews, environmental impact assessment and mitigation planning/monitoring (CN, Alcan, MFLNRO, MOTI, West Fraser, Skeena Cellulose)

**Triton Environmental Ltd
Terrace, BC 1996-2000**

Resource Technician - biological assessments, riparian area classification, fish and fish habitat inventory, impact assessment and mitigation planning/monitoring for numerous clients in Government, Industry (MFLRNO, Alcan, West Fraser Mills Ltd, Skeena Cellulose)

EDUCATION & AWARDS

Masters of Science (MSc.) in Environment and Management. Royal Roads University (2011).

- *National Sciences and Engineering Research Council (NSERC) & Alexander Graham Bell Canada Graduate Scholarship*

Diploma of Technology and Renewable Resources, Fish, Wildlife and Recreation. British Columbia Institute of Technology (1995).

- *Canada Scholar in Technology 1994-1995*

Faculty of Education, McGill University (1989-1991)

- *Faculty Scholar (1989-1991)*
- *E.M. Cosens Bursary*

**LICENSES &
CERTIFICATION**

- Firearms Possession and Acquisition (PAL)
- Conservation and Outdoor Recreation
- Riparian Classification
- Landslide Rehabilitation / Soil Bioengineering
- WCB Level I First Aid with Transportation
- Electrofishing Crew Supervisor
- WCB Chainsaw Operator
- WCB Fire Fighting
- VHF Marine Radio Operator
- PADI Open Water Diver


 RON G. MATTHEWS

 POSITION

- Safety Coordinator (Safety Manager)

 SUMMARY

- Ron has over 38 years experience in the power line industry.

 EMPLOYMENT
HISTORY

Valard Construction LP
Edmonton, AB
2011– Present

Safety Manager

- Responsible for day to day monitoring of crew.
- Monthly Safety Meetings.
- Incident investigations.
- Modified work assignment.
- WSIB reporting.
- Training and working with Management team on staff issues.

Hydro One

Walkerton and Listowel Areas
2005-2010

Operations Manager

- Responsible for the provisions of wide range of customer electrical services such as, connections, upgrades and emergency repairs. Manage and supervise staff, organize schedule and assign routine and special duties to clerical, technical, trades and Society staff, providing instruction, guidance and checks necessary to ensure work quality and accuracy and conformity to governing regulations.
- Set the appropriate context for subordinates (i.e. corporate strategies and policies, accountabilities, tasks, budget and Programs, compliance and performance targets, expectations for continuous improvement, etc.).
- Set an effective framework of policies and procedures for the work of the unit.
- Ensure compliance with all legal and regulatory requirements, and all corporate Policies and procedures, and generally accepted practices relating to the work of the unit.
- Establish a two-way working relationship with subordinates to solicit their views on conditions and potential changes Effecting their work, and continuous improvement opportunities.

Hydro One
Clinton Area
2003-2005

Front Line Manager

- Responsible for the assigned construction of area distribution systems and contract work, including outside line resources (contractor, construction and travelling crews)
- Be accountable for the safety of the unit and provide safety leadership.
- Prepare annual safety program using corporate and regional material as applicable to meet local needs.
- Administer applicable policies and procedures, and implement discipline when required
- Assess, plan, budget and schedule section work.
- Monitor work in progress, review work methods and ensure that appropriate materials, tools and transport and work equipment are available.
- Assist in maintaining a high level of public and employee relations.
- Ensure that staff is adequately trained.
- Provide necessary data and reports on section activities.
- Monitor work performance of crews in such areas as quality and quantity of work,

timekeeping, conduct and cost effectiveness.

- Execute annual work program, prepare budget, and monitor program status and report progress.
- Assign appropriate portions of work program to subordinate supervisors.

Hydro One
Listowel Area
2000-2003

Union Trade Supervisor

- Carry out and supervise staff involved in the construction and maintenance of distribution lines and associated apparatus, including erection of poles and structures for power lines.
- Organize staff and material efficiently and ensure that the proper vehicles, tools and equipment are available and maintained in good working order.
- Train and further develop staff, monitor work for safety, production and quality.
- Job Planning and knowledge of work management systems are required.

Hydro One
Ontario
1975-1999

Regional Line Maintainer, Power Lineman, Ontario Hydro

- Construct and maintain overhead, underground and submarine cable distribution and sub transmission power lines.
- Maintain wood pole lines; install transformer, oil reclosers, capacitors and voltage regulators.
- Install single and three phase meters.
- Work on energized distribution and sub transmission power lines using rubber gloves, live line tools and bare hand methods. Work on energized transmission power lines using live line tools and bare hand methods.
- Respond to trouble calls from customers.
- Determine causes of power outage and perform repairs to restore power.
- Drive and operate Radial Boom Derrick (RBD) trucks, single and double buckets, RBD mounted on Nodwell tractors and single and double buckets mounted on skidders.
- Work on Storm team to design and execute new process on power restoration.
- Instructed 2nd and 4th year students in the Ontario Hydro Apprenticeship, and administered 4th year exams 1983 – 1989.

LICENSES &
CERTIFICATION

- CSTS
- OSSA
- First Aid



Peter Germann

POSITION

Materials Manager

SUMMARY

- Peter has been a part of the Valard team for 7 years

EMPLOYMENT HISTORY

Valard Construction LP
Calgary, AB
2005 - Present

Supervisor

- Northern Transmission Line, BC
- 400 Km, 1100 structure 1 cct tower line
- Initiate start up activities including: material yard layout and camp set up, develop resource plan for manpower and equipment for receiving, handling, and hauling activities
- Coordinate material deliveries to main yard and remote lay down yards
- Set up inventory management system and business processes developed on the BXM line including implementation of accounts payable and purchasing processes.

Materials Manager - Bruce to Milton, ON

- 400 Km, 720 structure 2 x cct 500 kV tower line
- Developed materials processes
- Purchased and implemented a materials management system
- Through standardizing processes and the system, the materials team was able to virtually eliminate material delays for construction crews due to material issues.
- A planning model was developed which coordinated materials activities with construction which resulted in balanced inventories, minimized hauling and unnecessary handling of materials

Hydro One
Ontario
1998- 2005

Manager of Customer and Business Services

- Refinement of business processes focused on unique elements of the customer community
- Project management targeted on the contractor community

Zone Coordinator

- Re implement lines scheduling to six Ops Centres and realign scheduling department to enable work flows as per current business process
- Review touch points with Field Business Centre staff to align the business flows with the scheduling processes
- Leadership role in the provincial coordinators forum in the development of:
 - Contract Management training for provincial lines
 - Contractor work flows
 - Consolidated contractor payment process and account redistribution, as well as process support for other zones as requested
 - Development of the scheduling technician duties to align with the Project Managers role
 - Development of H1 specific Project Management course for Scheduling Techs, UTS and ADET
 - Development of Estimating Technical training package targeted at zone needs
 - Implementation of Estimating Technician scheduling in Z2
 - Implementation of Meter Technician scheduling in Z2
 - Development of Project Manager role to leverage "lessons learned" from variance reviews on project work

Process Development Team Lead

- Responsible for continuing with the work begun by OPEX on the development and implementation of process specific to Provincial Lines. Main assignments were:



- Develop and implement Lines Scheduling (projects/program) assuming work done previously by a team working parallel to OPEX and using systems previously selected by that team
- Develop and implement Line Scheduling for demand work
- Develop and implement the Estimating Tool and ensure compliance with the Distribution Service Code
- Develop and implement materials processes for demand and project work
- Work with Zones to develop issues teams and work through issues of a provincial nature and communicate solutions through key contact groups
- Develop communication and change plans for leadership groups to assist in move staff through significant changes
- Conduct regular issues meetings with the coordinators to work through scheduling related issues including fleet and materials

Operational Excellence (OPEX)

- The focus of this project was process re-engineering with two different job titles:
 - Provincial Line Representative on the New Connect Team resulting in the re-engineering of the New Connection Process based on customer feed back
 - Implementation Coordinator upon re-engineering of that division

Implementation Coordinator PEP Project

- Implementation of the Work/Asset Management Systems (Passport)
 - Alignment of training with the staff requirements and coordination of training sessions and related logistics
 - Project management- conduct daily meetings with the various development teams and work through issues, set priorities and status milestones
 - Develop a Help strategy for field staff and make it operational to coordinate with the system
 - Coordinate the deployment of the system to the field sites across the province

Implementation Coordinator Customer Service System

- Implement the newly developed Customer information system in the field
 - Communicate and change management issues pre and post implementation
 - Conduct mock- ups of conversion activities across the province
 - Coordinate field training and site support
 - Assist in the transitioning from project to live operation including sustainment activities
 - Safety Inspector during the ice storm to perform crew inspections and provide focus on the ever changing safety issues throughout the rebuild of the distribution system

LICENSES & CERTIFICATION

- Change Management Skills-Conestoga College
- Facilitation Skills-Conestoga College
- Effective Speaking-Conestoga College
- Management by Objectives and Results-Conestoga College
- First Line Supervision Motivation and Leadership- Conestoga College
- Hydro One Electrical Awareness
- Quanta (PISUP)
- Valard Construction Orientation
- Achieve Program
- Safety Meeting Effectiveness
- FLM Development Program
- Project Management
- Effective Supervision I, II, III.



EDUCATION

- Project Management (Generic and H1 Specific) - Conestoga College



Nalin Mistry

POSITION Project Controls/Scheduling and Planning

SUMMARY

- Dynamic, self-motivated & energetic professional, with bachelor's degree in engineering and having around 32 years of versatile experience in the field of Construction/Project/Contracts Management and Construction for the full project cycle, including procurement.
- OSPE - Ontario Society of Professional Engineers – Resident Associate Membership # 0140922.
- PMI Membership, Membership ID: 1747595.

EMPLOYMENT HISTORY

Valard Construction LP
Calgary, AB
 2010 - Present

Project Manager / Quality Manager /Assistant Project Manager

- 160 Million (Electrical Portion only) – as Assistant Project Manager, Bruce to Milton Transmission Refurbishment Project, Hydro One Networks Inc.
- 9.4 Million (Electrical Portion only) – as Project Manager & Quality Manager, 230kV Transmission Line & Switchyard- Design, supply, installation & commissioning.
- 9 Million – as Quality Manager, HRTD Bundle T7 Transmission Line Construction, ATCO
- Coordination of the project regarding project aspects by acting at the interface of Client, Consultants and Construction team
- Review / follow-up / initiate incoming and outgoing correspondence between all concerned parties (Client, Consultants, Suppliers, Sub-Contractors, etc.)
- Risk Management
- Assist in Review & update of Construction Schedule
- Maintaining Logs (Change logs – RFI & CCN logs, Submittal log, Site Instruction log etc.)
- Change Order Management:- Identify & initiate Change Order Items with Clients for Contract Amendment
- Overseeing the entire Quality Management Program.
- Review progress, preparation of invoices & follow up for the payments

Varcon Construction Corporation
Pickering, ON
 2010

Project Manager

- Rosebank Sanitary Sewage Pumping Station & Forcemain, Pickering, ON
- Woodstock Art Gallery Renovation, Woodstock, ON
- Coordination of the project regarding all project aspects by acting at the interface of Client, design consultants, Sub-contractors & other vendors & suppliers
- Review / follow-up / initiate all incoming and outgoing correspondence between all concerned parties (Client, Consultants, Suppliers, Sub-Contractors, etc.)
- Risk Management
- Participating on the entire Quality Management Program
- Review & update Construction Schedule
- Review, follow up and expedite all submittals & shop drawings
- Maintaining Logs (Change logs – RFI & CCN logs, Submittal log, Site Instruction log etc.)
- Technical and commercial comparison & negotiations with Vendors and suppliers, finalization of Letter of Intents, Sub-Contracts, Purchase Orders, expediting the material deliveries
- Change Order Management:- Identify, initiate and negotiate Change Order Items with Clients for Contract Amendment
- Review progress, preparation of invoices & follow up for the payments

North America Construction Ltd Project Manager

Ontario
2008 - 2010

- 46.78 Million Water Treatment Plant Expansion, Thunder Bay, ON
- 58.54 Million Water Pollution Control Plant, Secondary Sewage Treatment Facilities Upgrade, Thunder Bay, ON
- Approx. 8.00 Million – as Cost Control Manager for Enbridge projects at Manitoba & Saskatchewan
- 271 Million – as Assistant Project Manager, Bruce to Milton Transmission Refurbishment Project, Hydro One Networks Inc.
- Coordination of the project regarding all project aspects by acting at the interface of Client, design consultants, Project Management Consultants, Sub-contractors & other vendors & suppliers
- Review / follow-up / initiate all incoming and outgoing correspondence between all concerned parties (Client, Consultants, Suppliers, Sub-Contractors, Lawyers etc.)
- Risk Management and Claim Management
- Working with Quality Manager towards successful implementation of Quality Management Program.
- Review of Construction Schedule, guide Scheduling Team for proper sequencing, forecast cost to completion
- Technical and commercial comparison & negotiations with Vendors and suppliers, finalization of Purchase Orders, expediting the material deliveries
- Change Order Management:- Identify, initiate and negotiate Change Order Items with Clients for Contract Amendment
- Review progress for preparation of invoices & follow up for the payments
- Dispute resolution as related to the Warranty & deficiency issues on Thunder Bay projects
- Take appropriate action on the Request for service (RFS) received for warranty/defects during the maintenance period
- Follow up suppliers and sub-contractors for material/parts/work related to the RFS

AMAN Building Corporation
Edmonton, AB
2007 - 2008

Project Manager

- Renovation – Aurora Charter School, Edmonton, Alberta, Canada
- PowerComm Inc. : Office & Warehouse building at Edmonton, Alberta, Canada
- Country Hills Toyota : Car show room expansion, Calgary, Alberta, Canada
- 102 Street Condominiums, Edmonton, Alberta, Canada
- Overseeing the projects as Single point contact
- Coordination of the project regarding all project aspects by acting at the interface of Client, design consultants, Sub-contractors & other vendors & suppliers
- Review / follow-up / initiate all incoming and outgoing correspondence between all concerned parties
- Attending pre-bid and regular Site Visits & Pre-award meetings, chair various progress meetings and preparation / review / finalization and approval of minutes of meetings
- Overseeing the entire Bid process, material & manpower pricing, direct/indirect overheads, finalization of technical & commercial bid packages, submission and negotiation with Clients
- Follow up, expedite & Review of contractor and sub-contractor submittals (drawings, data sheets, other submittals etc.) as per Contract schedules and check compliance with the specifications and the scope of works
- Preparation of Construction schedules, Expediting and tracking planned progress / schedule vis-à-vis actual and suggest remedial measures, if needed to ensure that all milestone are met as per the Contract
- Preparation of all Requests for quotations (RFQs), Purchase Requisitions (PRs), Draft Purchase Orders,
- Technical and commercial comparison & negotiations with Vendors and suppliers, finalization of Purchase Orders, expediting the material deliveries to meet overall schedule
- Change Order Management:- Identify, initiate and negotiate Change Order Items with Clients for Contract Amendment
- Review progress for preparation of invoices & follow up for the payments

Integrated Contracting Company
Limit
Saudi Arabia
2003 - 2006

Project Manager

- BI-3178 and BI-3179 : SGP & UGP Sulfur Plants Upgrade, Saudi Aramco
- L/G Coalescer @ PP (Polypropylene) Plant at Tasnee Petrochemicals, Jubail
- K. O. Drums @ PDH (Propane Dehydrogenation) Plant, Tasnee Petrochemicals, Jubail
- Pre-Feasibility Studies for PET, Ammonia/Fertilizer Plants and Caustic Soda Plants
- Complete Bid Process (Technical & Commercial Proposals) for the following projects:
 - Saudi Aramco Req. # 3000096118: DR-1 Abqaiq Pump Station at Abqaiq GOSP5

- Saudi Aramco Req. # 3000088594: Intrusion Detection & Assessment System Replacement (IDAS), Ras Tanura Terminal
- Saudi Aramco LSPB BI-10-03093: Replace Pump Stations 4 & 5, Abqaiq Plants
- Sharq 3rd Expansion Project, Jubail: Contract # 07/1795: Tender for Building Works
- Tasnee Petrochemicals: Installation & Commissioning of Silane Feed Pumps
- Tasnee Petrochemicals (Reference: MOC-2004-UTL-0028): Modification of 28 inch Sea Water Pump Minimum Flow Pipeline
- Tasnee Petrochemicals (Reference: MOC-2004-UTL-0035): Modification of 72 Inch Sea Water Return Line Header
- Dammam Port: Supply & Installation of Perimeter Security Fence, Surveillance Cameras, Intrusion Detection System & Lighting Units

Al-Othman Consultants
Saudi Arabia
 1994 - 2001

Project Engineer, Construction Manager & Quality Auditor

- On & Off-site management of large residential & commercial construction projects
- Working with owners, architects & consultants regarding all project aspects, co-ordination between various contractors and agencies and expedite sub-contractors as needed
- Tracking construction progress and assured on time project completion
- Responsible for maintaining quality standards and specification compliance
- Overseeing the Quality Management Program
- Review, approval and implementation of all submittals, progress and final billing, contract and owner change orders & change order management
- Conducting weekly progress meetings, preparation of weekly & monthly progress reports
- Auditing of the system on a regular basis, issuance of NCRs and assist closing of the same
- Management meetings and reports & meetings with external auditors
- Instrumental in getting the company ISO 9001 certification
- Interaction with Clients, Architects and Consultants & co-ordination of activities between various sub-contractors
- Preparation of Pre-qualification documents & bid proposals, contract negotiations & finalization
- Execution of projects, scheduling, material & manpower management, finalization of rates for suppliers and sub-contractors
- Material submittals, preparations and follow up of invoices and change orders, change order management

Conwood Group of Companies
Mumbai, India
 1992 - 1994

Chief Engineer

- On & Off-site management of large mid & high rise residential & commercial construction projects & co-ordination between various contractors and agencies
- Working with owner, architect & consultants regarding all project aspect, tracking construction progress and assured on time completion, responsible for maintaining quality standards and specification compliance
- Conducting weekly progress meetings at site with Contractors, Architects & Consultants, including making agenda, minutes of meetings & preparation of weekly & monthly progress reports and presenting the same in person to the Board of Directors
- Review, approval and implementation of all submittals, billing & change orders & change order management
- Expedite sub-contractors as needed
- Overseeing the project quality requirements and participate as necessary

**LICENSES &
 CERTIFICATION**

- Dynamic, self-motivated & energetic professional, with bachelor's degree in engineering and having around 32 years of versatile experience in the field of Construction/Project/Contracts Management and Construction for the full project cycle, including procurement.
- Basics of Supervising – CSAO, Participant ID 154591

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- NAC Supervisory Training Course
 - Internal Training for Primavera
 - Safety training (for Saudi Aramco & SABIC at Saudi Arabia) including WHMIS at Toronto, Canada
 - Training Certificate as Internal Quality Auditor, ISO 9001 (FAHSS/TUV)

EDUCATION &
OTHER TRAINING

- B. Eng. Honors (Civil Engineering) - V.J.T.I., University of Bombay, India, May 1980



POSITION	Marc Ouimet Senior Manager Lands Forest and Environment
SUMMARY	<ul style="list-style-type: none"> ▪ With over 28 years of experience managing the right-of-way and environmental aspects of linear projects ▪ Marc has been a part of the Valard team for over 6 years.
EMPLOYMENT HISTORY	
<p>Valard Construction LP <i>Calgary, AB</i> <i>2009 - Present</i></p>	<p>ROW Manager – OPG/Kiewit Lower Mattagami River Transmission Line</p> <p>ROW Manager – Northwest Transmission Line for BC Hydro</p> <p>Project Manager - Toronto Hydro Distribution</p> <p>Project Manager - ATCO Wesley Creek to Meikle</p> <ul style="list-style-type: none"> ▪ New double circuit 240kV Steel Tower Transmission Line operating at 144kV <p>Project Manager - SNC Lavalin SW River Foundations</p> <ul style="list-style-type: none"> ▪ BP Noel 138kV TX Line
<p>Ouimet Cunningham Consulting and Research <i>Grimshaw, AB</i> <i>1990 - 2010</i></p>	<p>President</p> <ul style="list-style-type: none"> ▪ Consultant to ATCO Electric 1986-2009 ▪ 240kv double circuit Transmission lines : Britnel to Wesley Creek AE 1st Nations Consultation, Right of Way Construction Manager, Liaise through Tower construction ▪ Rainbow Lake to Arc en Ciel 144kv Transmission Line 1st Nations Consultation and Approvals ▪ Wesley Creek to Meikle AE 1st Nations Consultation, Gov. Approvals, Right of Way Construction ▪ Consultation /Liaison between AE and 1st Nations ▪ New Distribution lines supervisor Right of Way Group AE ▪ Distribution Maintenance Coordinator Right of Way Group AE ▪ Right of way Coordinator for Northlands Utilities 1998- current ▪ Facilities Installation and management experience <p>Permit submissions, compliance, installation and management of Construction Camps and Office complexes including;</p> <ul style="list-style-type: none"> ▪ ATCO Electric Fox Lake Project (project coordinator) 300 person camp/office facilities AB ▪ ATCO Electric Britnel/Wesley Creek (project coordinator) 2x100 person camps/offices AB ▪ Valard Construction 2x150 person camps/office Ft McMurray AE Projects AB ▪ Valard Construction 1x200 person camp and office for AE Wesley Meikle Project AB ▪ Valard Construction Field offices SNC Lavalin SW River crossing Project AB ▪ Valard Construction Camps, offices, material yards and Corp Office NTL Project in Terrace BC ▪ Valard Construction offices for Lower Mattagami KAP project ON ▪ Valard Construction preliminary Corp offices, shop, material yard, Toronto ON

**RESUME****LICENSES &
CERTIFICATION**

- Leadership for Safety Excellence
- Principles of Health & Safety Management
- Prime Contractor
- Risk Management
- Standard First Aid
- Utility Tree Worker
- Aerial Work Platform Program
- Advanced Boom Truck Safety for Utility Operators
- Class 5 License With Air Brake Endorsement Program
- Level 3 Alta Link Safety Certification
- Ground Disturbance Level II
- H2S
- ATV
- CSTS
- Crane operator (boom truck)
- Equipment operator
- Zoom boom operator
- Aerial platform operator (genie) (JLG)
- Bobcat
- 1st Nations Communications/Consultations

Lesley Anne Sick, P.Eng, ALS

POSITION Survey Manager

SUMMARY • A valued member of Valard Construction. Manager of Valard Geomatics Ltd.

EMPLOYMENT HISTORY

- | | |
|---|--|
| <p>Valard Geomatics Ltd.
Valard Construction LP
<i>Leduc, AB</i>
2012 – Present</p> | <p>Survey Manager</p> <ul style="list-style-type: none"> ▪ Manage all survey projects for the Valard Geomatics Ltd. company including mapping and GIS services. ▪ Manage all field and office survey staff as well as mapping and GIS staff.. ▪ Manage all power line and facility survey projects and provide customized services to Valard Construction LP. ▪ Handle all client correspondence, preparation of project proposals, staff supervision and mentoring, project preparation and supervision as well as final invoicing. ▪ Duties include site inspections, marketing, project design and training of staff. ▪ Contribute to the preparation of quality control procedures and checklists for the company. ▪ Manage the legal survey and land use planning divisions and staff. ▪ Manage power line construction survey work as well as substation construction projects. ▪ Manage line locating and quality control. ▪ Business development and financials. |
| <p>Midwest Surveys Inc.
<i>Edmonton, AB</i>
2008 - 2012</p> | <p>Project Manager</p> <ul style="list-style-type: none"> ▪ Managed all survey projects for the Municipal Consulting Group (2008 – 2010). ▪ Managed all industrial and commercial construction survey projects. ▪ Managed all power line and facility survey projects. ▪ Overall types of projects include Construction Surveys, Plant Site Surveys, Subdivision Surveys, Topographic Surveys, Road and Railway Surveys, as well as Engineering Survey and Design. ▪ Handle all client correspondence, preparation of project proposals, staff supervision and mentoring, project preparation and supervision as well as final invoicing. ▪ Duties include site inspections, marketing, project design and training of staff. ▪ Contribute to the preparation of quality control procedures and checklists for the municipal group. ▪ Managed subdivision applications and play an integral role in the subdivision design and land use planning. ▪ Managed some unique high precision survey projects such as sulfuric acid tank replacement, conveyor belt assembly, pump base replacement surveys, building deformation surveys and so forth. ▪ Managed power line construction work as well as substation construction projects. ▪ Assist the Oil and Gas group by managing some Pipeline Survey and Well Site Projects. |
| <p>Stantec
<i>Calgary, AB</i>
2008</p> | <p>Articling Student</p> <ul style="list-style-type: none"> ▪ Assisted with subdivision projects including budget proposals, client liaison, field survey and subdivision application. ▪ Participated in marketing and proposals. |

Focus Intec
Medicine Hat, Alberta
 2006 - 2008

Articling Student

- Managed construction and legal survey calculations in the office.
- Spent a large portion of time in the field as a crew chief working on Construction Survey projects, Real Property Reports, Building layouts, Grade Surveys, Condominium Surveys, Topographic Surveys, Engineering Surveys and so forth.

McElhanney Land Surveys Ltd.
Grand Prairie, AB
 2005 - 2006

Articling Student

- Employed in oil and gas survey division.
- Spent the majority of employment in the field working on well site and pipeline surveys.
- Some office time was spent processing data, calculating and plan checking.

**LICENSES &
 CERTIFICATION**

- H2S Alive, HAL-237517-1009596 as of July 2010
- Leadership for Safety Excellence, Registration 5096416 as of March 2010
- Professional Engineer, APEGGA Member 83861 as of December 2009
- Ground Disturbance Level II, CID #125922 as of October 2009
- Alberta Land Surveyor, ALSA Member 797 as of April 2008
- Transportation of Dangerous Goods
- Driver Hours of Service & Pre-post Trip
- WHMIS
- Bucket Escape
- Confined Space Entry Awareness
- Construction Safety Training Systems Flag Person
- Fall Protection and Awareness
- Safe Trenching, Excavation & Ground Disturbance

**EDUCATION &
 OTHER TRAINING**

- Northern Alberta Institute of Technology, Edmonton Alberta
 Bachelor of Technology in Technology Management (B.Tech)
 Current Student
- University of Calgary, Calgary Alberta
 Bachelor of Science in Geomatics Engineering (B.Sc.Eng)
 Graduated 2005
- Mount Royal College, Calgary Alberta
 Engineering Transfer
- University of Saskatchewan, Saskatoon Saskatchewan
 Arts and Science, Chemistry Major, Biology Minor

VOLUNTEER

- 2014 – present, ALSA Council
 - 2014 – present, Council liaison for the Legislation Committee
 - 2014 – present, Council liaison for ASSMT
 - 2011 – 2014, ALSA Convention and Social Committee
 - 2009 – 2013, Cosmopolitan Music Society Fundraising Committee
 - 2009 - 2011, ALSA Standards Committee
-

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- 2005 – 2009, ALSA Public Relations Committee
 - 2000 - 2001, University of Saskatchewan Charity Director
-



KELLY WILLIAMS

SPECIALIZED SKILLS

- Communicating in conflict
- Stakeholder management
- Project management
- Negotiation
- Time and Stress Management
- Team Leadership
- Coaching and Mentoring
- Working effectively with Aboriginal Peoples
- Operational management
- Innovative planning
- Influencing change
- Performance monitoring
- Reporting
- Problem solving
- Supervision
- Sustainable forest management
- Forest and road engineering
- Professional and legal writing.

EDUCATION & TRAINING

- **Association of British Columbia Forest Professionals** – Registered Forest Technologist 2004.
- **Vancouver Island University** – Diploma, Forest Resources Technology 1996.

SUMMARY OF EXPERIENCE

EMPLOYMENT HISTORY

Valard Construction LP
Edmonton, AB
January, 2013 – Present

Project Manager, ATCO Eastern Alberta Transmission Line

- Responsible for all Project Management activities related to the construction a 450km, 500kv DC line consisting of 1387 self-supporting towers.
- Daily coordination with Construction Manager to provide direction to 550 person project team and field craft.
- First point of contact to Project Owner and Project Management Consultant.
- Directly accountable to President and Senior VP.

Gitxsan Northwest Transmission Line Joint Venture
Terrace, BC
July 2012 – December 2012

Project Manager, BC Hydro Northwest Transmission Line

- Responsible and accountable for all road upgrade, new construction, line clearing and site preparation activities, for a 45km section of the NTL Transmission line. Duties include contractor management, progress reporting to JV Management and BC Hydro prime contractor, development and submission of change orders and RFIs, ground-truthing of BC Hydro contract engineering ahead of operations.
- Responsible for schedule, budget, deliverables, and project optimization.
- First point of contact with Client, Joint Venture, BC Hydro and Government Agencies.
- Weekly meetings with JV, and BC Hydro Prime Contractor for entire line.



**Strategic Forest Management
Inc.**

Campbell River, BC

Program Manager, BC Hydro Interior to Lower Mainland Transmission Line

- Responsible and accountable for all RoW Forest Planning activities, including project management and oversight of 20+ professional staff to complete clearing limits, danger trees, mapping, timber cruising, private land timber evaluation, crown land license-to-cut applications.
- Accountable for schedule, budget, deliverables, and project optimization.
- First point of contact with Client, Joint Venture, and Government Agencies for forest planning.
- Weekly Design Team meetings with Joint Venture partners and sub-consultants.

**Prima Colombia Hardwood Inc.
(Vancouver, BC)**

*Bogota, Colombia
January 2009- March 2012*

Vice President, Forestry

- Development, implementation and oversight of a comprehensive sustainable forest management and harvesting program for a pioneer business opportunity. Achieved team goals of the highest quality standards and development of industry in tropical regions.
- Executive Strategic Planning Team member.
- Accountable directly to CEO for budget planning and management.
- Responsible for sustainable forest management of 44,000 hectare area.
- Direct liaison with multiple government agencies at ministerial level.
- Ongoing communication/consultation with indigenous community leaders and councils.
- Responsible for 100+ Canadian and Colombian staff.
- Accountable for management and oversight of 120-person remote location camp operation and logistics.
- Led development of key performance indicators for operation.
- Led team development of world class Chain of Custody process, pursuit of FSC, ISO Certifications.
- All operations within a developing, Spanish-speaking region with significant political history.

**Iverson Forest Management
Inc.**

*Duncan, BC
2003-2009*

Director, Forestry and Engineering

- Responsible for multiple, simultaneous full-phase forest management consulting contracts with government and private industry, supervising staff of 40-plus personnel.
- Contract bidding, stakeholder management, crew supervision, preparation and submission of all required permit applications, budget preparation and review.

Wall Forestry Services Ltd

*Duncan, BC
1998-2002*

Supervisor, Forestry

- Forest and road engineering for ground, cable and aerial systems.
- Supervision of union and non-union crews, contract bidding, budget preparation and review.
- Preparation and submission of applications, GIS mapping.



TimberWest Forest Ltd
Duncan, BC
1996-1998

Forest Technologist

- Forest and road engineering for ground, cable and aerial systems.
- Supervision of union crews.
- Preparation and submission of applications, GIS mapping.

ANTICIPATED ROLE

Project Manager



Joe Rideout

POSITION

Structures Superintendent

SUMMARY

- Joe has over 40 years of experience as a lineman with extensive major project experience
- Over 30 years' experience in leadership and supervisory roles

EMPLOYMENT HISTORY

Valard Construction LP
Calgary, AB
2006-Present

Supervisor

- Supervised Construction of ATCO NE Program Lines Self Supporting Towers
- Supervised Construction of ATCO T6 & T7 Transmission Line Supporting Towers
- Supervised Construction of 500kV Transmission EATL Line
- Supervised construction of 144kV Double Circuit Overhead Line Construction from Ring Creek to the future Arcenciel Substation.
- Supervised construction of 7L93/7L122 & 7L109/7L64 144 kV Double Circuit Steel Pole Line Construction between the Rainbow Lake Substation and future Arcenciel Substation.
- Yukon Energy, Pelly/Carmacks, Yukon: Construction of 135 kms. of 138 kV H-frame transmission line with extensive helicopter construction, 2008.
- Planned and supervised construction of 260 kV Transmission Line steel lattice towers at the Suncor Firebag site.
- Supervised construction involving the installation and removal of a temporary line and the installation of footing and self-supporting towers.

Comstock Canada Ltd.
Calgary, AB
2004

Superintendent

- Planned and coordinated all construction aspects of the Anjigami and Sault 230 kV Transmission Line.

Greens Construction
Calgary, AB
2002-2003

Superintendent

- Planned and coordinated all construction aspects of a 230kV steel tower transmission line, including the removal of an existing line

Hi-Line Construction
Paynesville, MN
1999-2001

Superintendent

- Planned and coordinated all construction aspects of a 230kV steel tower transmission line, including the removal of an existing line.

Comstock Calgary Ltd.
Calgary, AB
1987-1998

Superintendent

- Worked on various projects throughout Canada, planning and coordinating all aspects of the construction process
- Worked in Newfoundland, Nova Scotia, Ontario, Manitoba and British Columbia on 138kV, 230kV and 500kV transmission lines with Comstock Canada.
- Worked in Newfoundland, Nova Scotia, Ontario, Manitoba and British Columbia on 138kV, 230kV and 500kV transmission lines with Comstock Canada.

**F.A Tucker**

*Nova Scotia
1978-1987*

General Foreman/Superintendent

- Worked in Nova Scotia as a General Foreman on 346kV, 230 kV, 138 kV and 69kV Transmission Lines of varying configurations.
- Worked in Newfoundland and Prince Edward Island as a General Foreman and as a Superintendent on 230 kV and 138kV transmission lines.

BG Checo International Ltd.

*Newfoundland
1973-1978*

Foreman

- Worked in Newfoundland on distribution and 138kV Transmission Lines

Fischback and Moore

*Newfoundland
1972*

Lineman

- Worked at Churchill Falls on 735kV Transmission Line

Comstock Canada Ltd.

*Calgary, AB
1972*

Lineman

- Worked at Churchill Falls on 735kV Transmission Line

Dominion Bridge

*Newfoundland
1971*

Lineman

- Worked at Churchill Falls on 735kV Transmission Line

**LISCENSES &
CERTIFICATES**

- Alberta Construction Safety Association - Construction Safety Training System (CSTS)
- Electrical & Utilities Safety Association of Ontario's Electrical Safety & Awareness / High Voltage
- Electrical & Utilities Safety Association of Ontario's Hydraulic Aerial Equipment Update
- Canada Safety Council ATV Training Course
- Oil Sands Safety Association Regional Orientation (OSSA)
- Power Line Safety Hazards Program
- Power System Safety Protection Certificate



Andy Felczak

POSITION Vice President Health & Safety

SUMMARY

- Over 12 years of experience in Health and Safety
- Extensive Management, Leadership and Human Relations Experience

EMPLOYMENT HISTORY

- Valard Construction LP** **Health Safety and Environmental Manager**
Edmonton, AB
2003 – Present
- Development and maintenance of the Health, Safety & Environmental Manual
 - Developed a Behavioral Based Observation Program, Hazard Analysis Process, and At Home Safety Program
 - Responsible for the implementation of a Modified Work process and a Recognition Program
 - Responsible for WCB and regulatory updates, for British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Yukon, Northwest Territories and Nunavut
 - Responsible for the Training and development of the workforce
 - Responsible for the overall Health and Safety process, developed a HS&E Manual/Policies and Procedures and Safety Handbook
 - Member of the COAA Safety Committee and ACSA
- Bird Construction Co.** **Health Safety and Environmental Manager**
Edmonton, AB
2002 - 2003
- Development and maintenance of the Health, Safety & Environmental Manual
 - Developed a behavioral based observation program, Hazard Analysis process as well as an At Home Safety Program
 - Recipient of the following awards:
 - COAA - Construction Owners Association of Alberta Award for HS&E Program development and implementation process
 - ACSA- Alberta construction Association Award for outstanding achievement in the Health and Safety program- Developed, Incident Reporting and Observation database Programs to track trends
 - Responsible for WCB, injury reduction and associated correspondence with British Columbia, Alberta, Saskatchewan and Ontario Boards
 - Responsible for WCB, in British Columbia, Alberta, Saskatchewan and Ontario
- Alliance Pipeline Ltd.** **Safety Advisor Canadian/USA Operations**
Calgary, AB
1999 - 2001
- The development and implementation of the Web based Health and Safety Manual System, a Safety Handbook and developed an Environmental program for the field personnel
 - Developed a training/orientation program and performed audits for station preparedness
 - Worked with the National Energy Board in ensuring that the Health Safety and Environment program met the NEB requirements
 - Introduced a Behavior Based Safety Program
 - Project Lead on the Web based Incident Reporting System developing team
- Syncrude Canada Ltd.** **Project Safety Manager Liason for Kellogg Brown and Root**
Fort McMurray, AB
1997 - 1999
- Overall design, implementation, coordination and performance monitoring of safety programs for Syncrude's Debottleneck II Project being constructed by Kellogg Brown and Root Designed and implemented the Safety Recognition program, which is based on a behavioral based safety foundation.
 - Adapted and designed the Total Safe Task Observation safety program for use on the site, and

have conducted training of key management personnel in its principles

- Involved in decision-making and advisory role to provide safe work procedures and plans for the construction and startup of the plant
- Conducted ongoing analysis and review of incidents for the purpose of continually improving procedures, work practices and safety performance of the project. Played a key role in developing strategy management of the construction project
- Developed a Construction orientation book with an overview of the Syncrude plants. Responsible for WBC related issues and analyzing injuries with recommendations for area improvements
- Updated senior management on project's progress and successes

Syncrude Canada Ltd.
Fort McMurray, AB
 1990 - 1997

Senior Loss Management Safety Specialist

- Supervising all construction activities in the Upgrading Area
- Overall responsibility for the implementation of the Environmental, Health, Safety and Loss Management Program, patterned after the DNV/ILCI program in Upgrading, which is a large-scale oil refinery with approximately 700 employees and 500 contractors
- Implemented several EHS and Loss Management issues such as Change Management, Task Analysis and Task Observations including the development of an Oracle based program for its use
- Revision, update and auditing of the Loss Management Standards to reflect and address the Company's redesigned organization
- Supervision of the Safety Specialists during turnarounds.
- Coordinated and lead accident/incident investigations, including appropriate follow-up to prevent reoccurrence of incidents
- As a chairman of Work Protection Code # 8 responsible for updating senior management including COO of changes

**LICENSES &
 CERTIFICATION**

- **Occupational Health and Safety Program Instructor affiliated with the University of Alberta at Keyano College**

**ADDITIONAL
 EDUCATION / TRAINING**

- WCB Claims Management Safety and Loss Management Trainer
 - Leadership Development Course
 - Process Hazards Analysis Leader's Course
 - Analytical Troubleshooting Kepner-Tregoe
 - Incident Command System Training
 - Dupont Safety Management Course
 - DNV Accredited Safety Auditor's Course
 - DNV Modern Safety Management Course
 - Practical Guide to Loss Management Course
 - 3M Respirator Trainer the Trainer Instructor's Course
 - Hazmat WHMIS Train the Trainer Course
 - OH&S/Environmental Due Diligence Course
 - Prime Contractor's Role Course
 - Industrial Scientific Instrument Maintenance and Calibration Course
 - Dale Carnegie Course
 - Claims Management Course (WCB)
 - Claims Appeal Process Course (WCB)
 - Behavior Safety Management Course
 - Fall Arrest Trainer Course
 - Tap Root Investigation Training
-

PROFESSIONAL
AFFILIATIONS

- President of the Alberta/NWT and National Board Member of the Canadian Society of Safety Engineering 1999-2005
- Chapter chair of Fort McMurray Chapter of Canadian Society of Safety Engineering 1992 - 1999
- Association of Canadian Registered Safety Professionals (CRSP Designation)
- American Society of Safety Engineers since 1995
- Alberta Construction Safety Association since 1992
- Construction Owners Association of Alberta since 2001
- Board of Canadian Registered Safety Professionals Board Of Governors



Amin Sorour, PMP, BSc

POSITION

Corporate Lead Planner

SUMMARY

- Project Management Professional (PMP) with ten plus years' experience in construction management, project planning and scheduling, multi-level schedule management and earned value management
- Experience in EPC environment, worked on large multi-billion dollar local/international projects in several countries with multinational companies with a range of industry sectors including infrastructure, construction and heavy industrial projects
- Extensive knowledge and experience in time and risk management
- Extensive knowledge and experience in work breakdown structure, critical path management and advanced experience using P6, P3 and Pertmaster
- Experienced in design and customization of MS Access databases.
- Solid experience in risk management and risk analysis. Good knowledge of techniques and tools required for managing time risks.
- Results oriented individual with the ability to effectively manage multiple priorities and time lines.
- People oriented with an ability to establish a high degree of credibility with staff member and client representatives

EMPLOYMENT

HISTORY

Valard Construction LP
Edmonton, AB
January 2013 - Present

Corporate Lead planner

- Developing and scheduling tools, processes and procedures for mega projects
- Claims analysis, resolution and avoidance
- Earned value management
- Progress monitoring
- Reviewing/managing contractor schedules
- Using schedule hierarchy to manage schedules for mega projects

Bechtel Corporation
Edmonton, AB
Eastern Alberta Transmission
Line (EATL)
Oct 2012 to Jan 2013

Senior Project Controls Engineer

- Provides technical support and works collaboratively with project managers/construction managers to ensure that the project schedule is maintained to client's satisfaction.
- Prepare and maintain engineering, procurement and construction schedules for complete integrated schedules as well as ensure Project Schedule activities are coded by the project work breakdown structure for cost / schedule integration and analysis.
- Prepare and maintain L1, L2, L3 and L5 schedule reports for Operations Team and Management regarding project activities and produce consolidated progress reports and analysis with bar charts, S-curves, manpower histograms.
- Review and incorporate subcontractor schedules into the project Master Schedule
- Provide recommendations for corrective action due to delays in certain aspects of EATL project.
- Develop schedules in various formats such as Primavera, Excel and MS project for EATL



Bechtel Corporation

*Doha, Qatar
New Doha International Airport
Apr 2010 to Sept 2012*

during all stages of the project.

- Work with client staff and contractors to develop and status micro-schedules for the subject project's components/Schedules.
- Define and optimize critical paths, perform total/free float analysis and notify project management status of critical activities and schedule risks
- Conduct recovery plans, contingency planning and schedule compression techniques
- Support monitoring of contract actual progress versus planned progress, family of curves and key performance indicators, provide exception reporting, and recommend actions for mitigation.
- Provide support on development of project cost expenditure forecast curves
- Perform schedule risk analysis (gather data, input data, analyze, report) as required.

Senior Project Controls Engineer

- Preparation of master schedule and detail subject schedules for design and construction including review of procurement and interfaces.
- Collation of design, Procurement and construction site documentation for the design and construction master schedule and contractor's schedules, updating and status reporting to the higher level of management as requested.
- Assess progress measurement and developing/updating progress curves for progress reporting.
- Support the change management process by Review and evaluate trends and their impact on project baseline.
- Collation of design and construction site documentation for the design and construction master schedule.
- Preparation of output reports with recommendations, preparation of monthly report, cost, schedule and financial reports, submission and distribute of the same.
- Review the project information and fact sheets and graphical presentation materials for the client's use in respect of the project.
- Oversee and review financial and cost reporting forms, development of specific formats for design and construction monitoring purposes including planned versus actual projections and indicated outcome report.
- Oversee documenting of design and construction budgets, cost estimates, associated financial reporting including cash flow projections, and indicating reports and oversee and monitor PCS support for design and construction schedules and cost analysis, for use at regular and extraordinary coordination meetings.
- Review, upgrade, development and implementation of the project control systems and integration with administrative and operational procedures of the client

Degrémont SUEZ

*Doha, Qatar
Doha West Sewage Treatment
Works Extension No. 3
Mar 2009 2010 to Mar 2010*

Senior Project Controls Engineer

- Providing support to the project Manager and Commissioning Team on all scheduling issues as well as developing, preparing and maintaining an integrated commissioning schedule.
- Participating in establishing and maintaining the various scheduling tools used by Degremont, such as master schedules and progress measurement systems.
- Responsible for project controls and providing assistance with the management of all activities associated with planning, scheduling, forecasting, critical path analysis, progress reporting and time-recovery strategies.
- Ensuring that the Commissioning team adheres to the project controls, as well as planning



and scheduling procedures.

- Assisting in the monitoring, reviewing, and analysis of the schedule and status during all phases of the project, including the analysis of any schedule deviations and corresponding corrective actions.
- Reviewing schedules and work with the Commissioning Team to ensure plans are realistic and achievable.
- Ensuring accurate and timely reporting to management and respond to the requirements of management.
- Providing planning and scheduling data for project reports.
- Providing manpower reporting for the Commissioning team.
- Liaising and interfacing with contractors, construction, project management and team leads regarding planning and scheduling activities.

Engineering Consultants Group

*Doha, Qatar
AL-WAAB City Development
Project
Aug 2007 to Feb 2009*

Senior Project Controls Engineer

- Review of contract documents Under the Terms and Conditions of New Contract Format NEC3.
- Review, comment and approve all baseline schedules, check the s-curves, associated cash flow, resource and cost loading, preparation of Earned Value report to evaluate project progress, establishing accurate, regular and timely reports detailing project's performance and progress such as productivity analysis.
- Resource allocation and cost reports, review, comment and approve monthly updated schedules, construction method statements, construction sequences, cash flow curves showing actual progress in comparison with planned.
- Study impact of alternative approaches to work, identify areas of weakness, check and review means and methods for recovery, as required, as well as new critical activities.
- Review contractor's proposals for site organization charts; Planners CV's, Prepare monthly report reflecting work progress on site and perform other duties as may be assigned from time to time from the Project Director in contact administration, evaluation of contractor's monthly payment based on earned value management technique.

National Service Contracting Company (NSCC)

*Dubai, UAE
Jun 2006 to Jul 2007*

Senior Projects Controls Engineer

- Review of contract documents Under the Terms and Conditions of FIDIC.
- Review, comment and approve all baseline schedules, check the s-curves, associated cash flow, resource and cost loading, preparation of Earned Value report to evaluate project progress, establishing accurate, regular and timely reports detailing project's performance and progress such as productivity analysis.
- Preparation planning and scheduling documents including time schedules and its periodical update.
- Procurement plans, submittal schedules (shop drawings and samples), s-curves, associated cash flow, resource and cost loading.
- Resource allocation and cost reports, review, comment and approve monthly updated schedules, construction method statements, construction sequences, cash flow curves showing actual progress in comparison with planned.
- Controlling and monitoring projects progress during construction.
- Generate earned value reports using separate sheets, Prepare monthly report reflecting work progress on site, maintain and update records of sites work progress.


Amin Lottfiy and Associates

Cairo, Egypt
May 2004 to May 2006

- Preparation means and methods for recovery plans as required, Monitor day to day work progress and evaluate daily and weekly reports coming from site mangers

Project Planner/ Coordinator

- Design, coordination, and construction management of enabling work and Soil-Structure interaction projects during proposal and design stages as well as site supervision and technical support during execution stage for various mega projects such as:
 - Mina El-Fajar Resort, Dubai, UAE.
 - El Kureimat Power Station, Egypt.
 - Salvation of Karnak and Luxor Temples, Egypt.
- Quality Control/Quality assurances for onsite activities for various projects and its related facilities such as pipe lines, sub structure, superstructure and administration buildings for the following projects:
 - Talkha Power Station, Mansoura, Egypt.
 - Mubarak civilized project for development Damietta "Development of Damietta Cornish", Damietta governorate, Egypt.
 - Cairo North Power Station, Cairo, Egypt.
 - Nubaria Power Station, Egypt.

**Construction Projects
Company**

Cairo, Egypt
Jul 2003 to Apr 2004

Civil Site Engineer

- Preparation of construction schedule, recovery plans, follow up and reports using Primavera and spread sheets.
- Monitoring progress and quality of work at site, Quantity surveying using spread sheets for Concrete, finishing and Earthworks activities to evaluate actual constructed quantities.
- Preparing Interim Statements, Invoices and subcontractors' monthly payments

**Additional Training
and Skills**

- *Certified Project Management Professional (PMP)*
- *Member of the Association for the Advancement of Cost Engineering (AACE), USA.*
- *Member of the Project Management Institute (PMI), USA.*
- *Member of the Egyptian Syndicate of Engineers.*
- *2013: Advance MS Access courses, NAIT, Edmonton, Canada.*
- *2012: Estimating Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2012: Trend analysis Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2011: Claims and Negotiation Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2011: Project Controls Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2010: Contracts Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2010: P6 Workshop, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2010: Six Sigma Yellow Belt Training, Overseas Bechtel Incorporated, Doha, Qatar.*
- *2009: Project Management Professional certification (PMP) Preparation course, Doha, Qatar.*
- *2008: Contract Planning, Administration and Claims Management by Qatari Society of Engineers, Doha, Qatar.*
- *2007: Preparation course for Association Advancement Cost Engineering certificate (AACEI, USA) Certified Cost Engineer "CCE" by AACEI, Arabian Gulf Chapter, UAE.*
- *2005: Advanced courses in construction management, Cairo University, Egypt.*
- *2005: Primavera Enterprise (P3e/c) for construction; basic course by Promastar (Primavera authorized representatives), Cairo, Egypt.*

**POSITION****Alexander Thompson, M. Sc., P. Chem.****Helicopter Dispatcher and Environmental Coordinator**

Valard Construction LP, 11K Transmission Project, Saskatchewan

SUMMARY

- Dispatch and coordinate helicopter field activities.
- Track crews entering and returning from field work.
- Coordinate environmental activities according to Environmental Protection Plans.
- Direct and mentor on-site environmental monitors.
- Prepare weekly environmental reports.

EMPLOYMENT HISTORY**Valard Construction LP**

Lindsey Lake, SK
September 2013-Present

Helicopter Dispatcher and Environmental Coordinator

- Dispatch and coordinate helicopter field activities.
- Track crews entering and returning from field work.
- Coordinate environmental activities according to Environmental Protection Plans.
- Direct and mentor on-site environmental monitors.
- Prepare weekly environmental reports.

Lorax Environmental Services

Vancouver, BC
September 2012- September 2013

Environmental Scientist

- Conduct groundwater and surface sampling.
- Work with monitoring equipment: water quality sensors, pumps, flow-thru meters, etc.
- Maintain sample integrity, prepare samples for transport, as well as complete forms and paperwork.
- Manage analytical results: organize and report data, produce graphs.
- Assist with equipment organization and field program mobilization.
- Adhere to strict health and safety standards, attend and provide input to daily toolbox meetings.
- Effectively work with diverse groups of professionals; provide daily progress reports.
- Conduct exploration core sampling and set up acid-rock drainage test bin experiments.

Applied Environmental Research Laboratories, Vancouver Island University

Nanaimo, BC
September 2002 – March 2005
April 2013 – August 2013

Researcher

- Conduct applied environmental academic research with chemistry instrumentation.
- Work in team setting to develop and deploy mobile air quality monitoring equipment.
- Conduct lab and field water and air quality studies; implement innovative ideas.
- Work with computers, spreadsheets, various software and electronic equipment.
- Assist to develop project plans, monitor effectiveness and report progress.
- Prepare chemical solutions and standards, calibrate and maintain scientific equipment.

Across the Creek Organics

Pemberton, BC
Seasonal Work
1990-2013

Operations Coordinator/Assistant

- Organize daily activities of commercial farming operation.
- Oversee and direct crews working around heavy equipment; work under tight deadlines.
- Manage crop maintenance, irrigation, harvest, sales and delivery schedules.
- Operate and maintain heavy equipment; ensure reliable operation of processing equipment.



Wastewater Treatment Plant
Whistler, BC

- Develop work and project plans, adapt/modify plans on short notice.

Laboratory Technician

- Perform standardized analytical tests of water samples.
- Carry out routine and adapted water and solids sampling.
- Analyze and interpret data, maintain records and databases; develop graphs and summaries.
- Be knowledgeable with government permits and regulations.
- Monitor waste discharges, track emissions and report permit exceedances.
- Coordinate with engineers, consultants, and co-workers.
- Research and implement innovative treatment approaches; develop database of knowledge.
- Monitor receiving environment: collect and ship samples; produce yearly reports.
- Calibrate and maintain chemistry equipment; assist with weather station maintenance.
- Troubleshoot upset process conditions; anticipate seasonal deviations.
- Investigate greenhouse gas emission with chemistry instrumentation.
- Provide recommendations for optimizing operations while reducing emissions discharges.
- Train co-workers in standardized chemical analysis; maintain quality control program.

**LICENSES AND
CERTIFICATION**

- Occupational first aid level 1
- Fire rescue volunteer (3 years)
- WHIMIS
- UTV training
- Transportation endorsement
- Pleasure craft operator certificate
- Oxygen therapy
- H+S committee member
- Bear aware
- Automated defibrillator
- Basic cruising standard
- Defensive driving course

**ADDITIONAL
EDUCATION/ TRAINING**

- Master of Science, Environment and Management, Royal Roads University, Victoria, BC (2010)
- Bachelor of Science, Biology and Chemistry, Vancouver Island University, Nanaimo, BC (2005)
- Certificate Equivalent, Electronics Engineering Technology, Camosun College, Victoria, BC (1999)
- Professional Chemist Designation in British Columbia, (2012 to present)

ALEX ALMADA

POSITION Site Quality Manager

- SUMMARY
- Previous experience in site quality roles and is well versed with Valard's Quality Program.
 - Excellent attention to detail and high level of initiative and professionalism.
 - Sound understanding of power line construction work methodologies and procedures.

EMPLOYMENT HISTORY

Valard Construction LP
Vancouver, BC
2011 - Present

Quality Assurance Supervisor – Northern Transmission Line

- Delegate for Site Quality Manager
- Assisted in the if implemented the Quality Plan
- Supervised the North End Quality Control Inspection Team
- Reviewed other Quality Control Inspectors Quality Records for accuracy and completeness
- Proactively highlighted potential problems to the Construction Team
- Coordinated the Pull Testing process and monitored Test Teams performance
- Member of the Tower Trouble Shooting Team
- Audited the work performance of the Quality Control Inspection and Construction Teams
- Highlighted issues to the Quality Assurance Manager and was involved with the resolution
- Member of the MBOS Implementation Team
- Maintained data integrity of MBOS
- Preparing for Customer Hand Over

Assistant Quality Assurance Manager

- Implemented and maintained the Quality Plan
- Provided Quality Process Training including required Quality Records, to Construction
- Completed and submitted Quality Records
- Highlighted issues to the Quality Assurance Manager and was involved with the resolution
- Reviewed other Quality Control Inspectors Quality Records for accuracy and completeness
- Audited the work performance of the Quality Control Inspection and Construction team

Quality Coordinator

- Performed Tower Inspections
- Completed Quality Records and submitted them to the Site Quality Manager
- Communicated with the Construction Crews daily to highly their quality performance
- Coordinated Pull Testing activities for the project A member of the Foundation Trouble Shooting Team
- Coordinated Construction Crews during shift schedule gaps

Apprentice Lineman

- Topped towers
- Installed Wood Poles
- Worked as part of the Stringing Crew
- Read Blue prints to assemble steel structures for clients.
- Inspect structures and verify that they were built properly

LICENSES &
CERTIFICATION

- Construction Safety Training System
- High Energy Joining Blasting Operations Permit
- Equalpotential Bonding and Grounding Training
- Level B CPR
- Flagperson Training
- Radial Book Digger Training
- Transportation of Dangerous Goods
- WHMIS



David Torgerson

POSITION Construction Manager

SUMMARY

- Dave has been part of the Valard team for over 10 years and comes with over 20 years of experience.

EMPLOYMENT HISTORY

Valard Construction LP
Calgary, AB
 2002 – Present

Construction Manager / Stringing Supervisor

- Muskrat Falls AC approximately 500 km of 315 kV AC
- NTL Transmission Line 350 KM of 287 KV lattice tower construction
- BXM Reinforcement Project Ontario 180 KM double circuit 500 KV 2010/2011
- Fluor Kearl Lake Project, Fort McMurray Alberta, 39 km 240 KV new construction 2009/2010
- BCTC Cloudworks, Harrison Lake BC, Construction 2 km 360 KV Salvage and Reroute for run of the river project Kiewit, 2009.
- First Nations Energy, Attawapiskat to Kasechewan, Ontario: Construction of 100 kms. of Aerial Fiber Optics, 2008
- Debeers, Victor Mine Project: Construction of 144 kms. of 115 kV Transmission Line through muskeg terrain, helicopter tower erection (Erickson Air Crane) 2008.
- Debeers, Victor Mine Project Construction Earthworks 115 KV Substation Kasechewan Ontario, 2007
- Lineman/operator on 50km of 138kV for the Fort St. John Reinforcement Project
- Debeers, Victor Mine Project: Construction of 170 kms. of 115 kV. Transmission line with numerous lake and river crossings through muskeg terrain, 2007
- Three Sister/ SNC Lavalin, Canmore Alberta: Construction of 5 km concrete duct bank and conductor installation double circuit 138 KV 2007
- IPP/Canadian Hydro Developers Squamish BC: Construction of 7km of 69 KV with extensive Helicopter Construction, and river crossings.
- ATCO, Dover Whitefish, Fort McMurray: Construction of 60 kms. of 240 kV double circuit transmission line with Athabasca river crossings, 2003 – 2004.

RS Line Construction
Glenboro, MB
 2002

Forman

- Construction of 230 kV transmission line from Glenboro Manitoba to the United States border

Arnason Industries
Manitoba
 1998-1999

Forman

- Construction, Maintenance, and Logistics winter roads Northern Manitoba

Comstock Canada
Manitoba
 1997

Operator

- 135 km winter road construction/maintenance and foundation installation Ilford MB to Oxford House MB

Crocus Construction
 Brandon, MB
 1992 – 1996

Operator

- Bridge pier resurfacing project, river diversion dewatering and maintenance of diversion
- Various bridge resurfacing projects, machinery moving and telecommunication cable installations.

LICENSES &
CERTIFICATION

- Journeyman Power Lineman, Alberta
- Journeyman Power Lineman, Inter-Provincial
- Crane and Hoisting Branch 2 A Boom Truck
- HCSAS-Equipment Operator Evaluator Instructor # 373
- EUSA Electrical Awareness Training
- Supervisor Training CSAO
- WHIMIS
- OSSA Orientation
- Construction Safety Training System 3.2
- Flag Person
- First Aid/CPR
- ATV Training Card # 32041
- Working Effectively with Aboriginal Peoples Seminar Vancouver BC
- Leadership in Safety Workshop
- Aboriginal Awareness Kearl Lake Amec AB

DEAN SJODIN, RFT

POSITION Right-of-Way Manager

SUMMARY

- Dean has 26 years of experience working in the forest industry in British Columbia. During that time he performed a variety of duties including: road & cutblock layout, road design, safety supervision, development planning, consultant supervision and road & logging supervision.
- Dean has two years of experience supervising and managing clearing and access construction for large transmission line projects.

EMPLOYMENT HISTORY

Valard Construction LP Right-of-Way Manager

*Goose Bay, NL
Nalcor LCP 315kv 245km
Jan 2014 to Present*

- Oversee the management and supervision of staff and crews completing access construction.
- Liaise with client.
- Hiring, contract negotiation, scheduling, reporting.

Valard Construction LP Right-of-Way Coordinator

*Terrace BC
BC Hydro NTL 287kv 344km
Mar 2012 to Dec 2013*

- Manage and supervise crews completing clearing activities and access construction.
- Management and quality control of First Nation direct award contracts.

B2K Services Individual Owner/Operator

*Clearwater BC
2010 to Present*

- Forestry consulting. Clients have included: Wells Gray Community Forest, Interfor, Canfor, British Columbia Timber Sales and the District of Clearwater.
- BC Forest Safety Council – SAFE Company Certification.
- WorkSafe BC COR (Certificate of Recognition).

Weyerhaeuser Forestry Supervisor/Road & Logging Supervisor

*Vavenby BC
1992 to 2008*

- Manage and supervise crews completing clearing activities and access construction. Duties included contract negotiations, logging plan development, safety supervision and quality control.
- Safety Manager (2 year role).
- Development planning. Duties included road & cutblock layout, development & submission of documents to government agencies and supervision & quality control of consultants & summer staff.

Slocan Forest Products Area Planner

*Vavenby BC
1987 to 1992*

- Development planning. Duties included road & cutblock layout, development & submission of documents to government agencies and supervision & quality control of consultants & summer staff.

LICENSES &
CERTIFICATION

- Registered Forest Technologist with the Association of British Columbia Forest Professionals (ABC FP) (2005).
- Occupational First Aid Level 1 plus Transportation Endorsement.
- S100 Forest Fire Suppression.
- WHMIS.
- ATV/Snowmobile.
- Bear Aware.
- Defensive Driving.
- PSSP 2 (Power System Safety Protection).

ADDITIONAL
EDUCATION / TRAINING

- Diploma Renewable Resources, Wildland Recreation – Selkirk College (1987).
 - Advanced Road Deactivation.
 - Safety Program Auditing.
 - Leadership/Supervision Skills.
-



Eric Winter

POSITION

Quality Assurance Manager

SUMMARY

- Eric joined us in October 2012 and we are excited by his previous accomplishments and expertise in quality and operational management.
- Expertise in Cost Avoidance and Reduction as well as Strategic/Tactical Planning and Execution.

EMPLOYMENT HISTORY

Valard Construction LP
Calgary, AB
2012 -present

Manager – Corporate Quality

- Provide leadership developing and directing QA and quality improvement initiatives for all company products and services
- Monitor QA systems and advise executive team on system performance; publish statistics regarding performance against set goals
- Perform gap analysis between current system and ISO standards; establish and implement an ISO 9001 Quality Management System
- Perform internal quality audits that are ISO 19011 compliant on corporate policies, procedures and practices
- Collaborate with client-facing QA representatives to ensure full customer satisfaction with the company's products and services
- Establish and maintain a QA program for monitoring supplier quality, including audits, controls and other qualifiers
- Conduct risk analyses, verification, validation activities and formal design reviews
- Support new product development and continuous improvement by integrating quality tools into processes
- Promote and advocate quality achievement and performance improvement across the organization
- Act as liaison with customer auditors and assume responsibility for ensuring corrective actions to customer specifications and audits
- Ensure on-going compliance with local, national and international standards and legislation
- Persuade staff to adopt and incorporate quality methods into their daily work
- Create and maintain Quality Assurance system to control issue communication and tracking, documentation and quality records
- Identify opportunities and gaps, develop Quality Assurance training packages and programs to ensure consistency and repeatability
- Develop budgetary controls and awareness of process and system waste there-by improving company profitability

Standens
Calgary, AB
2010 - 2012

Manager – Quality, Environment and Safety

- Manage and maintain registration for TS 16949, ISO 9000, ISO 14000 and H&S Partnerships - Certificate of Recognition.
- Develop and conduct monthly QMS, EHS system performance Operations reviews
- Integrated and streamlined the QMS, EHS systems combining synergies of all systems with a strategy focused on a holistic system.
- Created a principle centered organization with extensive vision and a culture of safety performance and achievement.
- Implemented and maintain the EHS program for 700 + employees in Canada, United States and China.
- Develop and conduct Quality, Environmental, and Health & Safety training programs.
- Created plan to cultivate a risk aware culture aligning all stakeholders to key objectives.
- Created a high degree of vigilance, seeking and mitigating risks creating an ongoing "find & fix"



process reducing the risk profile.

- Developed process performance metrics demonstrating cause and effect through an interdependent relationship mechanism providing a simple objective culture, demonstrating program effectiveness. i.e. reporting hazards before they manifest
- Facilitated development of the “primary control process” to re-engage employees, rebuilding trust in the safety management system.
- Developed high quality documentation to support revitalized company culture aligned with regulatory bodies.
- Ensure regulatory compliance and continued partnerships with certifying partners and external stakeholders.
- Drove down disabling injury rate from 11.7 to a level of 2.87 in 12 months.
- Received a PIR rebate in excess of \$100K through measurable injury rate.
- Manage and Lead all internal and supplier Management System audits.
- Identify and drive process and system improvements.
- Issue and investigate all internal and external Corrective Action Requests, 8D and Safety investigations.

Flextronics
Calgary, AB
2008 - 2009

Senior Manager – Engineering Services, Facilities & Real Estate

Responsible for Data Management, Environment Health & Safety, Expense Purchasing, Facilities, Maintenance, New Product Services, Regulatory & Safety, Real-Estate and Technical Documentation, including P & L. Established performance indicators, operating goals and cost reduction programs that consistently improved output, quality, and customer satisfaction.

- Remained the North American corporate leader in low “Lost Time Injuries” even through factory closure activities.
- Achieved over \$120K in PIR rebates annually.
- Lead facility closure and the set-up of a temporary administration office and material storage facility.
- Consulted Guadalajara Super Site in developing an all-encompassing Emergency Response Plan.
- Lead the consolidation of a 292k sq.ft warehouse into 170k sq.ft factory, resulting in a \$1.7 million savings.
- Reduced energy cost by \$180,000 through equipment rationalization, office and production lighting and HVAC system.
- Key driver in sub-lease tenant negotiation and lease termination for multi-site facility.
- Negotiated corporate change to supplier payment terms resulting in reduced cost, improved service and supplier relationship.
- Consolidated multi-site vendors reducing administration time, cost and improving service.
- Assessed and modified facility entry points reducing security costs by \$60,000 annually.
- Analysed then appealed Business Tax assessment providing a \$97,988 rebate.

Flextronics
Calgary, AB
2007 - 2008

Manager – Engineering Services

Drove improvement of Data Management, EH&S, Expense Purchasing, Maintenance, New Product Services, Regulatory & Safety and Technical Documentation through rationalization of roles and responsibilities, simplification and standardization of procedures and policies. Empowered and coached staff to develop sound analytical skills, good judgment, tact and a sense of “community”.

- Recipient of the Premier’s Award for Healthy Workplaces, no lost time injuries (2007)
- Revitalized New Product Services through Process, Layout and Material improvement, which allowed headcount and cost reduction and increased value add, and quality of service.
- Introduced new product process achieving higher customer satisfaction, product quality and margin to the business.
- Maximized efficiencies by in sourcing activities to EH&S, Facilities, Maintenance and Regulatory & Safety without an increase in staff.

Nortel / Flextronics
Calgary, AB

Manager – Production Quality & Regulatory



2000 - 2007

Developed and implemented sound and effective quality assurance and regulatory programs; consolidated Production Quality and Audit functions.

- Transitioned Nortel / Flextronics quality processes, to meet and support contractual site agreements for product quality, resulting in no interruption to customer service.
- Corporately recognized for developing and implementing a cross line of business inspection process, saving \$10 million per year.
- Developed an on supplier site process that dramatically reduced shipping and rework costs, enabling issues to be identified in Mexico rather than in-house.
- Designed, developed and implemented a global web based tool, used to identify, action and resolve customer issues resulting in reduced internal and external reaction time, dramatically increasing customer satisfaction and a savings of \$2 million per year.

Nortel
Calgary, AB
2000 - 2000

Manager – Production Quality & Regulatory (Enterprise, Broadband Wireless)

Consolidated multi-business Production Quality groups, developed common processes, procedures, statistical tools and reporting which became the model for Calgary.

- Improved the Regulatory Compliance process while reducing staff by 30%
- Developed a product audit process, which resulted in improved quality and test yields while reducing resources.
- Improved product efficiency, quality and a reduced cost by assisting suppliers in the development of simplistic, efficient and sustainable quality processes that drove corrective action and continuous improvement.

Nortel
Calgary, AB
1998 - 2000

Manager – Quality Engineering (Broadband Wireless)

Product Assurance Engineer (1998 – 1999)

Provided leadership and mentoring for Quality Team and Production staff. Facilitated Manufacturing Alert process, defect reduction, prevention and continuous improvement. Prime contact for field installation, customer, field returns, quality complaints and defects. Responsible for factory compliance to CSA and UL for all registered products.

- Developed and implemented a web base issue capture and reporting tool which enabled the early identification of issues, reduction in defects / rework costs, higher efficiencies and test yields including automated reporting of KOI's.
- Successfully transferred Winnipeg manufacturing to Calgary, developing quality assurance and quality system processes.

Nortel
Calgary, AB
1997 - 1998

Quality and Field Performance Engineer (Consumer Products)

Conducted internal audits, maintained quality handbooks and Product Field Performance tracking. Facilitated cross-functional teams in corrective and preventative actions including Stop Ship reviews. Conducted root cause analysis using statistical tools and was the Customer advocate acting on behalf of such customers as Bell Canada.

- Contributed to the effective implementation of key business process enhancements, improving the ability to meet customer and business needs while reducing costs.
- Developed and issued monthly customer reports, aiding in the early identification of field affecting issues further reducing customer impact, field exposure, liability and cost.

Newell Canada
Calgary, AB
1993 - 1997

Plant Manager – Western Region

Quality Assurance Manager (1992 – 1993)

- Increased production efficiency by 15% in less than 3 months through re-engineering of manufacturing process flow.
- Developed, implemented and documented ISO 9002 Quality Program.
- Designed and implemented methods for cell manufacturing, reducing scrap by 25%.

LICENSES & CERTIFICATION

- Certificate in Quality Engineering – SAIT
- Certified Lead Auditor (ISO 9000 and ISO 14000) – Quality Management Institute, SAI Global
- Green Belt - Flextronics

Fahim Moledina

POSITION

Project Services Manager / Project Manager/ Project Controls Lead

SUMMARY

- A valued member of the Valard team for over 3 years
- Thorough background in finance

EMPLOYMENT HISTORY

Valard Construction
Calgary, AB
 2010 – Present

Project Services Manager /Project Manager/ Project Controls Lead

- Due diligence of M&A Activities
- Extensive contract management Experience- Managed Contractors and multiple MSA's
- Financial project audits
- Knowledge of audit standards
- Knowledge of business processes and internal controls;
- Experience in conducting audit procedures and test of internal controls
- Lead in Project Costing and Estimated Cost to Complete Calculations
- Implemented and designed a project tracking and archiving system database for projects
- Cost control of various transmission electrical projects
- Analyzed contracts and generated delay reports to file claims on additional costs outside of scope of work of the contracts
- Tracking and monitoring KPI's, creating monthly financial forecasts, tracking all financial transactions to track monthly variations in budget from planned, target and actual budget
- Develop cost trends, and track variations in costs to maximize profits and margins
- Creating, updating, analysis and reporting on active project schedules in Primavera
- Logging and status tracking on issue logs, RFI's, RFT's, AFE's (Authorization of Expenditure), RFQ'S, RFD's
- Processed project cost and progress data to generate various reports to help in management decisions
- Developed a NPV model to integrate into project revenue and cost forecasting models
- Worked on process enhancements for a variety of projects to ensure data integrity
- Perform quality checks and audits to ensure that the data in the cost reporting systems is consistent, and work with Project Managers and the Accounting department to reconcile differences
- Active in planning, budgeting, and execution of various electrical transmission line projects
- Project Control Specialist / Project Manager for large transmission projects
- Formal communication with clients, third parties and suppliers as first point of contact on projects (Imperial Oil, HydroOne, ATCO Electric, EPCOR, SNC Lavalin, NU Utilities)
- Helped in development and implementation of best practice standards and identified cross functional issues across various project streams including Quality Control and Assurance, Safety, Construction Management, Accounting as well as Construction Scheduling

Canadian Revenue Agency
Calgary, AB
 2009 - 2010

Auditor Apprentice

- Qualified and participated in the AAP (Auditor Apprenticeship Program)
- Performed full scale tax audits on small businesses
- Followed GAAS (Generally Accepted Auditing Standards), CAS (Canadian Auditing Standards)

Telus
Calgary, AB

Accounting Clerk

- Data entry, coding and indexing invoices accurately into SAP system
- Review and validate data for payment processing following precise procedures

2008

Horizon Earthworks Ltd Cost Accountant

Calgary, AB

2008

- Data entry, coding various costs to their appropriate costing batch
- Looked at costs of projects versus budgets and progress and generated variance reports
- Reconciled credit card ledgers monthly and monitored that limits were not exceeded

Rogers (Digital Communications) Accounting Clerk/Corporate Sales

Calgary, AB

2006 - 2007

- Data entry, coding and posting - recording banking transactions, deposits, receipts, monthly journal entries, and vendor invoices
- Production of monthly reconciliations of inventory and responsible for inventory integrity
- Preparation of general ledger account analysis
- Preparation and distribution of monthly invoices and processing accounts payable monthly
- Generating financial statement and reports for review

**EDUCATION &
OTHER TRAINING**

- Master of Business Administration (MBA) – Heriot-Watt University (in progress)
 - BCOM, Accounting – Athabasca University, 2009
 - B.A., Economics – University of Alberta, 2006
 - CMA – Certified Management Accountants of Alberta
 - Project Management Professional PMP – Project Management Institute
 - CAPM – Certified Associate in Project Management
 - Lean Six Sigma Black Belt – Project Management Institute
 - Six Sigma Green Belt – Project Management Institute
 - Certificate in Control Self-Assessment (CCSA) – Institute of Internal Auditors
-

**J.M. DAVID MACDONALD****POSITION**

Foundation Supervisor

SUMMARY

- David has over 35 years of experience in Construction
- Civil construction experience and strong leadership skills

EMPLOYMENT HISTORY

Valard Construction LP
Fort McMurray, AB
2009 - Present

Construction Supervisor

- Kearl Oil Sands 240 kV Transmission Line
- Responsible for design co-ordination and construction of concrete foundations

Stoney trail Constructor
Calgary, AB
2007 - 2009

General Superintendent

- North East Stoney Trail Calgary Bypass
- Responsible for grading and surfacing sub-contractors
- Procurement of aggregates and materials
- Responsible for earthworks operations

Valard Construction LP
Fort McMurray, AB
2007

Construction Supervisor

- 260 KV Transmission Line Suncor Firebag Stage
- Responsible for winter access road, brush clearing and mulching, geo tech consultant, and sub-contractor installing screw pile foundations
- Project to be complete March 31, 2007

Hugh Munro Construction
Winnipeg, MB
2006

Construction Supervisor/Project Manager

- Highway Interchange and Bridge Project Winnipeg Floodway
- Grading, base course, paving and drainage

NHFI/Strilkiws
Winnipeg, MB
2005

Project Manager

- Excavation Project on Red River Floodway
- 2.7 million m3 metres
- Infinity Distribution and Management
- Sale of gates and load out systems
- Plant design and consulting

Independent Contract Work
High Prairie, AB
2004 - 2005

Construction Manager

- Construction Management for Associated Engineering
- Commercial subdivision
- Excavation Project Winnipeg Floodway
- Excavate 300,000.0 m3
- With Excavators and Articulated trucks

Independent Contract Work
Villeneuve, AB
2003 - 2004

Foreman

- ACE Construction – Transmission Line Projects
- Construction of 230 kV Bicker Dyke Transmission Line
- Construction of Barge, bridge, 350 m 500 mm intake line
- Stockpiling System



Bodaga Construction Management Inc.
Calgary, AB
2000 - 2003

- Three products two 125,000.0 tonne systems and on 250,000.0 tonne system
- Designed and constructed a 500 tph auto load-out system
- Rework existing 1600 m twin discharge pipeline and water recovery system
- Actual on site construction to tear down existing plant and rebuild new one and be in production 21 weeks

General Manager

- Grading base and seal coat project 13km, Alberta
- 4.2 m x 153 m multi-plate, Alberta
- Class II Landfill, Alberta
- Paving industrial subdivision

Metro Engineering and Contracting Ltd.
Calgary, AB
1999 - 2000

SE BC Manager

- Commercial development, Wal-Mart Cranbrook, BC
 - Sewer and water, shallow utilities, excavation paving, offsite intersection work and traffic signals.
- Mountain recreational development Kimberly, BC
 - Curb and gutter, base, paving, shallow utilities, street lights
- Skier's Overpass Kimberly, BC
 - 6 m x 15 m x 35 m Super Cor structure with welded wire end walls
- Golf course pathways Grey Wolf
- Intersection improvements
- Subdivision Paving

Nelson River Construction Inc.
St. Boniface, MB
1997 - 1999

Manager of Business Development and Special Projects

- Delegation to Nunavut to promote Manitoba Trade
- Site work Major meat packing plant
- Design Build 6m x 160 metre multi-plate structure in the Mohigan River
- Rip Rap Grand Rapids Dam
- Rehab Rip Rap Grand Rapids Dam
- Stream rehab downstream Grand Rapids Dam
- Started Company involved in Environment work - Nelson Environment (Winnipeg)
- Bentonite Cut off wall for Sewage Lagoon
- Dam and dike construction for major flood in Manitoba - In charge of rock and rip rap on "Z" dike
- Access Road Major OSB Plant
- Established strategic relationships with subcontractors for future projects
- Government relations
- Sat on Committee that dealt with Highways issues for the Heavy Construction Association
- Chairman of the Highways Specification Committee for the Heavy Construction Association
- Received accreditation as a Project Manager Gold Seal Certified from the Canadian Construction Association

1994 - 1997

Asphalt Paving Division Manger

- Prepared and delivered budgets for the division
- Estimated all projects grading, crushing, base, asphalt paving
- Aggregate Source acquisition
- Negotiated sub contracts
- Work company was involved but was not limited to: aggregate source development, washed



concrete aggregate, quarries, drilling and blasting, base course, trucking, asphalt paving, concrete paving

1991 – 1994

Project Manager, Estimator

- Prepared budgets for the division
- Estimated all projects grading, crushing, base
- Aggregate source acquisition
- Negotiated sub contracts
- Work company was involved but was not limited to: aggregate source development, quarries, drilling and blasting, crushing washing, base course, and trucking.

Crushrite Concrete and Construction Ltd.

*Whitewood, SK
1980 - 1981*

Project Manager, Estimator

- Estimated projects grading, crushing, base
- Operated repair shop in winter shut down
- Aggregate source acquisition
- Concrete aggregate production
- Negotiated sub contracts
- Work company was involved but was not limited to: aggregate source development, quarries, drilling and blasting, crushing washing, base course. trucking

MacDonald Enterprises

*Manitoba
1978 – 1980*

- Dealer for crushing equipment for Fasoli Industries (Clemro) for Manitoba

Andison Equipment Ltd.

*Manitoba & Saskatchewan
1975 - 1978*

Sales Representative

- Sale representative for Manitoba and Saskatchewan
- Dealers for: Boeing asphalt plants, Eagle Iron Works, Pioneer Crushers, Kolman Conveyors and concrete plants.



APPENDIX L

AMEC ENVIRONMENT AND INFRASTRUCTURE PROCEDURE FOR SOIL CLASSIFICATION, FOUNDATION SELECTION AND GEOTECHNICAL QA/QC FOR FOUNDATION CONSTRUCTION

PROCEDURES

for:

SOIL CLASSIFICATION, FOUNDATION SELECTION AND GEOTECHNICAL QA/QC FOR FOUNDATION CONSTRUCTION

315 kV HVac TRANSMISSION LINES
MUSKRAT FALLS TO CHURCHILL FALLS

Submitted to:

Valard Construction LP

33 Pippy Place

Suite 101

St John's NL

Submitted by:

**AMEC Environment and Infrastructure,
A Division of AMEC Americas Limited**

133 Crosbie Road, PO Box 13216

St. John's, NL

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Email: Robert.Moroney@amec.com

May 21, 2014

TF1486701

Revision Table			
Rev. No.	Rev. Date	Revision(s) By	Description of Revisions
1	June 3, 2014	Robert Moroney	Supplementary testing (SPT) section (page 3)

IMPORTANT NOTICE

This report was prepared exclusively for Valard Construction LP by AMEC Environment & Infrastructure, a Division of AMEC Americas Limited (AMEC). The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in AMEC's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this report. This report is intended to be used by Valard Construction LP only, subject to the terms and conditions of its contract with AMEC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.



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1.0 INTRODUCTION AND OBJECTIVE

This document sets of the procedures to be followed by AMEC during the execution of the field activities.

The objective of this procedure is to ensure that Inspections and witnessing of the field activities are dealt with appropriate, effective and timely and are tracked and recorded.

2.0 PROCEDURE FOR RECORDING SOIL CLASSIFICATION

2.1 Field Inspection - Inspection/Witness Point

Notifications for the inspection and/or witnessing of the works (NOI) will be issued by Valard Construction LP (Valard) to the Owner or the Designers Site Representative (DSR) where designated in the Inspection and Test Plan (ITP) for the works. The ITP identifies Hold Points beyond which defined work elements cannot proceed without inspection and sign off by the DSR, and any witness opportunities which the DSR may or may not elect to inspect and will witness on a sampling basis.

Notification of Inspection(s) will be issued in advance and submitted by Valard via a formal route and will aim to afford the Owner and/or the DSR to attend. For Soil Classification and Foundation Confirmation/Selection, AMEC have drafted a "Field Inspection Log" which will be a a three part self carbonised proforma used for formal record field inspection. A copy of the proforma is provided in Appendix A.

Each inspection log must have a unique reference number and must identify the construction element to which it relates. The inspection log must also indicate the date and time at which inspection/witnessing by the DSR is estimated to be required to enable the DSR to prioritise and plan accordingly.

The three parts of the Field Inspection Log are as follows:

1st part white – retained by AMEC

2nd part yellow – submitted to Valard

3rd part pink – submitted to the DSR (Owner)

A flow chart illustrating the Notification and Inspection process is shown in Appendix B.

A copy of all correspondence relating to Notification and Inspection shall be filed and retained.

Procedure for Soil Classification
Valard Construction LP
Soil Classification and Foundation Selection
June 3, 2014



3.0 PROCEDURES FOR PERFORMING SOIL CLASSIFICATION

AMEC will perform soil analysis and investigation via numerous imperial and experimental methods. Predominantly, soil classification will be performed in accordance with ASTM D-2488 and supplemented by various field testing methods.

The following Sections provide an overview of each method.

3.1 Visual Examination

AMEC will perform soil classification and confirm conditions at all tower locations included in this scope.

All sites will be visually analysed by our experienced team of Geologists, Engineers and/or technologist, where applicable further intrusive tests will be carried out. Along with the field tests AMEC have made provisions to carry out a number of laboratory tests performed in the mobile laboratory.

Test Procedure

Soils will be described and classified according to *ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

Refer to Appendix D1 for work instructions regarding test pitting and soil classification.

3.2 Field Tests

3.2.1 Sand

Along with visual analysis, Dynamic Cone Penetrometers (DCP) will be used to determine the bearing capacity at the foundation depth. The DCP is a field instrument that measures the penetration index (PI) of the cone to penetrate through undisturbed soil or compacted material with a given number of blows.

Test Procedure

The DCP test will be performed in accordance with ASTM Special Technical Publication #399.

Refer to Appendix D2 for work instructions regarding DCP test.



3.2.2 Fine-Grained Soils

Fine-grained soils including clay, silt, and mixture of clay and silt, will be tested with a hand-held field shear vane to determine the shear strength at the foundation depth. The resulting value will be transposed to a correlating bearing capacity and reported. It is expected that where fine grain soils are found, this will required further tests mainly deep boreholes to advance suitable pile designs.

Test Procedure

The Field Vane test will be performed in accordance with ASTM D2573

Refer to Appendix D3 for work instructions regarding field shear vane testing.

3.2.3 Till

Till conditions expected along the route will pose limitations and/or restrict the practical application of intrusive testing mainly due to the presence of cobbles and boulders. Thus till conditions will be recorded and analysed in accordance with the aforementioned Soil Classification standard and quantified by our experienced Geologists, Engineers and/or technologist on site. A resulting bearing capacity will be estimated.

Test Procedure and Work Instruction

Soils will be described and classified according to *ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

Refer to Appendix D1 for work instructions regarding test pitting and soil classification.

Supplementary Testing (Standard Penetration Test)

At the request of Nalcor, AMEC will develop a field testing program to supplement the aforementioned analysis, the tests will consist of Standard Penetration Test (SPT) performed at sites (tower locations) to confirm and reconfirm the character of the “till” conditions. This is currently not part of the current scope hence it is not presented herein.

An associated Quality Procedure will be submitted to Nalcor once the proposal and program is agreed.

3.2.4 Bog

Bog will be probed to refusal or to a maximum depth of 4m using a graduated steel rod to determine its thickness. If soil or bedrock is encountered underlying the bog during foundation

Procedure for Soil Classification
Valard Construction LP
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excavation, the applicable inspection or test outlined above will be conducted according to the bearing surface type. Alternatively, Valard may consider the use of cribbed foundation structures.

Test Procedure

Soils will be described and classified according to *ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

Refer to Appendix D4 for work instructions regarding bog probing.

3.2.5 Bedrock

Where bedrock is encountered, it will be visually inspected, photographed and logged on the field inspection report. The geotechnical information to be recorded on the report includes:

- Rock type including alteration
- Degree of weathering
- Discontinuity type, orientation, condition, spacing and persistence
- Estimate of intact rock strength (i.e. sound or weak)
- Rippability

Along with this, AMEC will quantify the surface hardness of the rock by Rebound Hammer.

Test Procedure

Soils will be described and classified according to *ASTM D2488 – Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

Rebound Hammer according to *ASTM D5873-14 – Rock Hardness*.

Refer to Appendix D5 for work instructions regarding rock harness testing.

3.3 Laboratory Tests

Tests will be conducted in the onsite mobile laboratory on a regular basis to confirm and reconfirm the conditions. If required, AMEC will make available the fully accredited Materials Laboratory in St. John's to perform repeatability tests or additional testing.

The onsite mobile laboratory will be suitably fitted and equipped to perform soils testing including:

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3.3.1 Gradation analysis

Gradation analysis will be conducted according to ASTM D6913 in the various soil types encountered or by client request. Lab reports will be given to summarize the results. For soils with excessive fines content, Atterberg Limits will be required to determine its engineering properties. Samples will be shipped to the AMEC Materials Laboratory in St. John's for this testing.

Moisture content will also be reported with the gradation analysis.

Test Procedure

Gradation analysis according to ASTM D6913 –Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

Moisture Content according to ASTM D2216-10 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

3.3.2 Modified proctor

Modified proctor testing will be performed on materials proposed for backfill including the material placed below the grillage to determine its optimum density.

According to the specifications, backfill must be 90% compacted and 95% below the grillage according to the modified proctor standards. Representative samples will be taken for proctor analysis to determine the maximum modified dry density according to ASTM D1557. Each material used as backfill will be tested in the field laboratory. The maximum modified dry density will be used with the nuclear densometer in order to assess the compaction of the fill during construction.

Test Procedure

Modified Proctor according to *ASTM D1557* – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

4.0 PROCEDURE FOR FOUNDATION SELECTION PROCESS

4.1 Field Selection

Following the soil classification of the conditions, AMEC will utilise the flowchart as presented in the Technical Specification, A11 – Figure 3.2.2-2 to select the corresponding foundation. The flowchart is presented in a tabulated format in Table 4.1 below.

Procedure for Soil Classification
 Valard Construction LP
 Soil Classification and Foundation Selection
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Table 4.1 Foundation Selection

Estimated Bearing Capacity	Foundation Type		
250kPa and greater	Type 1		
100 to 250kPa	Type 2		
Less than 100kPa	Further Tests required to evaluate conditions	Borehole investigation	Alternative foundation design and installation

4.2 Quality Reporting

From the Field Inspection Log, AMEC field staff will develop a draft Foundation Selection Report (template provided in Appendix C), at a minimum this will include:

- Specific Job Details: structure number, structure coordinates, weather, date etc
- Soil Description and Foundation Selection: this will provide an overview of the conditions (field inspection log can also be used as backup) and the resulting decision on foundation type
- Photographs: AMEC field personnel will capture photographic records of the conditions and any points of interest in the vicinity of the structure; these will be electronically inserted into the Foundation Selection Report.
- Comments Section: this is made available for any follow up notes which the reviewer may feel necessary.
- Approval: AMEC Engineering Representative will sign and stamp each report.

The draft will be submitted to our Geotechnical Engineer (in St. John's) for review. Once the report is fully executed and approved, it will be ready for release. It is envisioned that AMEC will submit a number of reports at the end of each working week to Valard for inclusion into the overall QA/QC package to the owner

5.0 PROCEDURE FOR QA/QC OF CONSTRUCTION

AMEC will perform the following construction inspections and tests:

1. Compaction of bedding material (to receive foundation elements)
2. Compaction of backfill (for grillage tower foundations)

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AMEC will perform compaction analysis by Nuclear Density Gauge. Compaction will be determined against the Design Specification Requirement, refer to Table 5.1 for summary.

Table 5.1 Compaction requirements for Grillage Foundation

Tower Type	Desired Unit Weight (kg/m ³)	Desired Modified Proctor	Test Method	Test frequency	Procedure
Formation of all towers	-	95%	NDG	Each base	Appendix H
A, B	1600	90%	NDG	300mm lift	
C, D, E	1875	90%	NDG	300mm lift	

5.1 Bedding Material

All grillage foundations will receive a 100mm layer of bedding material; this material will be produced and tested for approval in the works. AMEC will perform standard testing, including gradation analysis and modified proctor tests. The placed material will be tested in accordance with the Technical Specification and Table 5.1 above.

5.2 Backfill Material

Where possible backfill material will be the excavated material, if material is not suitable an alternative source will be found. The placed material will be constructed and raised in 300mm lifts, and will be tested in accordance with the Technical Specification and Table 5.1 above.

AMEC will monitor compaction results, compaction methods to develop trends and/or desired patterns regarding the number of passes of compaction to achieve the desired compaction. These trends (subject to agreement with the owner) may be adopted to develop an empirical method of estimating the degree of compaction.

5.3 Borrow Materials

Other materials utilised from borrow sources and pits including crushed stone shall be tested in the laboratory and have the corresponding densities submitted to the Owner/DSR for review. Each source and/or production stockpile will be clearly named and labelled for construction following approval for use.

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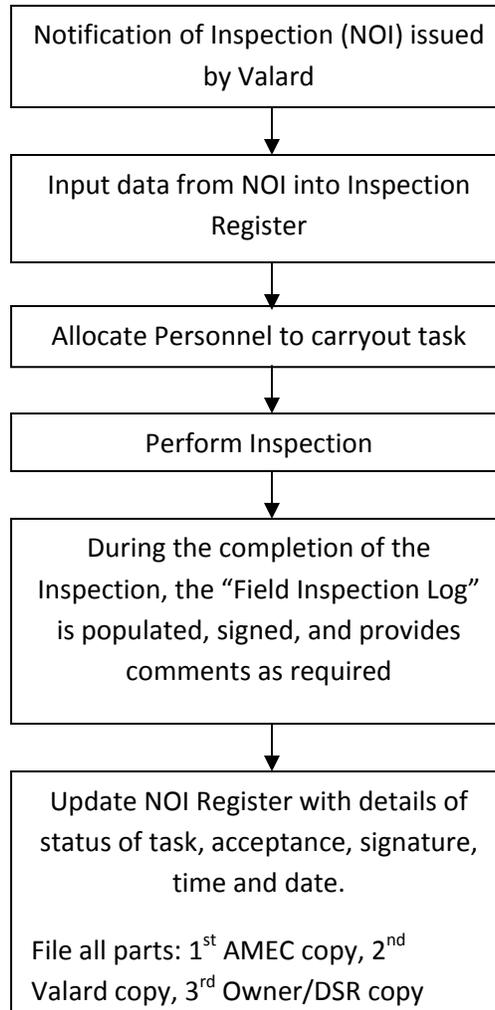
6.0 QUALITY RECORDS AND TEST SHEETS

Please refer to Appendix C for applicable quality record sheets.

APPENDIX A: FIELD INSPECTION LOG

APPENDIX B: FIELD INSPECTION PROCEDURE

Process flow chart for inspection and foundation confirmation/selection



APPENDIX C: FOUNDATION SELECTION REPORT

APPENDIX D: AMEC WORK INSTRUCTIONS

APPENDIX D1: TEST PITTING AND SOIL CLASSIFICATION.

Work Instruction: <i>Test Pit Inspection and Soil Classification</i>		
Document No.: WI-GEO-04-02	Original Date: 06/28/2013	Developed By: Brad Walsh
Revision No.: 02	Revision Date:	Authorized By: Robert Moroney



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1. PURPOSE

The purpose and objective of this work instruction is to develop a standard job procedure for Test Pit Inspection / Logging and Soil Classification.

2. APPLICATION

This Work Instruction shall be carried out when describing soils encountered during test pit excavations and will be carried out by experienced, competent geotechnical personnel.

3. DEFINITIONS

3.1 Coarse-Grained Soil Description

Particles that are large enough to be visible to the naked eye. These include boulders, cobbles, gravel, sands, silts, and are generally referred to as cohesionless or non-cohesive soils. Below are the descriptive elements that apply to coarse-grained soils.

Work Instruction: <i>Test Pit Inspection and Soil Classification</i>			
Document No.: WI-GEO-04-02	Original Date: 06/28/2013	Developed By: Brad Walsh	
Revision No.: 02	Revision Date:	Authorized By: Robert Moroney	

3.1.1 Primary Soil Constituent

- Written in capital letters (eg) BOULDER...COBBLE...GRAVEL...SAND

3.1.2 Particle Size

- Define size range (eg) coarse grained, medium grained, fine grained sand, fine gravel or coarse gravel.

Table 3.1.1: Coarse grain identification by grain size

- Constituent		Size (mm)	Size (U.S. std. sieve)
Boulders		>200	>8 inch
Cobbles		76 – 200	3 – 8 inch
Gravel	Coarse	19 – 76	¾ - 3 inch
	Fine	4.75 – 19	No. 4 – ¾ inch
Sand	Coarse grained	2 – 4.75	No.10 – No. 4
	Medium grained	0.425 – 2	No. 40 – No. 10
	Fine grained	0.075 – 0.425	No. 200 – No. 40

3.1.3 Secondary Soil Constituents

- Use descriptive wording to indicate minor component by weight
 - and 35 – 50 %
 - -y / -ey 20 – 35 %
 - some 10 – 20 %
 - trace 1 – 10 %
- (eg) gravely, some sand, trace silt

3.1.4 Gradation

- Well graded – a soil containing a wide range of particle sizes with no one size predominating
- Poorly graded – a soil containing a limited range of particle sizes. A predominance of one size is “uniform graded” and a missing size within a range is known as “gap graded”.

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3.1.5 Density / Compactness

Qualitative term describing the compactness of the soil, often interpreted from the results of SPT testing. During test pit excavations, relative density is inferred from the resistance of digging with excavator bucket and the stability of the test walls. NOTE: Below the water table even dense sands and gravels can slough into the excavation.

Table 3.1.2: Density identification

Description	SPT (N) Value
Very Loose	0 – 4
Loose	4 – 10
Compact	10 – 30
Dense	30 – 50
Very Dense	>50

3.1.6 Maximum Particle Size

- Identify the maximum particle size (eg) maximum size 75mm

3.1.7 Particle Angularity

- Describe the overall particle angularity by a single word; usually used for gravel and cobble sizes.

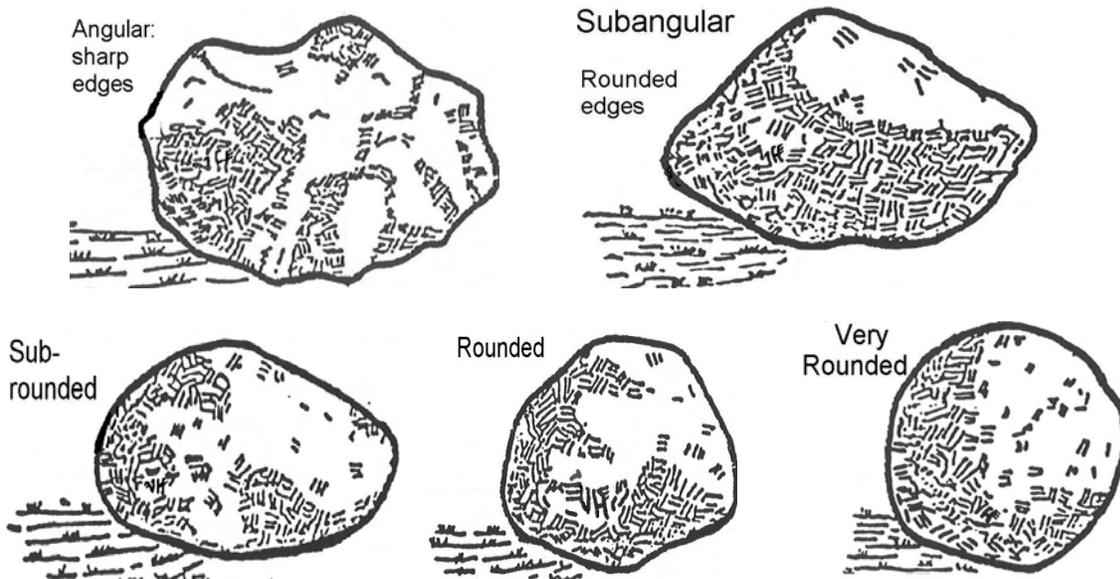


Figure 3.1.1: Particle angularity

3.1.8 Color

In general, an inconsistent property of the soil due to possible significant color change even within the soil layer due to minor variations in the mineralogy, or other state

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parameters (moisture, densities, etc). Color can be used to indicate the depth of weathering in soil, organic content (black soils are sometimes indicative of organic content) or oxidization (often indicated by a red / orange).

- Describe the primary color of moist soil (eg) light grey...dark brown...
- Identify layers or zones of varying color
- Identify soil as “mottled” if it contains spots or stripes of varying color

3.1.9 Odor

- Identify unusual odors from soil (eg) organic...petroleum...chemical
 - Organic – noted by smell of decaying vegetation
 - Petroleum – noted by petroleum based smells
 - Chemical – other foreign smells

3.1.10 Moisture Content

- Approximate moisture condition by visible criteria
 - Dry – no visible moisture, dusty
 - Damp – little or no visible moisture
 - Moist – visible moisture, but no visible free water
 - Wet – a film of water is present on particle surface
 - Saturated – water is separated from soil particles

3.1.11 Foreign Material

- Identify materials such as organics, salts, shells, mica, coal, other

3.2 Fine-Grained Soil Description

Particles too small to be seen by the naked eye and are smaller than 0.075 mm in diameter.

3.2.1 Primary Soil Constituent

- Written in capital letters (eg) SILT...CLAY

3.2.2 Secondary Soil Constituents

- Use descriptive wording to indicate minor component by weight
 - and 35 – 50 %
 - -y / -ey 20 – 35 %
 - some 10 – 20 %
 - trace 1 – 10 %
- (eg) sandy, trace silt

3.2.3 Consistency

The strength of a cohesive (fine grained) soil at its natural moisture content; it can vary mainly with moisture content and its state of intactness During test pit excavations, consistency is inferred from the criteria under the field Identification in Table 4:

Table 3.2.1: Consistency identification

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Consistency	Field Identification	SPT (N) Value
Very soft	Extrudes between fingers when squeezed	0 – 2
Soft	Little effort to penetrate with thumb	2 – 4
Firm	Moderate effort to penetrate with thumb	4 – 8
Stiff	Difficult to indent with thumb	8 – 15
Very stiff	Easily indented with thumbnail	15 – 30
Hard	Difficult to penetrate with thumbnail	> 30

3.3 Plasticity

- The ability of a fine grained soil to change shape and to retain the impressed shape when the stress is removed. It is a measure of the consistency of the soil in remolded state. The degree of plasticity of soils is expressed by the range in moisture content through which the soil remains plastic or is capable of being moulded. Fine grained soils can be classified based on Atterberg Limit laboratory testing. In general, a simple test to assess plasticity is by rolling the fine-grained material into “worms”.
 - Plastic – If the soil is easily rolled into 3 mm worms and retains the shape.
 - Non-plastic– If the soil cannot be rolled and does not retain shape.

3.3.1 Dilatancy

Soil with a large percentage of silt can be dilatants. To test add sufficient water, if necessary, to make the soil soft, but not sticky. Smooth the soil pat in the palm of one hand, then shake horizontally, and strike the back of the hand vigorously against the other hand several times. Note the reaction. Squeeze the sample by closing the hand and note reaction.

- Rapid – if water appears on the surface during shaking, and disappears quickly upon squeezing. The presence or absence of the free water can be noted by the shiny or dull appearance of the surface.
- “Slow” if vigorous tapping is required to bring water to the surface, and squeezing causes little change in appearance
- “None” if the test produces no visible change in the sample

3.3.2 Color

In general, an inconsistent property of the soil due to possible significant color change even within the soil layer due to minor variations in the mineralogy, or other state parameters (moisture, densities, etc). Color can be used to indicate the depth of weathering in soil, organic content (black soils are sometimes indicative of organic content) or oxidization (often indicated by a red / orange).

- Describe the primary color of moist soil (eg) light grey...dark brown...
- Identify layers or zones of varying color
- Identify soil as “mottled” if it contains spots or stripes of varying color

3.3.3 Odor

- Identify unusual odors from soil (eg) organic...petroleum...chemical
 - Organic – noted by smell of decaying vegetation

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- Petroleum – noted by petroleum based smells
- Chemical – other foreign smells

3.3.4 Moisture Content

- Approximate moisture condition by visible criteria
 - Dry – no visible moisture, dusty
 - Damp – little or no visible moisture
 - Moist – visible moisture
 - Wet – a film of water is present on particle surface
 - Free water – water is separated from soil particles

3.3.5 Foreign Material

- Identify materials such as organics, salts, shells, mica, coal, other

4. INSTRUCTIONS

Step 1: Upon arrival at the test pit location, ensure there is sufficient space for the excavator to perform work. Check for overhead hazards (power lines and large trees). Keep a safe distance from the excavator swing radius and keep eye contact with the operator.

Step 2: Record the start time, type / size excavator, test pit ID and location of the test location with GPS unit. Make general notes pertaining to the test pit location (i.e. heavy woods, topography, boggy conditions etc). Take a photograph of the site prior to excavation.

Step 3: Test pit stratigraphy and descriptions of lithologies with depth will be logged by examination of the bucket samples and visual inspection of the test pit walls. All pertinent information will be recorded on test pit data sheet or in a field notebook to be transferred onto data sheets after test pitting is completed.

Step 4: Only approach the excavator bucket when the bucket is at rest and the operator indicates that it is safe to do so. Additionally, field personnel should be aware of the stability of the test pit walls. Typically soils being excavated slump into the excavation undermining the walls. Do not stand on the edge of any test pit as it is being excavated as soils can slump or fail at any time.

Step 5: Representative soil samples of all encountered materials will be taken from the excavator bucket as the test pit is advanced. Be sure to properly label each sample with the test pit ID, sample depth, date and project number. Also label each sample with an index card to be placed inside the sample bag. Also label the sample bag exterior. Seal with duct tape. If grain size testing is required a small sample (large Ziploc bag size) is required. If proctor sampling is required a large sized proctor bag (~ 20 kg). Use a measuring tape to determine sample depths.

Step 6: Continue to advance the test pit until the maximum extent of the boom has been reached or until excavator refusal. If refusal is met, it is important to determine if it was

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caused by dense till, large boulders or bedrock. Hard, sound bedrock is typically signified by a “scratching” across the entire base of the excavation with no relative movement. Large boulders or fractured bedrock at the base of an excavation can be typically moved and excavated with some effort. If unsure, it is useful to communicate with the excavator operator.

Step 7: From a safe distance, examine the test pit excavation and record the depth (to the nearest tenth of a meter) to each strata with a measuring tape. Also record the termination depth (or depth to bedrock if encountered) and any encountered groundwater seepage. Other important information to collect include: an estimate of the boulders and cobbles in the excavation and its spoilage, boulder and cobble angularity, maximum boulder size, approximate excavation size and the stability of the test pit walls.

Step 8: Take a photograph of the test pit excavation, test pit walls and spoilage. Make sure photographs are recorded properly and linked with the appropriate test pit excavation.

Step 9: Upon completion of sampling and when all observations/notations have been made in the field test pit log, the test pit should be backfilled in the approximate order that the soil was removed. The excavator bucket should be used to nominally compact the soils. The last material to be placed is topsoil, should there have been any present. Take a photograph of the backfilled test pit and record the finish time.

Step 10: It is important to describe the soil as accurately as possible. Soils are generally mixtures within any one category (e.g. fine and medium sand) or mixtures of two or three categories (e.g. sandy and silty clay with a little gravel). They also have different physical make-ups and colors, as well as "strength" characteristics.

- It is good practice to standardize the order of writing a description. However, the descriptive elements that do not apply may be omitted. Definitions of the descriptive elements are founded in Section 3.0 of this document. The order of the description should include the following:

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Table 4.1: Order of Soil Description

Sequential Order	Coarse-Grained Soils	Fine-Grained Soils
1	Primary Soil Constituent	Primary Soil Constituent
2	Particle Size	Secondary Soil Constituents
3	Secondary Soil Constituents	Consistency
4	Gradation	Plasticity
5	Density / Compactness	Dilatancy
6	Maximum Particle Size	Color
7	Particle Angularity	Odor
8	Color	Moisture Content
9	Odor	Foreign Material
10	Moisture Content	
11	Foreign Material	

5. REFERENCES

AMEC Geotechnical Manual – Revision 1 – June 6th, 2008

ASTM D2488 – 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

6. REVISION HISTORY

Rev. No.	Rev. Date	Revision(s) By	Description of Revisions

APPENDIX D2: DYNAMIC CONE PENETROMETERS

Work Instruction: Dynamic Cone Penetrometer			
Document No.: WI-GEO-05-01	Original Date: 05/14/2014	Developed By: Patrick O’Grady	
Revision No.: 01	Revision Date:	Authorized By: Robert Moroney	

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3. DEFINITIONS 1

4. INSTRUCTIONS 1

5. Correlation to bearing capacity 2

6. REFERENCES 3

7. REVISION HISTORY 3

1. PURPOSE

The purpose and objective of this work instruction is to develop a standard job procedure for use of the Dynamic Cone Penetrometer.

2. APPLICATION

This Work Instruction shall be carried out when assessing the in-situ strength of undisturbed soil using a Dynamic Cone Penetrometer (DCP) and will be carried out by experienced, competent geotechnical personnel.

3. DEFINITIONS

DCP – a device used to assess the in situ strength of undisturbed soil or compacted material or both.

4. INSTRUCTIONS

Step 1. Ensure foundation is excavated to the required depth. **Note that all excavations must adhere to Part XVIII of the Newfoundland and Labrador Occupational Health and Safety Regulations before personnel can enter the excavation.**

Step 2. Basic Operation – Making sure the assembly is plumb set the cone 50 mm (2 in.) into the undisturbed bottom of the excavation such that the cone is completely embedded.

Step 3. Maintaining the assembly in a plumb position, drive the cone point 44 mm (1 ¾ in.) using the ring weight and allowing it to free fall 500 mm (20 in.) (bringing the ring weight to the uppermost position against the pullout anvil will assure a 500 mm (20 in.) drop). Count and record the number of blows required to achieve 44 mm (1 ¾ in.) penetration.

Step 4. If desired, perform a second and third penetration test by driving the cone additional 44 mm (1 ¾ in.) increments. Beyond three increments the effect of shaft friction may become apparent.

Step 5. Remove the DCP assembly taking care not to place hands between the anvil and keeping clear of the sliding weight.

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Step 6. Should measurements be required at greater depths, hand auger to the depth of investigation and repeat procedure following steps 2 through 5. Add extension rods to DCP apparatus as required.

5. CORRELATION TO BEARING CAPACITY

To field calibrate the DCP test instrument, AMEC will conduct a number of DCP tests at sites where SPT data from previous work is available. The blow counts from the DCP tests will then be correlated to the historic SPT N-values. In advance of this correlation, AMEC has anticipated the resulting correlation; refer to Figure 1 (a).

The correlated SPT N-values along with the method described by Peck *et al.* (1974) will then be used to determine the bearing capacity in sand. Refer to Figure 1 (b) below.

Design parameters and assumptions are as follows:

1. Groundwater level is estimated to be 1.0 m below ground surface;
2. Foundation depth, D, of all foundations is 3.5 m below ground surface;
3. Largest grillage width, B, is approximately 3.5 m; and
4. SPT N-value = N'_{60} .

Based on the given information, the D/B ratio is 1.0 or greater as shown in Figure 1 (b). Please note that CFEM (2006) only supplies the design figure with a maximum D/B ratio of 1.0.

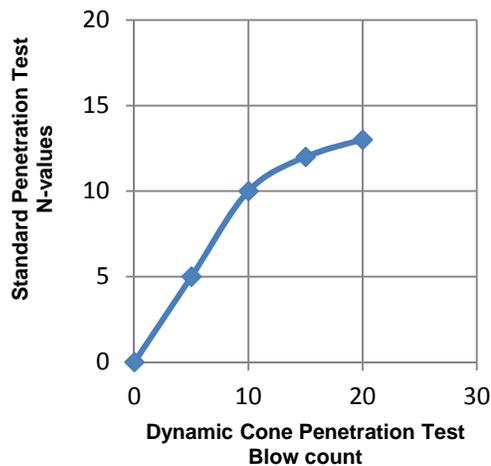
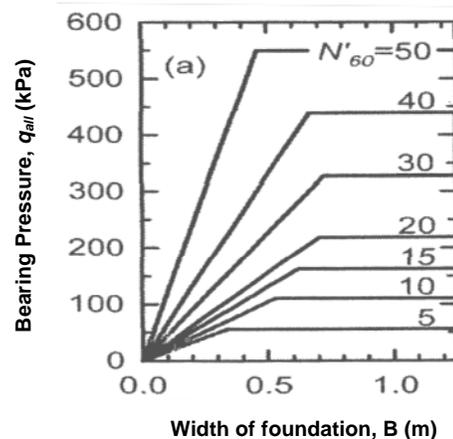


Figure 1 (a). Anticipated correlation between historic SPT N-values and DCP blow counts



(b). Design bearing pressure for foundations on sand for settlement not exceeding 25 mm based on SPT N-results for D/B ≥ 1

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6. REFERENCES

ASTM Special Technical Publication #399

Canadian Foundations Engineering Manual, 4th Edition, 2006

7. REVISION HISTORY

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APPENDIX D3: HAND-HELD FIELD SHEAR VANE

Work Instruction: <i>Field Vane Testing</i>			
Document No.: <i>WI-GEO-06-01</i>	Original Date: <i>05/14/2014</i>	Developed By: <i>Andrew Guest</i>	
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5. REVISION HISTORY 2

1. PURPOSE

The purpose and objective of this work instruction is to develop a standard job procedure for Field Vane Testing in fine-grained soils.

2. APPLICATION

This Work Instruction shall be carried out when fine-grained soils are encountered during excavations and will be carried out by experienced, competent geotechnical personnel.

3. INSTRUCTIONS

Step 1: Identify and confirm the material is fine-grained by visual inspection during the excavation.

Step 2: If identified, personnel must enter the excavation. Ensure proper benching of the excavation or a trench box is installed before entering the excavation to conduct the field vane test. **Note that all excavations must adhere to Part XVIII of the Newfoundland and Labrador Occupational Health and Safety Regulations before personnel can enter the excavation.**

Step 3: Once all necessary equipment is in place, connect the required vane and extension rods to the instrument. It is important that while screwing the vane or rods to the instrument, hold onto the lower part of the instrument.

Step 4: Push the vane to the desired depth of investigation. The vane must be brought to depth without making any twisting motion.

Step 5: Ensure that the graduated scale is set to the zero position.

Step 6: Turn the handle clockwise. The turning motion must be done as slow as possible and with a constant speed.

Step 7: When the lower section of the instrument begins to move at the same rate as the upper section in the clockwise direction or falls back, failure has occurred and the maximum shear strength has been attained.

Step 8: While holding the handle firmly, allow the instrument to rotate back to the origin. It is important to have a firm grip because the handle will try to spring back which may cause damage to the mechanism.

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Work Instruction: <i>Field Vane Testing</i>			
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Step 9: At this point note the reading on the graduated scale. While taking the reading, do not disturb the position on the graduated ring until the reading is taken.

Step 10: Record the reading along with the position, depth of the hole, and the date which the test occurred.

Step 11: Turn the graduated scale counter clockwise back to the zero position.

Step 12: To determine the remolded shear strength of the material, turn the vane quickly for at least 25 full rotations. Zero the scale again if need be. Take two measurements with the lower of the two being the correct value.

Step 13: Push the vane down to the next position (if required) and repeat the above procedures.

When retrieving the vane, if the material is soft it can be removed by hand. In harder materials mechanical devices may be required to remove the instrument. If so, it is suggested to remove the device by the rod as opposed to lifting by the handle.

Special Procedures:

When measuring at greater depths, friction between the clay and extension rods can be appreciable and taken into consideration.

To measure friction, extension rods and a vane-shaft without a vane are pushed into the ground to the depth required for the test. Friction is then measured in the same procedures as listed above in steps 5 to 11. The value obtained is deducted from the measured shear strength recorded after the test is complete.

4. REFERENCES

HUMBOLDT – H – 4277 Vane Inspection Kit Product Manual

ASTM D2488 – 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

ASTM D2573 – 08 Standard Test Method for Field Vane Shear Test in Cohesive Soil

Canadian Foundations Engineering Manual (2006), 4th Edition

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APPENDIX D4: BOG PROBING

Work Instruction: Bog Probe			
Document No.: <i>WI-GEO-03-01</i>	Original Date: <i>05/14/2014</i>	Developed By: <i>Andrew Guest</i>	
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5. REVISION HISTORY 2

1. PURPOSE

The purpose and objective of this work instruction is to develop a standard job procedure for estimating the thickness of bog/peat deposits.

2. APPLICATION

This Work Instruction shall be carried out when bog/peat deposits are encountered during excavations and will be carried out by experienced, competent geotechnical personnel.

3. INSTRUCTIONS

Step 1: Identify and confirm the material is bog/peat by visual inspection during the excavation.

Step 2: If identified, personnel must probe the bog using graduated steel rods or equivalent material.

Step 3: Rods will be manually pushed into the deposit until soil or bedrock is encountered at depth. This can be determined by a dramatic change in resistance while driving the rods.

Step 4: Confirm the depth of the bog by measuring the number of rods driven; rods should be marked with depths for ease of determination.

Step 5: Record the depth, location, and time which the test was conducted

Step 6: Retrieve Rods and record the length of rod retrieved to confirm depth measurement.

Step 7: If required, perform multiple probes to confirm the depth of the deposit. There is potential for misinterpreting organic debris and boulders for soil or bedrock.

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4. REFERENCES

ASTM D4544 – 12 Standard Practice for Estimating Peat Deposit Thickness

5. REVISION HISTORY

Rev. No.	Rev. Date	Revision(s) By	Description of Revisions

APPENDIX D5: ROCK HARDNESS

Work Instruction: <i>Bedrock Inspection and Classification</i>			
Document No.: <i>WI-GEO-02-01</i>	Original Date: <i>05/14/2014</i>	Developed By: <i>Andrew Guest</i>	
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1. PURPOSE

The purpose and objective of this work instruction is to develop a standard job procedure for inspecting and classifying bedrock including the use of a rebound hammer for determining rock hardness.

2. APPLICATION

This Work Instruction shall be carried out when bedrock is encountered during excavations or at surface and will be carried out by experienced, competent geotechnical personnel.

3. INSTRUCTIONS

Step 1: Bedrock will be visually inspected and classified based on rock type including alteration, degree of weathering, discontinuity type, orientation, spacing and persistence, estimate of rock strength (*i.e.* sound or weak) using a rebound hammer and rippability; the will be done in accordance with ASTM D5878 – 08 Standard Guides for Using Rock-Mass Classification Systems for Engineering Purposes.

Step 2: Find a representative section of the bedrock which will be used for the test. More than one will be required to get a representation of the hardness.

Step 3: Prior to conducting the tests, make sure the hammer is at the same temperature as the environment in which the testing will occur.

Step 4: Check the calibration value prior to testing. This is done every 12 months and whenever there is a reason to question the instruments accuracy. Calculate the correction factor (CF) by dividing the manufacturer’s standard hardness value for an anvil by the average of the ten readings taken on the anvil.

Step 5: When testing on in situ rock the rebound hammer can be used at any orientation provided the plunger strikes perpendicular to the tested and the orientation is recorded.

Step 6: Zero the read out before testing. Compress the hammer spring by gradually depressing the plunger until the hammer is triggered and impact and rebound occurs. It may be necessary to lock the plunger in the retracted position which also holds the reading.

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Work Instruction: <i>Bedrock Inspection and Classification</i>		
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Step 7: Read and record the height of the plunger rebound to the nearest whole number as measured on the 10 to 100 divisions (this could also be shown electronically depending on the instrument). Also record the location and time of the test.

Step 8: To get a better representation ten (10) tests should be conducted at spacing greater than the hammer diameter.

Step 9: Calculate the average of the ten readings and discard any reading which differs by more than seven (7) units.

Step 10: Calculate the Hardness (H_R) by multiplying the remaining readings by the CF.

Step 11: For the same readings, calculate the mode, range, and median H_R .

Step 12: For in situ rock testing, the rebound hammer results must be corrected to a horizontal or vertical position using the correction curves provided by the manufacturer (if testing does not occur from the vertical position).

Note: While testing, if the specimen cracks or fractures it will cause a false reading and the test should be rejected.

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4. REFERENCES

ASTM D5873 – 14 Standard Test Method for Determination of Rock Hardness by Rebound Hammer Method

ASTM 5878 – 08 Standard Guides for Using Rock-Mass Classification Systems for Engineering Purposes

5. REVISION HISTORY

Rev. No.	Rev. Date	Revision(s) By	Description of Revisions

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Exhibit 4
Supplier Document Requirements List
Agreement Number CT0327-001

EXHIBIT 4

SUPPLIER DOCUMENT REQUIREMENTS LIST

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	SLI Doc. No.: 505573-4623-4ZEL-0010	02	02-Apr-2014	1

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CT0327

**350 kV HVdc Line Construction Supplier Document
Requirements List (SDRL)**

Prepared by:



Ananth Rao
(Package Engineer)

Reviewed by:



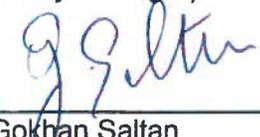
Keenan Healey
(Area Manager)

Approved by:



Don Ritchie
(Quality Manager)

Approved by:



Gokhan Saltan
(Engineering Manager)

Handwritten signature in blue ink.

Lower Churchill Project	350 kV HVdc Line Construction SDRL	Revision		Page
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REVISION LIST

Revision						Remarks
N°	By	Chec	Appr.	Appr.	Date	
02	AR	KH	DR	GS	02-Mar-2014 ^{APP} 02-Mar-2014	Issued for Construction
01	AR	KH	GP	GS	13-Sep-2013	Issued for Bid
00	AR	KH	GP	GS	22-Jan-2013	Issued for Bid

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SUPPLIER DOCUMENT REQUIREMENTS TABLE

SDRL Code	Type of Document	Provide with Proposal	Submit Prior to Start of Fabrication / Construction	After Shipment	With Shipment	Minimum Documents approved Coded 1 prior to Inspection Release	As Built	Final Documentation Location (R01 / R02 / R05/ R99)	Final File Format	Submission Requirements Date Required - Weeks After Receipt of Order (ARC)	Submission Requirements Monthly	Notes
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A. GENERAL												
A01	Supplier Document Register (SDR)	X						NE/PE	2			Update and submit as requested.
A02	Control Schedule	X						PE	2			Refer to EXHIBIT 9
A03	Monthly Risk Reports							PE	△ _{C1}	X		Update and submit as requested.
A04	Risk Management Plan	X						PE	4	△ _{C1}		Update and submit as requested.
A06	Monthly Progress Reports							PE	△ _{C1}	X		Refer to EXHIBIT 3
A07	Project Execution Plan	X	X					PE	4			Update and submit as requested.
A08	Permits		X					PE	4			
A11	Logistics and Transportation Strategy	X						PE	8			Update and submit as requested.
A28	Health and Safety Plan	X						PE	8			Refer to EXHIBIT 5
A35	Contract Specific Environmental Protection Plan (C-SEPP)	X						PE	4			
A39	Survey Report		X					PE				
A40	Monthly Environmental Performance Report	X						PE			X	
A41	Health and Safety Training Records and Certificates		X					PE				Update and submit as requested.
A42	Schedule Development and Control Plan							PE	2			Refer to EXHIBIT 3 △ _{C1}
A44	Control Schedule Baseline Document							PE	2			Refer to EXHIBIT 3 △ _{C1}
A99	Miscellaneous General Documents	X	X				R01	PE	Note	△ _{C1}		Update and submit as per contract documents. See Descriptions
B. ARRANGEMENT DRAWINGS												
B01	General Arrangements and Layouts						R01	PE	4			As required.
B99	Miscellaneous Arrangement Drawings						R01	PE	Note	△ _{C1}		As required. See Descriptions
D. DETAIL DRAWINGS												
D04	Fabrication, Installation and Shop Drawings		X			X	R01	PE	Note			As required
D99	Miscellaneous Detail Drawings	X	X			X	R01	PE	Note	△ _{C1}		Update and submit as requested, see Descriptions.
F. DATASHEETS												
F04	WHMIS Material Safety Data Sheet (MSDS)				X		R01	PE	Note			As required
F07	Shipping Bills of Material				X		R01	PE	Note			As required

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	SLI Doc. No.: 505573-4623-4ZEL-0010						02	02-Apr-2014				
SUPPLIER DOCUMENT REQUIREMENTS TABLE												
SDRL Code	Type of Document	Provide with Proposal	Submit Prior to Start of Fabrication / Construction	After Shipment	With Shipment	Minimum Documents approved Coded 1 prior to Inspection Release	As Built	Final Documentation Location (R01 / R02 / R05/ R99)	Final File Format	Submission Requirements Date Required - Weeks After Receipt of Order (ARC)	Submission Requirements Monthly	Notes
G. SCHEDULES/LISTS												
G01	Bill of Materials of Contractor-Supplied Items							R01	PE	Note		Update and submit as requested.
H. CALCULATIONS												
H07	Lifting Lug Calculations		X			X	X	R01	PE	Note		As required.
H35	Grouting Calculations		X			X	X	R01	PE	Note		As required.
H36	Concrete Mix Calculation		X			X	X	R01	PE	Note		As required.
H37	Blasting Calculation		X			X	X	R01	PE	Note		As required.
K. PROCEDURES												
K01	Welding and Weld Repair Procedure	X						R02	PE	4		
K10	Manufacturing/Fabrication Procedure	X						R02	PE	4		
K24	Construction Method Statements and Procedures	X						R02	PE	4		
K99	Miscellaneous Procedures Documents	X	X					R02	PE	Note	△ c1	Update and submit as requested. See Descriptions
M. TEST & INSPECTION REPORTS												
M06	Welder Performance Qualifications and Certifications	X	X					R02	PE			
M08	Calibration Certificates				X			R02	PE	Note		After mobilization, to be updated as required
M12	Lifting Equipment Test Certificate				X			R02	PE	Note		If cranes are used, after mobilization
M99	Miscellaneous Test & Inspection Reports		X	X				R02	PE	Note	△ c1	Update and submit as requested. See Descriptions
Q. QUALITY ASSURANCE / QUALITY CONTROL												
Q01	Quality Assurance System Registration Certificate	X							PE	4	△ c1	
Q03	Quality Plan	X	X					R02	PE	2		Sample with proposal. SOW copy 2 weeks ARO.
Q04	Inspection and Test Plan(s) (Factory and Site Works)	X	X			X		R02	PE	2		Update as required.
Q09	Third Party Surveillance Report	X				X		R02	PE			
Q10	NCR Register and associated close out reports							R02	PE	2		As required.
Q12	Declaration of Installation and Inspection Completion					X		R02	PE	Note		At project completion.
Q13	Authorized Deviations							R02	PE	Note		As required.
Q99	Miscellaneous Quality Reports		X	X				R02	PE	Note	△ c1	As identified and required. See Descriptions

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SDRL Definitions					
A	A - General				
A01	Supplier Document Register (SDR)	Supplier Document Register (SDR) – documents list identifying individual document deliverables by purchase order. This register will capture deliverable requirements as agreed by Contractor/Supplier and Company. Contractor/Supplier is responsible to create and approve this document as a revision controlled document.			
A02	Control Schedule	As per Exhibit 3 Coordination Procedure.			
A03	Monthly Risk Reports	Provides a summary of activities carried out by a Contractor/Supplier aimed at addressing selected Risks; The monthly Risk Reports, inclusive of the Risk Register, are part of the subject matter of the Monthly Risk Reviews. The requirements for the Monthly Risk Report and Risk Register are set forth in sections 2.3 and 2.4 of the LCP Risk Management Requirements for Contractors and Suppliers (SLI document # 505573-0000-39RA-I-0002).			
A04	Risk Management Plan	Provides a description of the Risk Management Process, organizational context and tools adopted by a Contractor/Supplier. The contractor shall prepare the Risk Management Plan using as guidance section 2.2 of the LCP Risk Management Requirements for Contractors and Suppliers (SLI document # 505573-0000-39RA-I-0002).			
A06	Monthly Progress Reports	As per Exhibit 3 Coordination Procedure.			
A07	Project Execution Plan	As per Exhibit 3 Coordination Procedure.			
A08	Permits	Provide copies of all permit documentation, as described in Exhibit 6 (Environmental and Regulatory Compliance Requirements)			
A11	Logistics and Transportation Strategy	Provide a logistics and transportation strategy for the Work which shall include proposed transportation modes and preferred carriers or freight forwarders. The following documents shall be taken into consideration when developing the strategy: (SLI document # GP-5500-F-01-E) Documentation, Packaging, Marking, Shipping and Instructions and /or (SLI document # 505573-361C-4ZEG-0001) Documentation, Packaging, Marking, Shipping and Instructions Specific to Transmission Line Components.			
A28	Health and Safety Plan	As per Exhibit 5 Health and Safety Requirements.			
A35	Contract Specific Environmental Protection Plan (C-SEPP)	The Contractor shall prepare its C-SEPP using as guidance the <i>Contract-Specific Environmental Protection Plan template</i> (SLI document # 505573-0000-68RA-I-0011, provided in Exhibit 11). The Contractor's C-SEPP shall be based on the following: relevant provisions of the <i>Project-Wide Environmental Protection Plan (P-WEPP)</i> , SLI Document # 505573-0000-68RA-I-0005, provided in Exhibit 11); the <i>General Environmental Requirements - Technical Specifications</i> (included in Exhibit 1); <i>Environmental and Regulatory Compliance Requirements</i> (Exhibit 6); the <i>Waste Management Plan</i> (SLI document # 505573-0000-68RA-I-0008, included in Exhibit 11); and the <i>Master Spill Response Plan</i> (Nalcor document # MFA-PT-MD-0000-EV-PL-0001-01, included in Exhibit 11).			
A39	Survey Report	Electronic Survey Return Data			
A40	Monthly Environmental Performance Report	A Monthly Environmental Performance Report shall be submitted by the Contractor, in accordance with provisions of Exhibit 6 (Environmental and Regulatory Compliance Requirements). This report shall include a Monthly Fuel Consumption Report in the format prescribed in Exhibit 6, Appendix C.			
A41	Health and Safety Training Records and Certificates	Training records and certificates for employees including, but not limited to, Confined Spaces, Fall Protection, Operator Competencies, Trade Certifications, etc.			
A42	Schedule Development and Control Plan	As per Exhibit 3 Coordination Procedure.			
A44	Control Schedule Baseline Document	As per Exhibit 3 Coordination Procedure.			
A99	Miscellaneous General Documents	Provide the following documents (frequency and date of submissions to be agreed upon with Company): 1) Contractor's Access Plan for Permitting Requirements 2) Proposed Foundation Selection 3) Backfill Material Data 4) Borrow Pit Data 5) Road Gravel Weigh Bills 6) Aggregate Processing Facility Plan 7) Concrete / Grout Delivery Tickets 8) Geotechnical Investigation Plan 9) Stringing Plan 10) Sagging Operations Plan 11) Existing Facility Crossing Plan 12) OPGW Installation and Splicing Plan 13) Survey Plan (clearing and construction) 14) IMPLO Storage and Installation Plan 15) Telecommunications Plan 16) Safety Briefs 17) Weekly Safety Report 18) Job Safe Work Plan 19) Final Contract Report 20) Interface Management Plan 21) Cost Management Plan 22) Information Management Plan 23) Monthly Fuel Consumption Report 24) Monthly Camp Occupation Report 25) Quality Follow-up Report for Potable Water 26) Kitchen and Housekeeping Progress Report			

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SDRL Definitions					
B	B - ARRANGEMENT DRAWINGS				
B01	General Arrangements and Layouts	Site plans and site sketches as per the technical specification (Nalcor Doc. No. ILK-SN-CD-6200-TL-TS-0018-01).			
B99	Steel Placement Drawings and Bar Lists for Reinforcing Steel Placing	Drawings showing steel placement and bar lists for reinforcing steel placement.			
D	D - DETAIL DRAWINGS				
D04	Fabrication, Installation and Shop Drawings	Fabrication, Installation and Shop Drawings to show Contractor's design for pile foundations, temporary bridges, culverts, etc			
D99	Miscellaneous Detail Drawings	Provide the following documents (frequency and date of submissions to be agreed upon with Company): 1) Pile Design Information 2) Alternative Foundation Design 3) Temporary Crossing Design			
F	F - DATASHEETS				
F04	WHMIS Material Safety Data Sheet (MSDS)	Supplier must provide suitable and sufficient health and safety information to ensure compliance with the Hazardous Products Act of Canada and any other relevant Provincial or Local legislation.			
F07	Shipping Bills of Material	Weights and dimensions data for all materials to be shipped.			
G	G - SCHEDULES/LISTS				
G01	Bill of Materials of Contractor-Supplied Items	Bill of Materials of Contractor-Supplied Items as detailed in the scope of work (Nalcor Doc. No. ILK-SN-CD-6200-TL-SP-0012-01)			
H	H - CALCULATIONS				
H07	Lifting Lug Calculations	As a minimum calculation for lifting lug tension, bearing and shear failure loads; weld loads and size requirements; and specified safety factor to be provided.			
H35	Grouting Calculation	Calculations shall be provided for the following, as a minimum: • Definition of grout curtain (Primary, secondary, tertiary), including hole depths • Volume of grout take per hole			
H36	Concrete Mix Calculation	Calculations shall be provided for the following, as a minimum: • Mix designs for slush grout and dental concrete for foundation preparation • Mix designs for conventional concrete for each structure, including primary and secondary concrete • Mix design for roller compacted concrete for each structure			
H37	Blasting Calculation	Calculations shall be provided for the following, as a minimum: • Drilling pattern and powder factor for each structure or operation, including: - Size and spacing of holes, and Size and placement of charges, for pre-shearing. - Size and spacing of holes, and Size and placement of charges, for pre-shearing. - Size and spacing of holes, and size and placement of charges, for mass excavation. • Vibration limitations for each structure or operation.			
K	K - PROCEDURES				
K01	Welding and Weld Repair Procedure	Specification defining all shop and field welding techniques and test results, and in accordance with the requirements of the Purchase Order.			
K10	Manufacturing/Fabrication Procedure	Procedure explaining methods used to produce the required item(s) stated in the purchase order as detailed by the specification and/or data sheets.			
K24	Construction Method Statements and Procedures	Includes all necessary construction method statements and procedures. Site installation and erection procedures shall also be included.			
K99	Miscellaneous Procedures Documents	Provide the following documents (frequency and date of submissions to be agreed upon with Company): 1) Explosives / Blasting Methodology 2) Concrete / Grout Sampling Methodology 3) Hot / Cold Weather Concreting Procedure 4) Tower Assembly and Erection Procedure 5) Foundation Selection Procedure 6) Pile Driving Sequence 7) Grout Sealing Methodology 8) Guy Anchor Testing Methodology 9) Rock Quality Evaluation Methodology 10) Crib Installation Methodology 11) Insulator Installation Procedure			

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SDRL Definitions					
M	M - TEST & INSPECTION REPORTS				
M06	Welder Performance Qualifications and Certifications	Qualification of all welder/welding operators using approved weld procedures and by weld position in compliance with the Purchaser's requirements. Code forms or Supplier standard forms to be used as appropriate.			
M08	Calibration Certificates	Suitably endorsed valid certification to verify that instrumentation has been calibrated by a recognized authority. Where required by the equipment specification, suitably endorsed valid certification shall be supplied for calibration equipment.			
M12	Lifting Equipment Test Certificate	Required for all items, hoists, cranes wire ropes/shackles, padeyes, etc.			
M99	Miscellaneous Test & Inspection Reports	Provide the following documents (frequency and date of submissions to be agreed upon with Company): 1) Mill Test Reports for Reinforcing Steel 2) Foundation Selection Results 3) Foundation Type Selection Records 4) Stub Angle Check List 5) Spread Footing Acceptance 6) Foundation Report for Structure 7) Pre-Concrete Pour Check List 8) Soil Compaction Inspection Guidelines 9) Rock Anchor Testing 10) Pile Installation Record 11) In-Line Grouted Anchor Acceptance 12) Tower Shoe Assembly Acceptance 13) Concrete Inspection Guidelines 14) Tower Assembly and Acceptance 15) Structure Erection Inspection Report 16) Meggar Ground Rod Report 17) Stringing Information 18) Sag Planning and Acceptance 19) Conductor Splice and Dead-end Data Sheet 20) Tower Attachment Acceptance 21) Wire String Acceptance 22) Blasting Log 23) Magazine Log Book 24) OPGW Installation Test 25) Stringing Information - OPGW 26) Sag Planning and Acceptance - OPGW 27) Material Inspection Report 28) Material received by contractor 29) Supplier shortage list 30) Ground Clearance Report 31) Transmission Pre-Commissioning Report 32) Punch List			
Q	Q - QUALITY				
Q01	Quality Assurance System Registration Certificate	Certificate provided by an authorized registrar confirming conformance to a quality management system.			
Q03	Quality Plan	Document specifying which procedures and associated resources shall be applied by whom and when to a specific project, product, process or contract.			
Q04	Inspection and Test Plan(s) (Factory and Site works)	Document defining the inspection and test activities to be carried out during the realization of a product.			
Q08	Management Review of Meeting Minutes	Minutes of meeting of the most recent management review of the quality management system.			
Q09	Third Party Surveillance Report	Report by an authorized third party on the audit of the ISO 9001:2008 quality management system.			
Q10	NCR Register and associated close out reports	Register of Nonconformities reported and associated close out reports.			
Q12	Declaration of Installation and Inspection Completion	As per Quality requirements.			
Q13	Authorized Deviations	Site queries, concession requests etc. as approved by Purchaser.			
Q99	Miscellaneous Quality Reports	Miscellaneous quality reports as identified and required.			

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Legend

DEFINITIONS / LEGEND

Column 1

- SDRL Code

Column 2

Type of Document / SDRL Title

Column 3

Provide with proposal (X)= Populated with "X" indicating if the document is required for the initial bidding process.

1E = One Electronic Copy (*)

1P = One Print Copy (*)

Column 4 / 5 / 6 / 7 Submitt Prior to start of fabrication / Construction : After Shipment ; With Shipment : and or Minimum documents approved code 1 prior to Inspection release

Column 8 As built populated with "X" where required.

Column 9 Final Document location code (R01 / R02 / R05 / R99) = Populated with R01, R02, R05 or R99 as required indicating if the document is required in a manual (s).

Column 10 Final file format = Editable native files as required : SLI to define file format : Example DWG, PDF, Word, Excel...

PE = .pdf format

NE= Native Electronic Format

Column 11 / 12

Submission Requirements Include: a number refers to the number of weeks the Supplier / Contractor has to submit the document after receipt of order

ARO = After Receipt of Order

Monthly = Submissions required on a monthly basis

EXHIBIT 5

HEALTH AND SAFETY REQUIREMENTS

1.0 Introduction

Without limiting the generality and application of the Agreement, Contractor will abide by and ensure Contractor's Personnel abide by, at a minimum, the health and safety requirements set forth herein and as described in the most recent version of the following documents located in Exhibit 11 – Company Supplied Documents:

- LCP Health and Safety Management Plan (LCP-PT-MD-0000-HS-PL-0001-01)
- LCP Security Management Plan (LCP-PT-MD-0000-HS-PL-0005-01)
- Standard for Drug and Alcohol (LCP-PT-MD-0000-LR-SD-0001-01)
- Worker Site Access Standard (LCP-PT-MD-0000-HS-SD-0003-01)

2.0 Health and Safety Commitment

Contractor will demonstrate a strong commitment to health and safety management and shall operate and ensure that Contractor Group operates and fully utilizes a health and safety management system that is compliant with OSHAS 18001:2007, corresponding Canadian federal and provincial standards and fulfills all Applicable Laws pertaining to safe and healthy Work and Worksites.

Contractor will continually place the highest priority on safety and health while performing the Work. Contractor is responsible for maintaining a safe and healthy working environment at all times at each and every Worksite location, whether of a temporary or permanent nature. The system in place will cater to specific requirements for instruction, supervision and resources pertaining to Contractor's Personnel, and Engineer's and Company's Personnel.

Contractor will not permit nor tolerate any unsafe or unhealthy condition or activity to persist over which it has control. Contractor will immediately inform Engineer of any unsafe or unhealthy condition or work practice of which it becomes aware but over which it has no authority to correct or control.

3.0 Compliance with Health and Safety Regulations and Standards

Contractor will be responsible for complying with all Applicable Laws relating to health and safety, and for taking all necessary safety precautions related to or arising out of the performance of the Agreement in order to protect the Work, Contractor's Personnel, Engineer's and Company's Personnel, the general public, all other persons, the property of Company, and the property of third parties.

Without prejudice to Contractor's general and legal responsibility for the safety of its operations and of the Personnel and property involved, where Engineer has notified Contractor of any specific health, safety or environmental requirements, which are applicable to any part of the Work being performed, Contractor will comply therewith.

4.0 General Requirements

Without limitation to the full implementation of Contractor's health and safety management system for the Work, Contractor will:

- a) Be responsible for maintaining and enhancing the health and safety awareness of Contractor's Personnel. Contractor will arrange and participate in regular meetings with Contractor's Personnel and Engineer to review implementation of the systems and processes required for Contractor to meet its health and safety obligations in the execution of the Work;
- b) Identify all high risk activities and cease Work in any identified areas until adequate and effective mitigating actions/ controls are implemented;
- c) Require all Contractor's Personnel to wear personal protective equipment (PPE) and clothing suitable for existing Work in compliance with LCP Site standards and the Applicable Laws in the locations the Work is being performed. Canadian Safety Association (CSA) standards for PPE will apply to Work performed in Canada;
- d) Provide specific instruction to Contractor Group on their responsibilities for safe work during both routine and emergency operations, including explanation of recognized hazards and associated protective measures, procedures and emergency response measures;
- e) Ensure that each of Contractor's Personnel, regardless of prior experience, demonstrates competency to Engineer in his/her job. The Contractor Group's supervisory Personnel will observe new Personnel's work performance until Engineer is satisfied that such Personnel are fully competent to fill the position in a safe and effective manner;
- f) Ensure that all Contractor's equipment, facilities, materials and Contractor's Items are maintained in safe, sound and proper condition, and are fully compliant with all applicable industry standards and Applicable Laws and are capable of performing the function intended;
- g) Conduct thorough drills, desktop exercises and tests of Contractor's Items, Personnel and procedures. The Contractor will ensure the effectiveness, suitability and adequacy of the emergency response and preparedness program;
- h) Document and instruct Personnel on work procedures, safe practices, Contractor's safety rules and standards, emergency plans and duties, and Applicable Laws;
- i) Conduct scheduled and impromptu safety meetings of all Personnel performing the Work, including any Contractor's Personnel, in which the potential risks/hazards, job challenges, and related safe practices are fully emphasized and discussed;
- j) Maintain good housekeeping practices and standards at all times;
- k) Provide general safety education through training, safety meetings, Company and Engineer publications and other educational media;
- l) Establish, maintain and support a health and safety committee in accordance with Applicable Laws, including applicable provincial occupational health and safety regulations;
- m) Provide all reasonable provisions to effectively control and prevent fires and explosions, injury to Personnel and damage to equipment and property;

- n) Institute a permit to work system for hot and cold work, for all Work involving welding, energized equipment, cutting and burning, open flame, electric tools, and grinding and soldering which is conducted outside a designated safe area. Contractor will ensure that gas cylinders for cutting and burning are stored, utilized, separated and capped in accordance with Applicable Laws;
- o) Institute a confined space entry procedure and provide training, equipment, PPE and any other necessary provisions for Personnel involved in confined space entry;
- p) Institute an energy isolation (lock out - tag out) procedure for all Work on energized electrical equipment, which may inadvertently operate during installation, repair or maintenance, all in accordance with Contractor's permit to work system;
- q) Institute a pre-work inspection program prior to commencement of Work. Contractor will inspect and perform task analysis to ascertain whether any health or safety hazards exist. Contractor will correct identified hazards before commencement of Work or will take steps to prevent exposure of Personnel to the hazard. Contractor will document this inspection and hazard analysis process and maintain a copy of the document on file;
- r) Institute a program to ensure Contractor's Personnel are fully trained and currently qualified for their jobs in accordance with regulatory and industry standards and all Applicable Laws, and as otherwise specified in this Agreement. Records of certification and training will be maintained for each of Contractor's Personnel;
- s) Maintain a register of all lifting equipment. All lifting and rigging equipment will be load tested as per manufacturer's recommendations and be fully certified with suitable inspection procedures in place. All Personnel involved in lifting and rigging activities will be suitably trained and certified. All lifting and rigging equipment shall be inspected annually by a certified inspection company and certificate issued and maintained on the site at which such equipment is located.
- t) Operate and use all pressure vessels in accordance with local safety requirements and Applicable Laws;
- u) Maintain a current inventory of hazardous materials utilized at the Worksite, as well as corresponding Material Safety Data Sheets, and ensure compliance with Applicable Laws pertaining to their transportation, storage, use, handling and disposal;
- v) Ensure compliance with current occupational exposure limits for physical, chemical, or biological agents or materials, in accordance with Applicable Laws;
- w) Implement and maintain a planned maintenance system for its tools, equipment, machinery and electrical systems for Contractor's Personnel;
- x) Provide Engineer with the results of any health and safety visits, audits, inspections, investigations, surveys, tests or measurements, associated with the Work, conducted by an Authority;
- y) Provide signage, as appropriate, to warn Personnel of hazards and indicate areas where the use of additional personal protective equipment is required;
- z) Provide and maintain proper barriers, safe access and egress, guards, rails and safety devices to minimize hazards during the performance of Work;

- aa) Ensure all inboard and over-the-side scaffolding and work platforms are installed, tested and certified and tagged by competent Personnel, prior to use;
- bb) Perform planned health and safety audits and inspections of the Worksites, work practices and Contractor's health and safety management system in accordance with the audit and inspection schedule outlined in the Contractor's Health and Safety Plan (as described in Section 5 of this Exhibit 5);
- cc) Conduct a risk assessment of its operations and provide Engineer with a copy of the assessment, outlining measures to be taken and schedule for implementation of those measures required to address identified hazards. The risk assessment will include consideration of health and safety risks;
- dd) Ensure that all Contractor's Personnel engaged in the Work are medically fit to execute the Work and maintain high standards of hygiene;
- ee) Ensure that all firefighting equipment is maintained and operational in accordance with CSA standards and all Personnel engaged in firefighting are well trained and competent in firefighting;
- ff) Set out a communications scheme identifying lines of reporting and method of reporting, both within the Contractor's own organization and to Engineer;
- gg) Not cause, permit, or tolerate a hazardous, unsafe, unhealthy condition or activity, over which it has control, to exist or be conducted in a Worksite; and
- hh) Prior to providing access to a Worksite, provide all Personnel with a Worksite orientation which will include:
 - i. Worker's rights;
 - ii. Contractor health and safety policy;
 - iii. Contractor environmental policy;
 - iv. Safe work practices and procedures;
 - v. Procedures for reporting of incidents and accidents;
 - vi. Emergency response procedures;
 - vii. Personal protective equipment requirements;
 - viii. Risk assessment; and
 - ix. Hazard identification.

5.0 Contractor's Health and Safety Plan

Within the time specified in Exhibit 4 – Supplier Document Requirements List, Contractor shall submit to Engineer for Acceptance, a Health and Safety Plan for the Work. Contractor's Health and Safety Plan will be based upon the Contractor's health and safety management system and will address all requirements stated in this Exhibit 5.

Engineer will review Contractor's Health and Safety Plan and may provide written comments to Contractor. Contractor will review Engineer's comments, make the necessary changes and reissue it for Engineer's Acceptance. Contractor will present all changes to its Health and Safety Plan to Engineer for Acceptance.

As a minimum, the following information will be included in the Contractor's Health and Safety Plan:

- a) Communication of safety expectations to Contractor Group;
- b) Identification of the strategic initiatives that Contractor will utilize during the Work to achieve an injury and illness free workplace;
- c) A verification/audit program to verify that the Health and Safety Plan has been implemented for the Work;
- d) An LCP level safety organization chart;
- e) Line functions with specific safety responsibilities;
- f) High level, Work specific roles and responsibilities for Contractor's Personnel, including accountabilities and qualifications;
- g) Interface roles and responsibilities between Contractor and all other members of Contractor Group by use of responsibility-assignment matrices;
- h) Description of how Contractor's management team will actively participate in health and safety management activities;
- i) Subcontractor selection and management;
- j) Be structured in accordance with the various elements associated with the Work such as fabrication, transportation, installation and commissioning;
- k) Identification of Contractor's resources (Personnel, Contractor's Items, facilities, equipment, consumables or other requirements) required to support health and safety management;
- l) A description of the system in place to ensure that the safety integrity of equipment and systems involved is maintained throughout the Work;
- m) Identification of procedures applicable to individual activities comprising the Work, including chemical handling procedures and permits to work;
- n) Identification of training and qualification requirements pertaining to Personnel involved in the Work, including all location specific training;
- o) Outline of a process for maintaining a hazard register, which identifies significant hazards to the safety and health of all Personnel, the safety of the environment and the safety of the technical assets. The register will include a cross reference to the operating procedures in place to control the risk arising from individual hazards;
- p) Identification of interfaces to Company's and Engineer's health and safety management systems in line with the Work;
- q) An emergency response preparedness plan in line with Contractor's scope of the Work and which interfaces with Company's and Engineer's emergency response plan;
- r) Processes that will be utilized by Contractor during the Work to eliminate or control identified hazards;
- s) Any other elements as identified in Company's and Engineer's health and safety standards;
- t) Identification of how Contractor will capture learning and best practice during the Work execution;
- u) Inclusion of measureable health and safety targets for both leading and lagging indicators that are in line with Company's targets. Performance measuring will

- include lost time injury frequency rate, all-injury frequency rate and severity rate;
and
- v) Identification of how Contractor will measure, assimilate, and report health and safety performance to Engineer.

Contractor's Health and Safety Plan shall be:

- site specific and take into consideration the potential hazards and risks to which all of Contractor's Personnel may be exposed while working at the Site;
- communicated to Contractor's Personnel prior to the commencement of Work at the Site; and
- in compliance with all Applicable Laws.

Contractor shall comply with its Health and Safety Plan.

Contractor is responsible for implementing, resourcing and periodically verifying its compliance with the Health and Safety Plan. Contractor will provide Engineer with an implementation schedule for its Health and Safety Plan, along with an update to the Health and Safety Plan on a quarterly basis.

Contractor will participate in a health and safety management system interface process and will be in a position to demonstrate through a gap analysis that Contractor's Health and Safety Plan complies with the requirements outlined herein and the most recent versions of the following documents as amended from time to time:

- LCP Health and Safety Management Plan (LCP-PT-MD-0000-HS-PL-0001-01)
- LCP Security Management Plan (LCP-PT-MD-0000-HS-PL-0005-01)
- Standard for Drug and Alcohol (LCP-PT-MD-0000-LR-SD-0001-01)
- Worker Site Access Standard (LCP-PT-MD-0000-HS-SD-0003-01)

Any deficiencies identified as a result of the gap analysis will be corrected by Contractor unless otherwise agreed in writing with Engineer. Contractor acknowledges that it fully understands all interfaces between Contractor's Health and Safety Plan and Company's and Engineer's health and safety standards.

6.0 Engineer's Review of Contractor's Health and Safety Plan

Without relieving Contractor of its responsibilities under the Agreement, Contractor will allow Engineer access to facilities, Personnel and records, when requested by Engineer or Company, to enable Company to:

- a) ensure that Contractor is carrying out its health and safety responsibilities under this Agreement;
- b) ensure that Contractor is carrying out its responsibilities outlined in its Health and Safety Plan; and
- c) conduct, if required, independent investigation into any health, safety or environmental incident arising in the performance of the Agreement.

The forgoing will also be applicable to all other members of Contractor Group.

If Engineer is made aware of a failure of Contractor to comply with its responsibilities under this Agreement, which does not create an imminently unsafe condition, Engineer will have the right to notify Contractor of such failure and to direct Contractor to abate such condition as soon as possible. If Contractor fails to comply with such direction within a reasonable period, then Engineer will have the right to stop all Work being performed by Contractor and the Work will not be restarted until Contractor has abated the failure to comply. Contractor shall not be entitled to compensation for any costs it incurs as a result of such Work stoppage.

7.0 Contractor's Health and Safety Personnel

Contractor shall provide full time, designated health and safety advisor(s) who will be responsible for attending safety meetings, conducting incident investigations, providing health and safety support and oversight to all Personnel engaged in the Work and the implementation, maintenance and monitoring of safety guidelines and procedures. Contractor will ensure that every such safety advisor is a Certified Registered Safety Professional or has equivalent training and experience.

Contractor will be required to obtain Engineer's Acceptance of all health and safety Personnel who are proposed to be based at the Worksites.

8.0 Drug and Alcohol Policy

The use, possession, distribution or sale of alcohol, illegal drugs or drug-related paraphernalia, firearms, explosives, weapons or other dangerous substances or articles is not permitted at the Site.

Contractor will submit to Engineer, for Engineer's Acceptance, Contractor's drug and alcohol policy, which will be in accordance with Applicable Laws. Contractor will ensure that Contractor's Personnel, engaged in the Work at the Site, comply with Company's drug and alcohol policy, Standard for Drug and Alcohol (LCP-PT-MD-0000-LR-SD-0001-01) located in Exhibit 11 - Company Supplied Documents.

Engineer may, if it has reasonable cause to believe that any of Contractor's Personnel is under the influence of alcohol or drugs, require such Personnel to be tested in accordance with Company's Standard for Drug and Alcohol (LCP-PT-MD-0000-LR-SD-0001-01) as well as that prescribed in the *Canadian Model for Providing a Safe Workplace, Alcohol and Drug Guidelines and Rules (2010)* issued by the Construction Owners Association of Alberta.

9.0 Reporting

Contractor will provide immediate notification in writing to Engineer of all incidents, including lost time injuries, restricted work cases, medical aids, property damage and near misses. Contractor will immediately complete an investigation into the incident. Incident investigation reports will be submitted to Engineer within seven (7) Business Days after the incident. Contractor's incident investigation report will verify that the incident has been fully investigated and that the root cause and contributing factors have been identified and communicated to the appropriate Personnel. Contractor will also provide Engineer with copies of all reports or other documents filed or provided by Contractor's insurers and Authorities in connection with such incidents.

Contractor will provide Engineer with a monthly safety performance report, which at a minimum, will include all of the following:

- a) Lost time Injuries
- b) Restricted work cases
- c) Medical aids
- d) First aids
- e) Occupational illness
- f) Property damage
- g) Recordable injuries
- h) Near miss incidents

Contractor will classify all incidents in accordance with the Canadian Electrical Association (CEA) Standard A-2-2007. In general terms, the following is the classification scheme for all injury types:

- a) Lost time injury is defined as a work related injury for which an employee requires medical attention and is unable to return to work for his/her next scheduled shift.
- b) Medical treatment injury is defined as a work related injury for which an employee requires medical attention; however, s/he is able to return to work for the next scheduled shift.
- c) First aid injury is defined as a work related injury, which is minor in nature and can be treated at the Worksite.

The general decision-making process for injury classification typically consists of the following five (5) steps:

- a) Determine whether a case occurred; that is, whether there was a death, illness or an injury;
- b) Establish that the case was work related or resulted from an event or exposure in the work environment;
- c) Decide whether the case is an injury or an illness;
- d) If the case is an illness, record it; and
- e) If the case is an injury, decide if it is recordable based on a finding of medical treatment, loss of consciousness, restriction of work or motion or transfer to another job.

Injury and illness will be classified in accordance to CEA Standard A-2-2007. Generally, a recordable injury is any occupational injury or illness that results in an individual experiencing:

- a) fatality;
- b) lost time injury;
- c) medical treatment injury; or
- d) Other injury/illness (not captured above) which has restricted work, or significant occupational injury/illness or loss of consciousness.

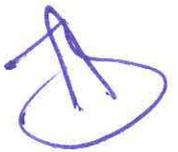
Each injury or illness shall be recorded only once and categorized using the above hierarchy. To illustrate, a lost time injury that involves medical treatment injury and subsequent restricted work will be categorized as a lost time injury.

For work-related injury/illness where the signs and symptoms recur or continue in the absence of an exposure to the workplace, the incident is recurred and does not precipitate a new incident.

Exhibit 6
Environmental and Regulatory Compliance Requirements
Agreement Number: CT0327-001

EXHIBIT 6

ENVIRONMENTAL AND REGULATORY COMPLIANCE REQUIREMENTS



1 INTRODUCTION

This Exhibit 6 - Environmental and Regulatory Compliance Requirements specifies the Contractor's responsibilities with respect to compliance with Applicable Laws during construction activities at the LCP.

1. The Contractor shall demonstrate a strong commitment to environmental management and must operate, and ensure that all members of the Contractor Group operate in accordance with Canadian standards and fulfill all Applicable Laws, including regulatory requirements, pertaining to the Work and Worksites.
2. The Contractor shall place high priority on environmental protection while performing Work and is responsible for maintaining an environmentally compliant Worksite at all times whether the Work is temporary or permanent.
3. The Contractor shall not cause, permit nor tolerate an environmentally non-compliant condition or activity over which it has control. The Contractor shall immediately inform the Engineer of any environmentally non-compliant condition or work practice of which it becomes aware but over which it has no authority to correct.

2 CONTRACTOR'S RESPONSIBILITIES - REGULATORY AGENCIES

2.1 General

1. The Contractor shall ensure Work areas are available for inspection by the Authorities. All inspections, other than by the Engineer or Company Representative, will be arranged in advance through the Engineer.
2. Any violations of environmental permits or authorizations, or any environmental related incidents observed by inspectors representing Authorities, are to be reported to the Engineer prior to leaving the Site. Except in emergencies, environmental protection measures required by Authorities shall be subject to the Acceptance of Engineer prior to implementation.
3. The Contractor shall ensure that Contractor's Personnel, including machinery and equipment operators and truckers, comply with (a) the terms and conditions of the Agreement, (b) all environmental Applicable Laws and applicable permits, (c) requirements of Authorities, and (d) such other rules and regulations as the Engineer may establish and notify the Contractor.
4. Contractor shall ensure that all members of the Contractor Group shall not harass wildlife or waterfowl or unduly disturb fish. Hunting and fishing are not permitted on the Site. Any contravention of environmental requirements, including employee actions accidental or otherwise, resulting in environmental damage shall be reported to the Engineer without delay.

5. In accordance with the Agreement, the Contractor shall be responsible for customs clearance, import permits, Work validations, Work permits and operating licenses in the port of mobilization / demobilization of the Work, and other requirements that are essential to the Work during all phases of the Work.

2.2 Permits

1. The Contractor shall review the Work to identify all permits, authorizations and certificates that are required for all the Contractor's facilities and the Work. Within the time specified in Section 3.1 below, Contractor shall provide to the Engineer a permit list (containing all such identified permits, authorizations, and certificates), to be entered into a permit registry on Aconex. Once entered, the Engineer shall have the authority to assign to either the Contractor or the Engineer the responsibility for preparing the permit applications.
2. Appendix A - List of Permits, Acceptances and Authorizations provides a list of permits that may be required to undertake the Work and responsibility for completing permit applications. This is a preliminary list and the Contractor shall complete its own list and submit it to the Engineer for Acceptance. In addition, the responsibility outlined on this list may be changed by written instructions from the Engineer to the Contractor due to changes in the Work or schedule constraints.
3. For those permits identified as the responsibility of the Contractor, the Contractor shall identify and prepare applications for all authorizations, permits, dispensations, consents and licenses required by Applicable Laws to enable it to perform the Work. All permit applications identified as the responsibility of the Contractor shall be submitted to the Engineer for internal review a minimum of 3 weeks prior to the date that such authorization, permit, dispensation, consent or license is submitted to the Authority. The Engineer will then submit the permit to the applicable Authority, on behalf of the Contractor. The Engineer will obtain the permit, and forward a copy to the Contractor immediately upon receipt and before the Contractor's facilities are used or the Work is undertaken. The Contractor shall ensure that it receives a copy of the permit and complies with the permit conditions.

For Service NL building permits, the Contractor shall submit electronically one application package for each building on Site. Such package will include:

- The fire and life safety review application and the Building Accessibility/Exemption application together as one PDF;
 - All electrical and mechanical permits associated with each building;
 - Any other required approval for buildings/utilities; and
 - The related drawings for the building in a separate PDF document. This PDF shall be created from the full size auto cad drawings.
4. For those permits identified as the responsibility of the Engineer, the Contractor shall

provide information as required in a timely manner to complete the relevant applications. The Contractor shall ensure that permits designated as the responsibility of the Engineer that are required for the Work are in place prior to starting the Work.

5. It should be noted that some authorizations associated with the LCP are subject to an aboriginal consultation process. This process requires that permit applications are provided to relevant aboriginal organizations by the associated Authority for a period of at least 30 days.
6. The Contractor shall take into consideration all these additional reviews and approvals, and the associated timelines, and ensure applications are prepared with the incorporation of these timelines.
7. For permits already in place for existing facilities and permits that the Contractor holds to carry out its business and daily activities, the Contractor must provide a copy of these permits to the Engineer prior to the start of the Work.
8. The *Storage and Handling of Gasoline and Associated Products Regulations, 2003* (referred to as the “GAP Regulations”) under the *Environmental Protection Act* of Newfoundland and Labrador applies to the construction, operation and registration of “storage tank systems”¹ in the Province of Newfoundland and Labrador. While Section 3 of the GAP Regulations explicitly exempts storage tank systems of capacity of 2500 litres or less that are connected to a heating appliance (e.g. tanks controlled by the *Heating Oil Storage Tank System Regulations, 2003* of Newfoundland and Labrador), all other “stationary” tanks (i.e. tanks installed in a fixed location) may be interpreted as falling under the control of these regulations. Following this strict interpretation, even very small tanks (e.g. less than 5 litre tanks connected to small generators, water pumps, etc. installed in temporary locations) may fall under control of the GAP Regulations.

Contractor shall provide Notice to Engineer of any and all storage tanks, storage tank systems and equipment storage tanks proposed by Contractor for use on the Site at least one (1) week prior to such use, along with all information pertaining to such tanks and systems as required by Engineer. If requested by Engineer, Contractor shall obtain written dispensation from the application of the GAP Regulations from the applicable Authority prior to such use of tanks or systems that are not already registered under GAP Regulations. Any required tank or system registration must be accompanied by any necessary regulatory variances.

In general, the GAP Regulations apply to all stationary storage tanks and storage tank systems except in the following cases:

¹ The GAP Regulations defines “storage tank system” as an “... atmospheric or low pressure closed tank container and all vents, fill and withdrawal piping associated with it installed in a fixed location and includes temporary arrangement on cradles and skids”.

- Tanks with capacities of 2,500 liters or less that are connected to a heating appliance;
- Tanks that are designed, constructed and utilized in the inherent operation of a piece of equipment. In this case, the tanks must be physically secured and dedicated to the equipment requiring the fuel for its operation; and
- "Mobile" tanks (e.g. tank trucks and tank truck trailers) used for temporary, stationary storage. In this case, storage period must not exceed 14 days and no additional fuel can be added to the tank. There must also be a minimum of 14 days of downtime between separate storage periods and there can be no more than two 14-day storage periods within a 12 month time frame.

Note that all provisions of the GAP Regulations, including registration, apply for all tanks associated with mobile generators.

Notwithstanding the above provisions of this Section 2.2.8, Contractor shall be solely responsible to comply with all Applicable Laws relating to the Work, and nothing in this Section 2.2.8 shall be construed so as to restrict, limit, waive or otherwise diminish Contractor's responsibility and liability to comply with all such Applicable Laws.

3 CONTRACT-SPECIFIC ENVIRONMENTAL PROTECTION PLAN (C-SEPP)

1. Within two (2) weeks after the Effective Date, the Contractor shall submit to the Engineer for Acceptance, a Contract Specific Environmental Protection Plan (C-SEPP) for the Work using the C-SEPP template provided in the Agreement. No Site Work shall take place until the Engineer has Accepted the C-SEPP.
2. The Contractor's C-SEPP shall be based upon the *General Environmental Requirements* of the Technical Specification of this Agreement (if applicable), the Project Wide Environmental Protection Plan (in Exhibit 11 - Company Supplied Documents), and the Contractor's own corporate environmental management system.
3. The C-SEPP is prepared by the Contractor and is specific to the Work. The C-SEPP provides a practical way for the Contractor to demonstrate its understanding of environmental regulations, practices and procedures required to reduce, or eliminate, potential negative environmental effects.
4. The Contractor's C-SEPP shall include the following, at a minimum (refer to the C-SEPP template for all requirements):
 - a description of the construction sequence (e.g. GANTT Chart);
 - roles and responsibilities;
 - mitigation procedures for all areas of environmental concern;
 - procedures for environmental monitoring;
 - maintenance requirements for environmental control structures;
 - procedures for post-activity clean-up and demolition; and

- contingency planning for environmental concerns.
5. The Contractor's C-SEPP shall also include any permits, registrations or notifications, required by Federal, Provincial, or aboriginal stakeholders for the proposed activities. The Contractor may be required to prepare additional environmental documentation prior to any fieldwork for non-time critical activities.
 6. The Contractor is responsible for implementing, resourcing, and periodically verifying the C-SEPP. Contractor shall provide Engineer with an implementation schedule for the plan and with an update provided on a quarterly basis.

4 REPORTING

1. The Contractor shall conduct daily inspections of the Work to confirm environmental compliance. The inspections shall be documented by the Contractor in daily reports which shall be kept on file. Any non-compliance and corrective actions shall be documented by the Contractor.
2. The Contractor shall immediately notify the Engineer of all environmental incidents, including any loss of hazardous or controlled products. **Any spill meeting the following criteria shall be reported immediately to the Canadian Coast Guard at 709-772-2083 or 1-800-563-9089:**
 - a. Any spill on a natural water body (marine or freshwater); or
 - b. Any land-based spill:
 - i. that is over 70 litres; or
 - ii. of any quantity that has the potential (e.g. by migrating through subsurface soils/bedrock/substructures², etc) to enter a natural water body; or
 - iii. of any quantity that has the potential to impact a privately owned property.
3. Once the spill is reported to the Canadian Coast Guard, the Engineer will liaise with other Authorities to provide additional information, as required.
4. The Contractor shall provide the Engineer with a monthly environmental performance report for the Work. The monthly cut-off for each report shall be the close of business day up to and including the final day of each calendar month. The Contractor's environmental performance report shall include, without limitation, the following:
 - i. Hazardous and other waste generated during the period;
 - ii. Environmental incidents, including loss of fuel or other hazardous products; and
 - iii. Reported non-compliance and associated corrective actions.

² sewer systems, conduits, tunnels, etc

5. The Contractor shall complete and submit to the Engineer a Monthly Fuel Consumption Report, in the form as set out in Appendix C - Monthly Fuel Consumption Report, no later than 7 days after the end of each calendar month.

APPENDIX A

LIST OF PERMITS, ACCEPTANCES AND AUTHORIZATIONS

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
1	Application for Crown Lands - LCP related Infrastructure	DOEC	<i>Lands Act</i> of Newfoundland and Labrador	Engineer
2	Application for Crown Lands - Contractor Facilities	DOEC	<i>Lands Act</i> of Newfoundland and Labrador	Contractor
3	Notice of Intent for Reservation of Shoreline	DOEC	<i>Lands Act</i> of Newfoundland and Labrador	Engineer
4	Application for Water and Sewerage Works Permit	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Sections 36, 37 and 48	Contractor
5	Permit to Alter a Body of Water and Schedule A (Culverts)	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Section 48	Engineer
6	Permit to Alter a Body of Water and Schedule B (Bridges)	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Section 48	Engineer
7	Permit to Alter a Body of Water and Schedule C (Dams)	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Section 48	Engineer
8	Permit to Alter a Body of Water and Schedule D (Fording)	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Section 48	Engineer
9	Permit to Alter a Body of Water and Schedule E (Pipe Crossing - Water Intake)	DOEC	<i>Water Resources Act</i> of Newfoundland and Labrador, Section 48	Engineer

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
10	Permit to Alter a Body of Water and Schedule F (Stream Modifications)	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 48</i>	Engineer
11	Permit to Alter a Body of Water and Schedule G (Small Bridges)	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 48</i>	Engineer
12	Permit to Alter a Body of Water and Schedule H (Other Alterations)	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 48</i>	Engineer
13	Application for Permit for Drilling a Non-Domestic Well - LCP related Infrastructure	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 58</i>	Engineer
14	Application for Permit for Drilling a Non-Domestic Well - Contractor Facilities	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 58</i>	Contractor
15	Application for Water use License - LCP related Infrastructure	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 48</i>	Engineer
16	Application for Water use License - Contractor Facilities	DOEC	<i>Water Resources Act of Newfoundland and Labrador, Section 48</i>	Contractor
17	GAP Registration	Service NL and DOEC	<i>Environmental Protection Act of Newfoundland and Labrador</i>	Contractor
18	Diesel Generator Registration Form	Service NL	<i>Environmental Protection Act of Newfoundland and Labrador</i>	Contractor

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
19	Permit for Access of any Highway	Service NL	<i>Urban and Rural Planning Act, 2000</i> of Newfoundland and Labrador <i>Works, Services and Transportation Act</i> of Newfoundland and Labrador	Engineer
20	Highway Services Signs Application	DTW	<i>Urban and Rural Planning Act, 2000</i> of Newfoundland and Labrador, subsections 36(2) and 39(2)	Contractor
21	Asphalt Plant Construction and Operation Form	Service NL	<i>Environmental Protection Act</i> of Newfoundland and Labrador	Contractor
22	Building Accessibility Design Registration / Exemption Registration - LCP related Infrastructure	Service NL	<i>Buildings Accessibility Act</i> of Newfoundland and Labrador	Engineer
23	Building Accessibility Design Registration / Exemption Registration - Contractor Facilities	Service NL	<i>Buildings Accessibility Act</i> of Newfoundland and Labrador	Contractor
24	Fire and Life Safety Review Plan (National Building Code) - LCP related Infrastructure	Service NL	<i>Buildings Accessibility Act</i> of Newfoundland and Labrador	Engineer

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
25	Fire and Life Safety Review Plan (National Building Code) - Contractor Facilities	Service NL	<i>Buildings Accessibility Act</i> of Newfoundland and Labrador	Contractor
26	Used Oil Storage Tank System Application	DOEC	<i>Environmental Protection Act</i> of Newfoundland and Labrador	Contractor
27	Mobile Fuel Storage Tank Relocation	Service NL	<i>Environmental Protection Act</i> of Newfoundland and Labrador	Contractor
28	Design Registration of Pressure Piping System	Service NL	<i>Public Safety Act</i> of Newfoundland and Labrador	Contractor
29	Elevating Devices	Service NL	<i>Public Safety Act</i> of Newfoundland and Labrador	Contractor
30	Food Establishment License Temporary Facility	Service NL	<i>Food and Drug Act</i> of Newfoundland and Labrador	Contractor
31	Septic Systems less than 4,546 L/day flow	Service NL	<i>Water Resources Act</i> of Newfoundland and Labrador	Contractor
32	Commercial Cutting/Operating Permit - LCP related Infrastructure	DNR	<i>Forestry Act</i> of Newfoundland and Labrador	Engineer
33	Commercial Cutting/Operating Permit - Contractor Facilities	DNR	<i>Forestry Act</i> of Newfoundland and Labrador	Contractor
34	Application for a Quarry Permit - LCP related Infrastructure	DNR	<i>Quarry Materials Act, 1998</i> of Newfoundland and Labrador	Engineer

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
35	Application for a Quarry Permit - Contractor Facilities	DNR	<i>Quarry Materials Act, 1998</i> of Newfoundland and Labrador	Contractor
36	Permit to Destroy Problem Animals	DNR	<i>Wildlife Act</i> of Newfoundland and Labrador	Engineer
37	Archaeological Investigation Permit	DTCR	<i>Historic Resources Act</i> of Newfoundland and Labrador	Engineer
38	Application for Authorization for Works or Undertakings Affecting Fish Habitat - Assessment of Freshwater HADD	DFO	<i>Fisheries Act</i> of Canada, Section 35(1)	Engineer
39	DFO Referral for any in-water works	DFO	<i>Fisheries Act</i> of Canada, Section 35(2)	Engineer
40	Request for Project Review	DFO	<i>Fisheries Act</i> of Canada, Section 35(1)	Engineer
41	Application for License to Install and Operate a Radio Station in Canada - LCP related Infrastructure	IC	<i>Radiocommunication Act</i> of Canada	Engineer
42	Application for License to Install and Operate a Radio Station in Canada - Contractor Facilities	IC	<i>Radiocommunication Act</i> of Canada	Contractor

	Permit	Regulatory Body	Act	Responsibility for Completing Permit Applications
43	Acceptance to Dispose Waste in Municipal Landfill	Service NL and Municipality (Town of Happy Valley Goose Bay)	<i>Municipalities Act, 1999</i> of Newfoundland and Labrador	Contractor
44	Municipal Development Plan	DMA	<i>Municipalities Act, 1999</i> of Newfoundland and Labrador	Engineer
45	Explosives User Magazine Licence (Type U)	NRCAN	<i>Explosives Act</i> of Canada	Contractor
46	Type A (Annual) Import Permit (to transport explosives)	NRCAN	<i>Explosives Act</i> of Canada	Contractor
47	Nav Canada Land Use Division Review	Nav Canada	<i>Aeronautics Act</i> of Canada	Contractor
48	Aeronautical Obstruction Clearance Form	TC	<i>Aeronautics Act</i> of Canada	Contractor
49	Navigable Waters Protection Act (NWPA)	TC	<i>Navigable Waters Protection Act</i> of Canada, Section 4	Engineer
50	Permit to Transport Dangerous Goods	TC	<i>Transportation of Dangerous Goods Act, 1992</i> of Canada, Section 3	Contractor

APPENDIX B

ABBREVIATIONS AND ACRONYMS

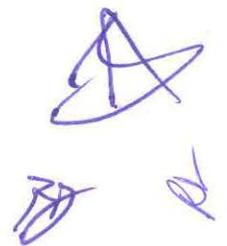
Abbreviations	Description
C-SEPP	Contract-Specific Environmental Protection Plan
DFO	Department of Fisheries and Oceans (Canada)
DOEC	Department of Environment and Conservation (Newfoundland and Labrador)
DNR	Department of Natural Resources (Newfoundland and Labrador)
DMA	Department of Municipal Affairs (Newfoundland and Labrador)
DTCR	Department of Tourism, Culture and Recreation (Newfoundland and Labrador)
DTW	Department of Transportation and Works (Newfoundland and Labrador)
GAP Regulations	<i>Storage and Handling of Gasoline and Associated Products Regulations, 2003</i> of Newfoundland and Labrador.
IC	Industry Canada
NRCAN	Natural Resources Canada
NWPA	<i>Navigable Waters Protection Act</i> of Canada
P-WEPP	Project-Wide Environmental Protection Plan
TC	Transport Canada

APPENDIX C

MONTHLY FUEL CONSUMPTION REPORT

MONTHLY FUEL CONSUMPTION REPORT¹		
Contractor's Name:	_____	
Report completed by (please print):	_____	
Signature:	_____	
Reporting month/year (mm/yyyy):	_____	
Report date (dd/mm/yyyy):	_____	
Agreement Number:	_____	
Agreement Name:	_____	
Consumed Fuel		
Fuel Type	unit	quantity
Diesel	litres	
Gasoline	litres	
Heating oil	litres	
Propane	litres	
aviation turbo fuel	litres	
kerosene	litres	
Other (specify type)		
1	litres	
2	litres	
3	litres	
4	litres	
5	litres	
6	litres	
Total		
Notes:		
1	To be completed by Contractor and submitted to the Engineer for each calendar month, no later than 7 days after end of each month.	
2	Consumed fuel to be reported is defined as:	
	a)	quantity of fuel transferred during the reporting month to tanks of all LCP-dedicated vehicles, equipment, and facilities, or
	b)	quantity of fuel used in the reporting month as part of a process (such as ANFO used for explosives); or
	c)	quantity of fuel delivered to bulk storage tanks at Company's Laydown Area within the reporting month by the Fuel Delivery Services Contractor.
3	Contractor shall provide as part of the Monthly Fuel Consumption Report a general listing of all types of equipment, facilities, and processes that have burned fuel during the reporting month. The types of equipment, facilities, and processes include, but are not limited to, the following: heavy equipment (e.g. excavators, bull dozers, concrete trucks, etc); light equipment and vehicles (e.g. pick-up trucks, chain saws, pumps); facilities (e.g. diesel generators, concrete production, etc); processes (e.g. explosives in ANFO, etc); etc.	
page 1 of 2		

EXHIBIT 7
QUALITY REQUIREMENTS

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1.0 INTRODUCTION

Without limiting the generality and application of the Agreement, Contractor will abide by and ensure Contractor Group abides with the quality requirements set forth in this Agreement.

2.0 QUALITY OBJECTIVES

The following quality objectives are required of Contractor:

- a) Work will comply with the quality requirements of the Agreement;
- b) Quality management systems of Contractor Group will ensure early and proactive identification of process or product failure so as to prevent problems before they occur or minimize rework, cost and schedule impacts, and to identify potential failures, opportunities for improvement and best practices;
- c) Equipment and materials procured and/or installed by Contractor Group will be consistent with Exhibit 1 – Scope of Work;
- d) Construction Work will be carried out in accordance with established construction standards and methods;
- e) Completion activities will be executed in accordance with the procedures and manuals covering those activities; and
- f) Documentation of objective evidence of conformance to the requirements will be maintained and recorded during the execution of the Work.

3.0 DEFINITIONS, TERMS AND ABBREVIATIONS

ISO 9001:2008	Quality Management Systems – Requirements
ISO 9000:2005	Quality Management Systems – Fundamentals and Vocabulary
ISO 10006: 2003	Quality Management Systems – Guidelines for Quality Management in Projects
ITP	Inspection and Test Plan
NCR	Nonconformity Report
PMI	Positive Material Identification
QA/QC	Quality Assurance/Quality Control
QMS	Quality Management System
QP	Quality Plan
SDRL	Supplier Document Requirements List

4.0 CONTRACTOR'S RESPONSIBILITIES

- a) Contractor shall comply with and ensure that Contractor Group complies with requirements outlined in this Exhibit 7.
- b) The Contractor shall ensure that Contractor Group implements the quality activities described in this Exhibit 7.
- c) Contractor shall demonstrate the implementation of its quality program and the compliance of its Work with the requirements of the Agreement.

- d) In accordance with the Articles of the Agreement, Contractor shall provide the right of access to Company Group Personnel, to the Worksites to monitor the progress of the Work.
- e) Contractor shall provide acceptable office accommodation, including internet connections for the Engineer's inspectors and expeditors. The level of involvement of inspectors and expeditors shall be determined by Engineer.
- f) Contractor shall ensure that documents requiring a registered professional engineer's seal and signature shall be in accordance with the *Engineers and Geoscientists Act, 2008* of Newfoundland and Labrador and the by-laws of the Professional Engineers and Geoscientists – Newfoundland and Labrador (refer to www.pegnl.ca).

5.0 QUALITY MANAGEMENT SYSTEM

Contractor shall have an effectively implemented and maintained QMS for the execution of the Work. The QMS shall, at a minimum, be formally documented and compliant with the requirements of ISO 9001:2008. The QMS shall emphasize building quality into the Work through the use of documented control processes that incorporate activities necessary to assure quality.

The QMS shall be supported by an established quality organization with qualified resources, and formally documented control procedures to effectively administer and implement the requirements.

Prior to subcontracting any Work, Contractor shall demonstrate to Engineer that the selected Person has a quality management system that complies with the provisions of ISO 9001:2008. Contractor shall not Subcontract any part of the Work to a Person that does not meet the standards established by the ISO 9001:2008. These requirements also apply to Work to be performed by Subcontractors' subcontractors of every tier.

6.0 QUALITY ORGANIZATION

Contractor shall appoint a quality representative, empowered by management with freedom and authority to:

- a) oversee the management of quality for the Work;
- b) manage quality issues and their resolution; and
- c) ensure compliance with the Agreement.

Contractor shall provide details of the QA/QC organization it intends to employ at the Worksites. Contractor shall appoint sufficient qualified Personnel to ensure that the quality management system, specifically the quality control and inspection activities, including those pertaining to any part of the Work, are achieved.

7.0 QUALITY DOCUMENTS

The SDRL identifies specific quality documentation required from Contractor and defines the required submission dates and form of submission. The instructions for Contractor document requirements are contained in document number LCP-PT-MD-0000-IM-PR-0015-01 titled Supplier/Contractor Document Requirements located in Exhibit 11 – Company Supplied Documents. Contractor shall ensure that it meets all quality documentation requirements outlined in the Agreement.

8.0 QUALITY PLAN

8.1 GENERAL REQUIREMENTS

Contractor shall submit a QP, prepared in accordance with this Exhibit 7, to the Engineer for review and Acceptance. The QP shall include all aspects of the Work. All QP revisions are subject to review and Acceptance by Engineer prior to being implemented. Contractor shall:

- a) Develop and maintain a QP stating the procedures, processes, resources and sequence of quality activities related to the Work;
- b) Mandate one person to be responsible for development, approval and follow up of the QP;
- c) Ensure QP review and revisions by Contractor's Personnel comprising representatives of all affected disciplines; and
- d) Upon request, provide Engineer with the procedures and instructions to which the QP refers.

8.2 QUALITY PLAN CONTENT

The QP shall:

- a) Accurately reflect the planning implemented by Contractor to comply with the Agreement;
- b) Apply the guidelines of ISO 10006:2003 - Quality Management Systems – Guidelines for Quality Management in Projects;
- c) Document any non-applicable requirement or any provision in the QP that does not comply with quality system requirements;
- d) Identify each of the main stages of execution for each of the deliverable elements of the Work;
- e) At a minimum, contain the following:
 - Scope;
 - Quality objectives;
 - Definitions, terms and abbreviations;
 - Organization chart and quality related roles and responsibilities associated with all phases of the Work;
 - Management review of Subcontracts;
 - Documentation and records management; and
 - Listing of all control procedures required to perform the Work (current and to be

- developed); and
- f) Provide detailed descriptions of:
- Responsibilities of Contractor's management related to QA/QC activities;
 - The systems and procedures Contractor will use to ensure that quality is an intrinsic part of all aspects of the Work;
 - Reviews, approvals required and checks and inspections to be conducted, including responsibilities and the timing of the required checks and inspections in the Work sequence;
 - How procurement documents will be prepared to properly establish quality requirements with Subcontractors (and Subcontractors' subcontractors of every tier). Contractor shall require that Contractor Group prepare a product specific or service specific quality plan for of the Work of such Subcontractors and subcontractors;
 - How Persons, to whom Contractor proposes to Subcontract any part of the Work, will be evaluated and selected to ensure they have the requisite resources, tools, procedures, and quality capabilities to meet established requirements (this requirement also applies to proposed subcontractors of Subcontractors of every tier);
 - How ITPs will be prepared. Each ITP shall include a list of the specifications that must be met, describe the tests that will be performed to ensure compliance, and identify who will perform the tests. Each plan shall identify inspections and QA/QC steps that will be taken by Contractor Group;
 - How records will be maintained to demonstrate that all design, materials, equipment and construction conforms to established requirements and how and in what form the records will be submitted to the Engineer;
 - How nonconformities, concessions and waivers shall be controlled and resolved including the process that will be used, the Personnel responsible for administering the process and the information flow through Contractor's organization for resolution;
 - How all instruments used for testing and inspection will be properly certified, including PMI devices, equipment for calibrating instrumentation and hydrostatic test gauges;
 - The auditing, appraising, sampling techniques, reviews and reporting Contractor intends to carry out for the Work to confirm the effectiveness of the QA/QC activities, and that the QMSs are indeed delivering the quality required;
 - How Contractor plans to meet requirements for PMI, source inspection and field quality control, including the frequency of testing, the locations where the testing will be conducted (e.g., Worksites, upon receipt at Worksites, following installation), and the type(s) of testing equipment to be used;
 - Control procedures that adequately address the controls required for quality activities; and
 - Acceptance and rejection criteria applicable to the activity and approval requirements.

8.3 QUALITY AUDITS AND MANAGEMENT REVIEWS

Contractor shall provide a schedule of quality audits (both internal and external) and quality management system reviews to be performed during execution of the Work. The schedule of quality audits shall identify those planned audits of Contractor Group.

The schedule of audits shall be provided to Engineer on the later of four (4) weeks before start of the Work or two (2) weeks after the Effective Date.

Contractor shall report progress, on a monthly basis, on implementing any actions that arise from the audits or management system reviews.

8.4 SURVEILLANCE OF SUBSUPPLIERS AND SUBCONTRACTORS

Contractor shall perform surveillance and inspection of Contractor Group as well as review and approve dossiers provided by the Contractor Group to ensure that the requirements of the Agreement have been met.

Contractor shall identify planned verification activities used to assess and manage Contractor Group to ensure compliance with requirements of this Agreement.

The verification activities shall be documented in the QP and reported monthly together with the progress on audits and management reviews.

9.0 INSPECTION AND TEST PLANS

9.1 GENERAL REQUIREMENTS

Contractor shall develop and submit its inspection and test plan (ITP), which shall include those of its Subcontractors (and Subcontractors' subcontractors of every tier), for review and Acceptance by the Engineer on the later of four (4) weeks before start of the Work or two (2) weeks after the Effective Date.

The ITPs shall cover all aspects of the Work to be executed by Contractor Group and shall implement and maintain all quality activities described therein.

Contractor will notify Engineer of all hold and witness points ten (10) Business Days prior to the scheduled date of such activity. Contractor will reconfirm the scheduled date of such activity seventy-two (72) hours prior to commencement. The Contractor shall identify upcoming hold and witness points for the next six (6) months in the Monthly Progress Report (as referenced in Exhibit 3 - Coordination Procedures).

9.2 INSPECTION AND TEST PLAN CONTENT

Contractor is required to follow all of the instructions below in preparing the ITPs, and

acknowledges that the Engineer review will be based on these instructions.

- a) Identification
 - Code the ITP, identify the revision and date;
 - Identify the Company, project and sector;
 - Identify the Agreement, as well as the component, discipline or system to which the ITP applies; and
 - Identify the Personnel responsible for quality, at all Worksites.
- b) Work Items and Steps
 - These are normally copied from the elements of the Contractor' Group's detailed Work schedule. Complimentary or specific details may be required; and
 - Contractor shall ensure ITPs, as far as practical, follow the normal sequencing of the Work. ITPs shall identify the stages requiring approval, inspection and testing hold and witness points.
- c) Control Activities
 - The control points, including their summary description (inspection, verification, tests) shall be inserted in the detailed Work schedule.
- d) Responsibilities
 - Identify Contractor's Personnel responsible for control activities.
- e) Frequency
 - Specify the percentage, frequency or sampling rate applicable to the control points.
- f) Reference to Specifications
 - Control activities shall refer to applicable drawings, specification sections and/or specifications/codes;
 - Identify parameters and characteristics that will be mainly considered in the controls; and
 - For each control, identify and note down the criteria and/or tolerances for approval.
- g) Procedures Used
 - Identify the procedures or instructions developed by Contractor or Subcontractors (or Subcontractors' subcontractors of every tier) to perform control and testing.
- h) Control Equipment
 - Describe and identify the equipment to be used for quality control. Users shall provide evidence of the calibration status.
- i) Checklists
 - The information identified above can be recorded in a checklist prepared by Contractor. The checklists shall be appended.
- j) Forms
 - Identify the forms to be used to record the control point results and append them to the ITP. The recorded results will constitute an inspection or testing report.
- k) Engineer's Control Points
 - The type of control points, namely: witness, hold or documentation review will

be identified during ITP review by the Engineer.

l) Quality Records

- Identify the types of records to be included in the quality records, to be submitted to the Engineer, and include the applicable standard table of contents.

m) Remarks

- Include all other relevant information that may be useful in carrying out the ITP.

9.3 FINAL INSPECTION AND DECLARATION OF COMPLETION

Appendix A - Declaration of Installation and Inspection Completion (“Declaration”) of this Exhibit 7 will be completed by Contractor upon completion of aspects of the Work. Contractor shall confirm that these aspects of Work are complete and comply with the requirements outlined in the Agreement, that all related quality records have been submitted to Engineer and confirm that Engineer carry out its final inspection on that aspect of Work.

Upon receipt of a Declaration, Engineer will conduct a final inspection of the aspect of Work described therein and, if necessary, issue a deficiency list if it is determined that the aspect of Work is not complete or includes elements that do not comply with the requirements of the Agreement.

When Contractor has corrected all deficiencies and the quality records are Accepted by Engineer, the Declaration will be Accepted by Engineer and an Accepted copy will be returned to Contractor.

10.0 NONCONFORMITY REPORTING

Contractor shall submit, to Engineer for review and Acceptance, its nonconformity, corrective action, preventive action procedure(s) and resolution reporting form.

Contractor will ensure that all nonconformities, which shall take on the definition of noncompliance with a requirement of ISO 9000:2005 Quality Management Systems – Fundamentals and Vocabulary, are recorded, investigated and resolved to Engineer’s satisfaction.

All of Contractor’s Personnel shall have a responsibility to identify apparent nonconformities arising from the execution of the Work.

Contractor shall maintain a register of all applicable and open nonconformity reports. The status of all NCRs shall be reported in the Monthly Progress Report (as referenced in Exhibit 3 - Coordination Procedures).

Contractor’s NCR form may be used but, at a minimum, it shall contain the following:

- a) Project number;

- b) NCR number;
- c) Supplier;
- d) Project name/location;
- e) Purchase order/contract number;
- f) Product description (including part #, serial # and tag #);
- g) Date opened;
- h) Date closed;
- i) NCR description;
- j) Action by;
- k) Status;
- l) Root cause analysis;
- m) Resolution proposed; and
- n) Resolution Implemented.

Contractor shall identify Personnel responsible for verifying and resolving NCRs.

11.0 QUALITY RECORDS

Contractor's quality records shall include, as a minimum, the following documents:

- a) Inspector qualifications (quality control);
- b) Welder's qualifications ;
- c) Checklists;
- d) Relevant inspection and testing reports;
- e) Materials analysis certificates, when required;
- f) Steel works certificates;
- g) Paint specification sheet, when required;
- h) Identification and traceability documentation;
- i) Engineer Approved deviations;
- j) Closed out nonconformity reports, corrective and preventive actions;
- k) Completed test packages;
- l) Preservation records;
- m) Declarations to Authorities, when required;
- n) As-built drawings;
- o) As-built specifications;
- p) As-built bills of material;
- q) Various required manuals;
- r) All Accepted Declaration of Installation and Inspection Completion forms (Appendix A); and
- s) Shipping authorization.

Quality records shall be retained until the later of (a) seven (7) years after the satisfaction of all of the obligations of Contractor pursuant to this Agreement, (b) seven (7) years after expiration or any termination of this Agreement, or (c) such longer period as may be required under Applicable Laws. During this period, the quality records shall be available to Engineer and Company for inspection and audit.

12.0 ENGINEER'S ACTIVITIES

Engineer shall be entitled, at its sole discretion, to perform certain QA/QC activities, the performance of which shall not relieve Contractor of its responsibilities under this Agreement or its overall responsibility for quality of the Work. These QA/QC activities may include:

- a) Audit of Contractor's QA/QC program and include any or all of the following:
 - Review of Contractor's documented QA/QC plans and procedures;
 - Random review of Contractor's procurement documents for inspection and specification content;
 - Review of Contractor's specific equipment inspection and test plans in relation to specification requirements;
 - Review of inspector's surveillance and non-conformance reports, Contractor's deviation log, procedure approval logs;
 - Receipt of inspection discrepancy reports and field inspection reports;
 - Review of activities undertaken by Contractor Group;
- b) Independent source inspections. Results of Engineer source inspections will be made available to Contractor and Contractor shall address and resolve any issues arising from these inspections;
- c) Review and assessment of Contractor Group quality plans and ITPs;
- d) Review and assessment of Contractor's control procedures and audit schedule, monitoring compliance and monitoring resolution of any issues raised;
- e) Participation in selected pre-inspection and pre-production meetings;
- f) Conducting oversight of Contractor's quality activities including Contractor Group inspection activities, field inspection and surveillance activities, along with participation in inspection and test stages outlined in Accepted ITPs;
- g) Review and Acceptance of NCRs where proposed dispositions do not result in meeting specifications; and
- h) Other activities as deemed appropriate by Engineer.

APPENDIX A

DECLARATION OF INSTALLATION AND INSPECTION COMPLETION

Labrador-Island Link Limited Partnership	DECLARATION OF INSTALLATION AND INSPECTION COMPLETION
Declaration No.: _____	Date: _____
Prepared by Contractor: _____	
Agreement No.: _____ Agreement Title: _____	
WORK DESCRIPTION: _____ _____ _____	
UNRESOLVED DEFICIENCIES: _____	
<p>This document certifies that the Work described above has been completed, inspected and tested in accordance with the above-noted Agreement’s requirements, and that all quality records have been finalized and sent to the Engineer.</p> <p>Notes:</p> 	
Contractor: Signature: _____ Date: _____	Engineer: Signature: _____ Date: _____

Exhibit 8

Subcontractors, Manufacturers and Material Sources

Agreement Number CT0327-001

EXHIBIT 8

SUBCONTRACTORS, MANUFACTURERS AND MATERIAL SOURCES

a) Subcontractors

List of Subcontractors (whether on-Site or off-Site) and the part of the Work that will be subcontracted to them, along with confirmation of whether they are registered to ISO 9001:2008 or an internationally recognized equivalent quality management standard.

Name of Subcontractor	Location of Subcontractor (country of origin)	Services Provided	ISO registered ("YES" or "NO")*	Relative value of the Work	Any other pertinent information
NorthStar, Inc	Alberta	Rock Anchors	Unknown	Est. \$29,526,838	
ATCO Logistics, T/A Torngait Services Inc	NL	Camp Services	Unknown	Est. \$42,611,976	
Woodward's Group	Goose Bay NL	Fuel Services	Unknown	Est. \$420,210	Innu registered Company
Consbec Inc.	St. Philippe, NB	Blasting Contractor	Unknown	Est. \$648,000	None
Innu Humber Valley Paving / Johnsons/High Tech	Corner Brook, NL	Camps Prep and Clearing & aggregates	Unknown	Est. \$1.59 Million	

b) Material Suppliers

List of material suppliers and the material that they will supply, along with confirmation of whether they are registered to ISO 9001:2008 or an internationally recognized equivalent quality management standard.

Material Supplied	Name of Supplier	Location of Supplier (country of origin)	ISO registered ("YES" or "NO")*	Relative value of the Work	Any other pertinent information
Concrete	Grey Rock Inc / TBD	Happy Valley Goose Bay, NL	Unknown	Estimated \$5.5M	Unknown
Rebar	Harris Rebar	Mount Pearl, NL	Unknown	Unknown	Unknown
Non Shrink Grout	TBD	TBD	Unknown	Estimated \$3.03M	

Exhibit 9
Schedule

Agreement Number: CT0327-001

SCHEDULE

Schedule

#	Milestones:					Start Date	Finish Date
1	Forecasted Award Date						08-Aug-2014
2	Mobilization Start					11-Aug-2014	
3	Lines Inspected & Ready for Energization						30-Jun-2017
4	Substantial Completion						01-Jul-2017
Work Front 1 Milestones							
	Segment 1	Anticipated available dates for free issued Materials		ROW Clearing		Construction	
	Materials	First Delivery	Last Delivery	Start Date	Finish Date	Start Date	Finish Date
	Foundations/Anchors	10-Jul-2014	15-Dec-2014				
	Tower Steel	01-Nov-2014	01-Jun-2015				
	Steel Wire and Hardware	30-Jun-2014	17-Nov-2014				
	Conductor/OPGW	08-Aug-2014	01-Feb-2015				
	ROW Clearing						
1	Block 1 – 029+500 to 059+750				31-Aug-2014		
2	Block 2 – 059+750 to 101+100				10-Oct-2014		
3	Block 3 – 101+100 to 143+750				20-Nov-2014		
4	Block 4 – 143+750 to 224+500			15-Aug-2014	05-Jan-2015		
	Construction						
1a	Foundation/Anchor Installation					01-Oct-2014	02-Apr-2015
1b	Tower Assembly					24-Nov-2014	29-May-2015
1c	Tower Erection					05-Jan-2015	16-Jun-2015
1d	Stringing					02-Feb-2015	11-Sep-2015

Work Front 1 Milestones							
	Segment 2	Anticipated available dates for free issued Materials		ROW Clearing		Construction	
		First Delivery	Last Delivery	Start Date	Finish Date	Start Date	Finish Date
	Materials						
	Foundations/Anchors	10-Jul-2014	15-Dec-2014				
	Tower Steel	01-Nov-2014	01-Jun-2015				
	Steel Wire and Hardware	30-Jun-2014	17-Nov-2014				
	Conductor/OPGW	08-Aug-2014	01-Feb-2015				
	ROW Clearing						
5	Block 5 – 224+500 to 285+700			05-Jan-2015	15-Apr-2015		
6	Block 6 – 285+700 to 359+800			05-Jan-2015	15-Apr-2015		
7	Block 7 – 359+800 to 396+264			01-Sep-2014	05-Jan-2015		
8	Block 8 – Labrador Electrode Line				30-Nov-2014		
	Construction						
2a	Foundation/Anchor Installation					05-Jan-2015	29-Jun-2015
2b	Tower Assembly					01-Apr-2015	17-Sep-2015
2c	Tower Erection					01-May-2015	21-Oct-2015
2d	Stringing					15-Jun-2015	18-Dec-2015

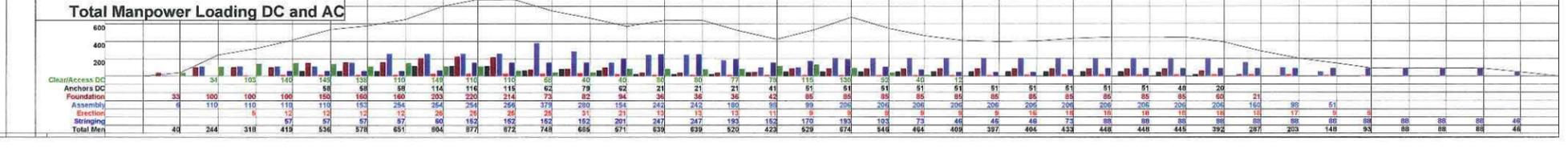
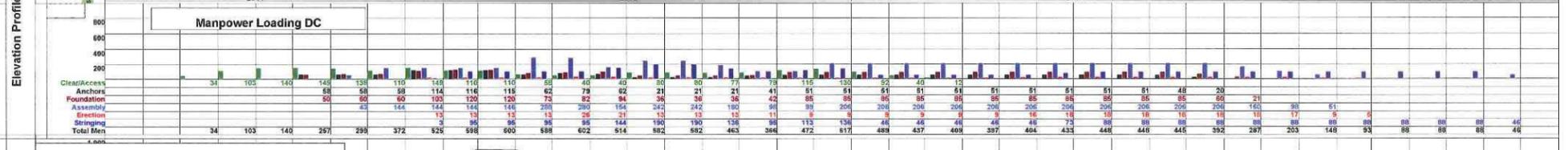
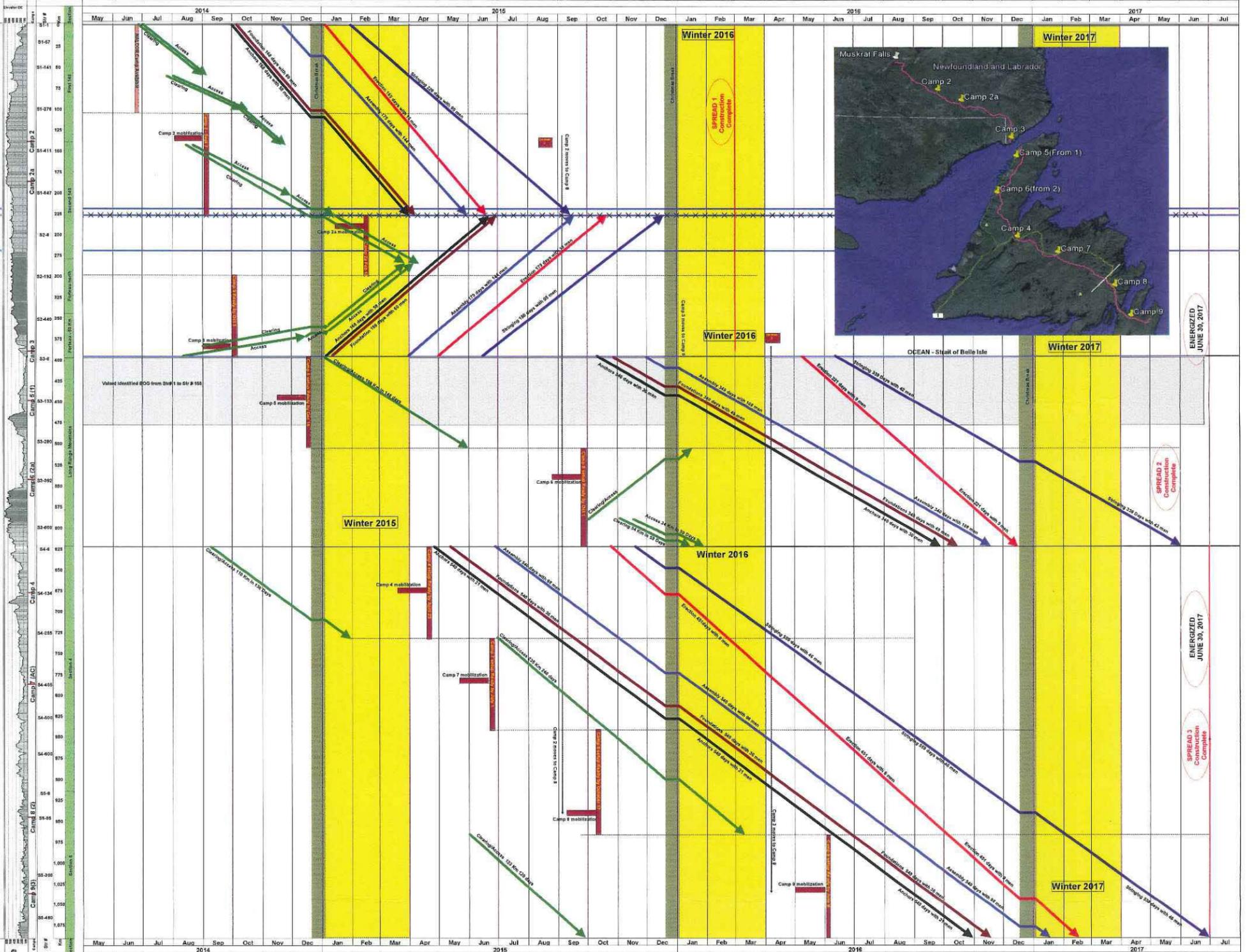
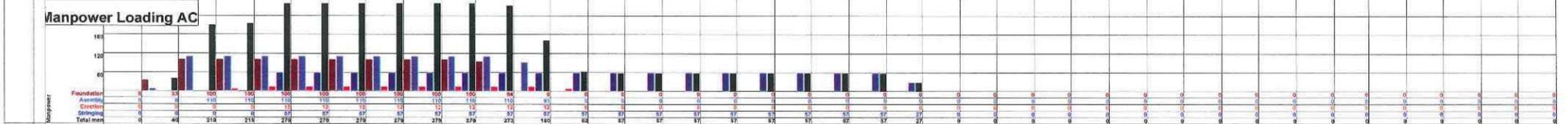
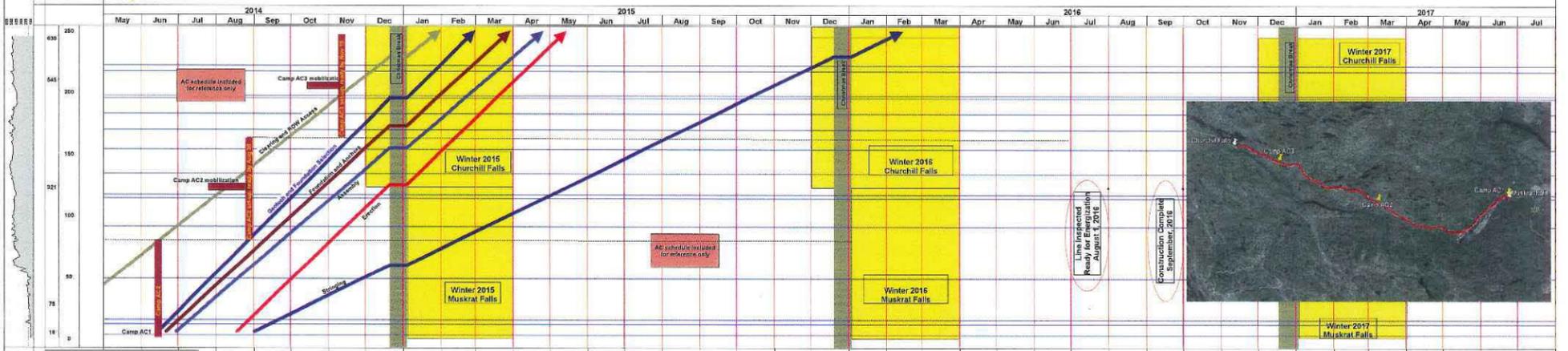
Work Front 2 Milestones							
Segment 3		Anticipated available dates for free issued Materials		ROW Clearing		Construction	
	Materials	First Delivery	Last Delivery	Start Date	Finish Date	Start Date	Finish Date
	Foundations/Anchors	05-Jun-2015	21-Apr-2016				
	Tower Steel	01-Jun-2015	01-Nov-2015				
	Steel Wire and Hardware		6-Apr-2015				
	Conductor/OPGW		22-Jun-2015				
	ROW Clearing						
9	Block 9 – 000+000 to 086+200				31-May-2015		
10	Block 10 – 086+200 to 114+700				31-May-2015		
11	Block 11 – 114+700 to 147+500				31-Jan-2016		
12	Block 12 – 147+500 to 193+700				31-Jan-2016		
	Construction						
3a	Foundation/Anchor Installation					11-Oct-2015	15-Oct-2016
3b	Tower Assembly					30-Nov-2015	18-Nov-2016
3c	Tower Erection					09-May-2016	16-Dec-2016
3d	Stringing					12-Jun2016	01-Jun-2017

Work Front 3 Milestones							
	Segment 4	Anticipated available dates for free issued Materials		ROW Clearing		Construction	
		First Delivery	Last Delivery	Start Date	Finish Date	Start Date	Finish Date
	Materials						
	Foundations/Anchors	29-Aug-2014	18-Feb-2015				
	Tower Steel	01-Nov-2014	01-Jun-2015				
	Steel Wire and Hardware		29-Jun-2015				
	Conductor/OPGW		22-Jun-2015				
	ROW Clearing						
13	Block 13 – 193+700 to 332				31-Jan-2015		
14	Block 14 – 332 to 567				15-Mar-2016		
	Construction						
4a	Foundation/Anchor Installation					26-Apr-2015	01-Apr-2016
4b	Tower Assembly					28-Jun-2015	11-May-2016
4c	Tower Erection					01-Nov-2015	25-Jul-2015
4d	Stringing					23-Nov-2015	22-Nov-2016



NALCOR Energy HVac Scenario 1A and HVdc Rev 0 Transmission Line Construction Plan

Valard Construction LP
MP AC and DC Rev 1
Printed Aug 5 2014



Handwritten signature and initials in blue ink.

Exhibit 10
Declaration of Residency
Agreement Number CT0327-001

EXHIBIT 10
DECLARATION OF RESIDENCY

DECLARATION OF RESIDENCY

We represent that, for Canadian income tax purposes, Valard Construction LP (the "Partnership") is a limited partnership formed under the laws of Alberta. We attach a certified copy of the Partnership's Certificate of Limited Partnership (as amended). If at any time the Partnership's jurisdiction of formation changes, we shall inform Company immediately by issuance of a revised "Declaration of Residency". We also represent that the partners of the Partnership are Valard Construction Ltd and Valard Construction 2008 Ltd., and that each such partner is resident in Canada for Canadian income tax purposes. We attach a certified copy of the certificate of incorporation (or certificate of amalgamation or continuance or similar document, as applicable) of each corporation that is a partner of the Partnership. If at any time a new partner is added to the Partnership or the residency of a partner of the Partnership changes for Canadian income tax purposes, we shall inform the Company immediately by issuance of a revised "Declaration of Residency".

Name: Richard Buchanan

Title: CFO

Signature: 

Date: April 28, 2014.

Attached is a certified copy of:

- Certificate of [Limited] Partnership (as amended);
- Certificate of Registration and a letter of good standing for the Partnership (or other similar documents, as applicable) from the jurisdiction in which the Partnership is formed;
- Certificate of Incorporation for each partner that is a corporation (or Certificate of Amalgamation or Continuance or similar document, as applicable); and
- Current Certificate of Compliance from Industry Canada and/or a letter of good standing for each partner that is a corporation from the corporate jurisdiction under which such corporation is formed or was continued.

Certified Copy

REGISTER LIMITED PARTNERSHIP - Proof of Filing

Alberta Registration Date: 2008/12/15

Registration Number: LP14423149

Service Request Number: 12471900
Limited Partnership Name: VALARD CONSTRUCTION LP
Home Jurisdiction: ALBERTA

General Partner

General Partner Type: Legal Entity
Corporate Access Number: 2012988842
Last Name / Legal Entity Name: VALARD CONSTRUCTION 2008 LTD.
Street: C/O 600, 9707 - 110 STREET
City: EDMONTON
Province: ALBERTA
Postal Code: T5K 2L9

Attachment

Attachment Type	Microfilm Bar Code	Date Recorded
Certificate of Limited Partnership (AB)	10000107102954393	2008/12/15

Registration Authorized By: PAULA HOFFMAN
SOLICITOR

Certified Copy**AMEND LIMITED PARTNERSHIP - Proof of Filing****Alberta Amendment Date: 2009/01/02**

Service Request Number: 12499518
 Registration Number: LP14423149
 Limited Partnership Name: VALARD CONSTRUCTION LP
 Limited Partnership Status: Active

Note: There is only 1 active General Partner

General Partner

General Partner Status: Active
 General Partner Type: Legal Entity
 Corporate Access Number: 2012988842
 Last Name / Legal Entity Name: VALARD CONSTRUCTION 2008 LTD.
 Street: C/O 600, 9707 - 110 STREET
 City: EDMONTON
 Province: ALBERTA
 Postal Code: T5K 2L9

Attachment

Attachment Type	Microfilm Bar Code	Date Recorded
Certificate of Limited Partnership (AB)	10000107102954393	2008/12/15
Notice to Amend	10000507102954386	2009/01/02

Registration Authorized By: PAULA HOFFMAN
 SOLICITOR

AMENDED CERTIFICATE OF PARTNERSHIP

1. The name under which the limited partnership currently carries on business is **VALARD CONSTRUCTION LP**. The registered office of the Partnership is:

#600, 9707 - 110th Street, Edmonton, AB T5K 2L9.

2. The partnership was established to carry out powerline construction. ("the Business")
3. **VALARD CONSTRUCTION 2008 LTD.** is the **General Partner**. The Nominee for the General Partner is **VICTOR BUDZINSKI**. For the purposes of sending or receiving notices, the address for **VALARD CONSTRUCTION 2008 LTD.** is c/o 600, 9707 - 110 Street, Edmonton, Alberta T5K 2L9.

VALARD CONSTRUCTION LTD. is the **Limited Partner**. The Nominee for the Limited Partner is **VICTOR BUDZINSKI**. For the purposes of sending or receiving notices, the address for **VALARD CONSTRUCTION LTD.** is c/o 600, 9707 - 110 Street, Edmonton, Alberta T5K 2L9.

4. The Partnership shall continue indefinitely.
5. Amount of cash and nature and fair value of any other property, if any, contributed by each limited partner:

VALARD CONSTRUCTION LTD.: \$999.00 for 999 Limited Partnership Units

VALARD CONSTRUCTION LTD.: Transfer of Goodwill for 9000 Limited Partnership Units

VALARD CONSTRUCTION 2008 LTD.: \$1.00 for 1 Limited Partnership Unit

6. Amount of additional contributions, if any, agreed to be made by each limited partner, and the times at which or events on the happening of which, an additional contribution is to be made. **None**
7. Time, if agreed on, when contribution of each limited partners is to be returned. **Upon termination.**
8. Share of profits or other compensation by way of income, that each limited partner is entitled to by reason of that partner's contribution.

See Sections 6.1, 6.9 and 10.2 of the Limited Partnership Agreement

9. The right, if given, of a limited partner to substitute an assignee as a contributor in his place and the terms and conditions of the substitution. **None.**

10. The right, if given, of the partners to admit additional limited partners.

See Article 6.0 of the Limited Partnership Agreement

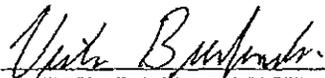
11. The right, if given, of one or more limited partners to priority over other limited partners, to a return of contributions or compensation by way of income, and nature of priority. **None**

12. The right, if given, of the remaining general partner or partners, to continue the business on the death, retirement of or mental incompetence of a general partner. **Not applicable**

13. The right, if given, of a limited partner to demand and receive property other than cash in return for his contribution. **None**

Signed this 1st day of January ,2009.

VALARD CONSTRUCTION 2008 LTD. (General Partner)

Per: 
VICTOR BUDZINSKI

VALARD CONSTRUCTION LTD. (Limited Partner)

Per: 
VICTOR BUDZINSKI

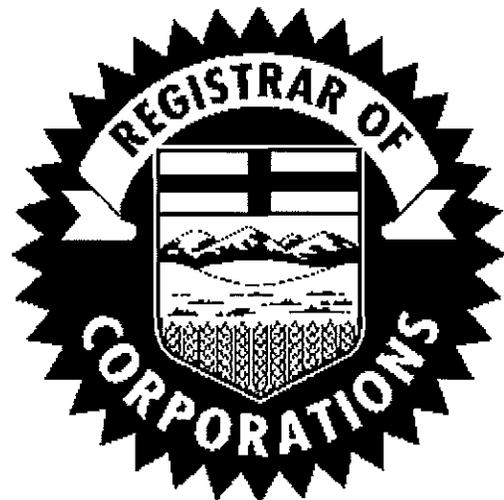
Certified Copy
CORPORATE ACCESS NUMBER: 2012988842

**Government
of Alberta ■**

BUSINESS CORPORATIONS ACT

**CERTIFICATE
OF
AMENDMENT**

**1298884 ALBERTA LTD.
CHANGED ITS NAME TO VALARD CONSTRUCTION 2008 LTD. ON 2008/11/24.**



Certified Copy
CORPORATE ACCESS NUMBER: 2012988842

**Government
of Alberta ■**

BUSINESS CORPORATIONS ACT

**CERTIFICATE
OF
INCORPORATION**

**1298884 ALBERTA LTD.
WAS INCORPORATED IN ALBERTA ON 2007/02/05.**



Government Corporation/Non-Profit Search of Alberta ■ Corporate Registration System

Date of Search: 2013/01/04
 Time of Search: 03:00 PM
 Search provided by: MBS REGISTRY SERVICES LTD.

Service Request Number: 19049567
 Customer Reference Number:

Corporate Access Number: 2012988842
 Legal Entity Name: VALARD CONSTRUCTION 2008 LTD.

Name History:

Previous Legal Entity Name	Date of Name Change (YYYY/MM/DD)
1298884 ALBERTA LTD.	2008/11/24

Legal Entity Status: Active
 Alberta Corporation Type: Named Alberta Corporation
 Registration Date: 2007/02/05 YYYY/MM/DD
 Date of Last Status Change: 2010/04/19 YYYY/MM/DD

Registered Office:

Street: 3400, 350 - 7TH AVENUE SW
 City: CALGARY
 Province: ALBERTA
 Postal Code: T2P 3N9

Records Address:

Street: 3400, 350 - 7TH AVENUE SW
 City: CALGARY
 Province: ALBERTA
 Postal Code: T2P 3N9

Directors:

Last Name: CAMPBELL
First Name: CAROLYN
Middle Name: M.
Street/Box Number: 2800 POST OAK BLVD., SUITE 2600
City: HOUSTON
Province: TEXAS
Postal Code: 77056-6175

Last Name: HADDOX
First Name: JAMES
Middle Name: H.
Street/Box Number: 2800 POST OAK BLVD., SUITE 2600
City: HOUSTON
Province: TEXAS
Postal Code: 77056

Last Name: JENSEN
First Name: DERRICK
Middle Name: A.
Street/Box Number: 2800 POST OAK BLVD., SUITE 2600
City: HOUSTON
Province: TEXAS
Postal Code: 77056

Last Name: OTT
First Name: GARY
Street/Box Number: 2900 - 550 BURRARD STREET
City: VANCOUVER
Province: BRITISH COLUMBIA
Postal Code: V6C 0A3

Voting Shareholders:

Legal Entity Name: VALARD CONSTRUCTION LTD.
Corporate Access Number: 2115959583
Street: 2900 - 550 BURRARD STREET
City: VANCOUVER
Province: BRITISH COLUMBIA
Postal Code: V6C 0A3
Percent Of Voting Shares: 100

Details From Current Articles:

The information in this legal entity table supersedes equivalent electronic attachments

Share Structure: SEE ATTACHED SCHEDULE A
 Share Transfers Restrictions: SEE ATTACHED SCHEDULE B
 Min Number Of Directors: 1
 Max Number Of Directors: 7
 Business Restricted To: NONE
 Business Restricted From: NONE
 Other Provisions: NONE

Associated Registrations under the Partnership Act:

Trade Partner Name	Registration Number
VALARD CONSTRUCTION LP	LP14423149

Other Information:

Last Annual Return Filed:

File Year	Date Filed (YYYY/MM/DD)
2012	2012/02/15

Filing History:

List Date (YYYY/MM/DD)	Type of Filing
2007/02/05	Incorporate Alberta Corporation
2008/11/24	Name Change Alberta Corporation
2010/04/02	Status Changed to Start for Failure to File Annual Returns
2011/03/25	Change Address
2012/02/15	Enter Annual Returns for Alberta and Extra-Provincial Corp.
2012/08/17	Change Director / Shareholder

Attachments:

Attachment Type	Microfilm Bar Code	Date Recorded (YYYY/MM/DD)

Share Structure	ELECTRONIC	2007/02/05
Restrictions on Share Transfers	ELECTRONIC	2007/02/05
Letter - For Legal Name Change	10000099000634578	2010/04/20

This is to certify that, as of this date, the above information is an accurate reproduction of data contained within the official records of the Corporate Registry.



Certified Copy

CORPORATE ACCESS NUMBER: 2115959583

**Government
of Alberta ■**

BUSINESS CORPORATIONS ACT

**CERTIFICATE
OF
REGISTRATION**

VALARD CONSTRUCTION LTD.
WAS REGISTERED AS AN EXTRA-PROVINCIAL CORPORATION IN ALBERTA ON
2011/03/25.



Government of Alberta ■ Corporation/Non-Profit Search Corporate Registration System

Date of Search: 2013/01/04
 Time of Search: 02:52 PM
 Search provided by: MBS REGISTRY SERVICES LTD.

Service Request Number: 19049449
 Customer Reference Number:

Corporate Access Number: 2115959583

Legal Entity Name: VALARD CONSTRUCTION LTD.

Legal Entity Status: Active
 Extra-Provincial Type: Other Prov/Territory Corps
 Registration Date: 2011/03/25 YYYY/MM/DD
 Date Of Formation in Home Jurisdiction: 2011/01/01 YYYY/MM/DD
 Home Jurisdiction: BRITISH COLUMBIA
 Home Jurisdiction CAN: BC0899322

Primary Attorney:

Last Name	First Name	Middle Name
POWERS	R.	GREG

Attorney Address:

Firm Name	Street	City	Province	Postal Code
	3400, 350 - 7TH AVENUE SW	CALGARY	ALBERTA	T2P 3N9

Head Office Address:

Street: 2900 - 550 BARRARD STREET
 City: VANCOUVER
 Province: BRITISH COLUMBIA
 Postal Code: V6C 0A3

Holding Shares In:

Legal Entity Name
618232 ALBERTA LTD.
SHARP'S CONSTRUCTION SERVICES 2006 LTD.
VALARD CONSTRUCTION 2008 LTD.

Other Information:**Filing History:**

List Date (YYYY/MM/DD)	Type of Filing
2011/03/25	Register Extra-Provincial Profit / Non-Profit Corporation

This is to certify that, as of this date, the above information is an accurate reproduction of data contained within the official records of the Corporate Registry.



DUPLICATE

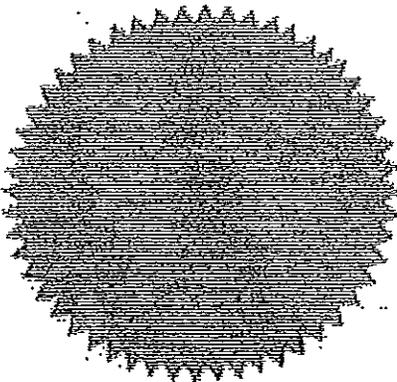
Number: BC0899322



**CERTIFICATE
OF
CHANGE OF NAME**

BUSINESS CORPORATIONS ACT

I Hereby Certify that QUANTA SERVICES EC CANADA LTD. changed its name to VALARD CONSTRUCTION LTD. on January 1, 2011 at 06:05 AM Pacific Time.



Issued under my hand at Victoria, British Columbia

On January 1, 2011

A handwritten signature in cursive script, appearing to read "Ron Townshend".

RON TOWNSHEND
Registrar of Companies
Province of British Columbia
Canada

DUPLICATE

Number: BC0899322



**CERTIFICATE
OF
AMALGAMATION**

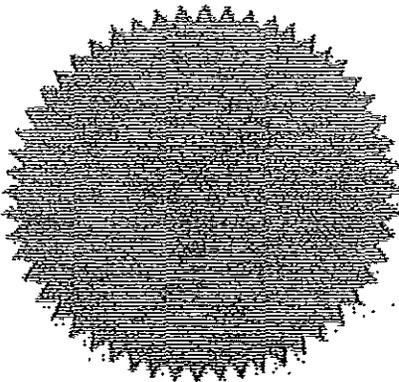
BUSINESS CORPORATIONS ACT

I Hereby Certify that QUANTA SERVICES EC CANADA LTD., incorporation number BC0890350, and VALARD CONSTRUCTION LTD., incorporation number C0898525 were amalgamated as one company under the name QUANTA SERVICES EC CANADA LTD. on January 1, 2011 at 12:01 AM Pacific Time.

Issued under my hand at Victoria, British Columbia

On January 1, 2011

RON TOWNSHEND
Registrar of Companies
Province of British Columbia
Canada



Last Name, First Name, Middle Name:

Haddox, James H.

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Jensen, Derrick A.

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Pool, Tana L.

Mailing Address:

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 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

OFFICER INFORMATION AS AT January 01, 2012

Last Name, First Name, Middle Name:

Budzinski, Victor

Office(s) Held: (CEO)

Mailing Address:

1360 POST OAK BOULEVARD
 SUITE 2100
 HOUSTON TX 77056-3023
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Budzinski, Adam

Office(s) Held: (President)

Mailing Address:

1360 POST OAK BOULEVARD
 SUITE 2100
 HOUSTON TX 77056-3023
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Burdine, William C.

Office(s) Held: (Vice President)

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Campbell, Carolyn M.

Office(s) Held: (Other Office(s))

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Grindstaff, Nicholas

Office(s) Held: (Treasurer)

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Haddox, James H.

Office(s) Held: (Other Office(s))

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

Jensen, Derrick A.

Office(s) Held: (Vice President)

Mailing Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Delivery Address:

2800 POST OAK BOULEVARD
 SUITE 2600
 HOUSTON TX 77056-6175
 UNITED STATES

Last Name, First Name, Middle Name:

O'Brien, Peter B.

Office(s) Held: (Other Office(s))**Mailing Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES**Delivery Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES

Last Name, First Name, Middle Name:

O'Neill III, James F.

Office(s) Held: (Vice President)**Mailing Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES**Delivery Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES

Last Name, First Name, Middle Name:

Pool, Tana L.

Office(s) Held: (Other Office(s))**Mailing Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES**Delivery Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES

Last Name, First Name, Middle Name:

Seeley, Phillip

Office(s) Held: (Assistant Secretary)**Mailing Address:**1360 POST OAK BOULEVARD
SUITE 2100
HOUSTON TX 77056-3023
UNITED STATES**Delivery Address:**2800 POST OAK BOULEVARD
SUITE 2600
HOUSTON TX 77056-6175
UNITED STATES

Certified Copy
CORPORATE ACCESS NUMBER: 208211326

**Government
of Alberta ■**

BUSINESS CORPORATIONS ACT

**CERTIFICATE
OF
AMALGAMATION**

**VALARD CONSTRUCTION LTD.
IS THE RESULT OF AN AMALGAMATION FILED ON 1999/04/01.**



Government Corporation/Non-Profit Search of Alberta ■ Corporate Registration System

Date of Search: 2013/01/04
Time of Search: 02:57 PM
Search provided by: MBS REGISTRY SERVICES LTD.

Service Request Number: 19049525
Customer Reference Number:

Corporate Access Number: 208211326

Legal Entity Name: VALARD CONSTRUCTION LTD.

Legal Entity Status: Con Out
Alberta Corporation Type: Named Alberta Corporation
Method of Registration: Amalgamation
Registration Date: 1999/04/01 YYYY/MM/DD

Registered Office:

Street: #200, 9803 - 101 AVENUE
City: GRANDE PRAIRIE
Province: ALBERTA
Postal Code: T8V 0X6

Records Address:

Street: #200, 9803 - 101 AVENUE
City: GRANDE PRAIRIE
Province: ALBERTA
Postal Code: T8V 0X6

Mailing Address:

Post Office Box: #200, 9803 - 101 AVENUE
City: GRANDE PRAIRIE
Province: ALBERTA
Postal Code: T8V 0X6

Directors:

Last Name: HADDOX
First Name: JAMES
Middle Name: H.
Street/Box Number: 1360 POST OAK BLVD., SUITE 2100
City: HOUSTON
Province: TEXAS
Postal Code: 77056

Last Name: JENSEN
First Name: DERRICK
Middle Name: A.
Street/Box Number: 1360 POST OAK BLVD., SUITE 2100
City: HOUSTON
Province: TEXAS
Postal Code: 77056

Last Name: OTT
First Name: GARY
Street/Box Number: 2900 - 550 BURRARD STREET
City: VANCOUVER
Province: BRITISH COLUMBIA
Postal Code: V6C 0A3

Last Name: POOL
First Name: TANA
Middle Name: L.
Street/Box Number: 1360 POST OAK BLVD., SUITE 2100
City: HOUSTON
Province: TEXAS
Postal Code: 77056

Voting Shareholders:

Last Name: QUANTA SERVICES EC CANADA LTD.
Street: 1360 POST OAK BLVD., SUITE 2100
City: HOUSTON
Province: TEXAS
Postal Code: 77056
Percent Of Voting Shares: 100

Details From Current Articles:

The information in this legal entity table supersedes equivalent electronic attachments

Share Structure: SEE ATTACHED SCHEDULE "A"
Share Transfers Restrictions: SEE ATTACHED SCHEDULE "B"
Min Number Of Directors: 1
Max Number Of Directors: 7
Business Restricted To: NONE
Business Restricted From: NONE
Other Provisions: SEE ATTACHED SCHEDULE "C"

Holding Shares In:

Legal Entity Name
ALL POWER PRODUCTS INC.
1298888 ALBERTA LTD.
VALARD WELLPOINT SYSTEMS LTD.

Other Information:

Amalgamation Predecessors:

Corporate Access Number	Legal Entity Name
206076374	607637 ALBERTA LTD.
201244241	VALARD CONSTRUCTION LTD.

Continuance Out

Jurisdiction Name: BRITISH COLUMBIA
Corporate Access Number in New Jurisdiction: C0898525
Name in New Jurisdiction: VALARD CONSTRUCTION LTD.
Continuance Out Date: 2010/12/21 YYYY/MM/DD

Last Annual Return Filed:

File Year	Date Filed (YYYY/MM/DD)
2010	2010/07/29

Filing History:

List Date (YYYY/MM/DD)	Type of Filing
1999/04/01	Amalgamate Alberta Corporation
2010/07/29	Enter Annual Returns for Alberta and Extra-Provincial Corp.
2010/10/20	Name/Structure Change Alberta Corporation
2010/11/04	Change Director / Shareholder
2010/12/21	Request Continuance to Another Jurisdiction
2010/12/21	Complete Continuance to Another Jurisdiction

Attachments:

Attachment Type	Microfilm Bar Code	Date Recorded (YYYY/MM/DD)
Amalgamation Agreement	10000796000301092	1999/04/01
Statutory Declaration	10000596000301093	1999/04/01
Share Structure	ELECTRONIC	1999/04/01
Restrictions on Share Transfers	ELECTRONIC	1999/04/01
Letter - Spelling Error	10000301000725293	2007/06/07
Share Structure	ELECTRONIC	2010/10/20
Restrictions on Share Transfers	ELECTRONIC	2010/10/20
Other Rules or Provisions	ELECTRONIC	2010/10/20
Certificate of Continuance	10000707104635080	2010/12/21

This is to certify that, as of this date, the above information is an accurate reproduction of data contained within the official records of the Corporate Registry.



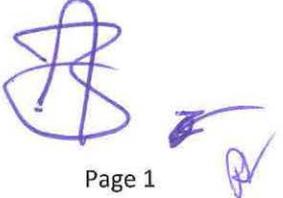
EXHIBIT 11

COMPANY SUPPLIED DOCUMENTS

Exhibit 11
 Company Supplied Documents
 Agreement Number: CT0327-001

This Exhibit contains a listing of documents that forms an integral part of this Agreement. Contractor shall be knowledgeable with all documentation and data listed herein.

Document No.	Title	Rev
LCP-PT-MD-0000-EV-FR-0002-01	Contract Specific Environmental Protection Plan Template (C-SEPP)	S1
LCP-PT-MD-0000-HS-PL-0001-01	LCP Health and Safety Management Plan	B5
LCP-SN-CD-0000-RI-PR-0001-01	LCP Risk Management Requirements for Contractors and Suppliers	B1
LCP-PT-MD-0000-EV-PL-0010-01	LCP HVdc Overland Transmission and HVdc Specialties Environmental Protection Plan	B3
LCP-PT-MD-0000-IM-PR-0015-01	Supplier/Contractor Document Requirements	C1
LCP-PT-MD-0000-IM-FR-0001-01	Document Front Sheet for Suppliers/Contractors	B3
LCP-PT-MD-0000-IM-FR-0002-01	Drawing Templates for Suppliers/Contractors	B2
LCP-SN-CD-0000-EV-PL-0005-01	Waste Management Plan - Component 1 and 4B	B3
LCP-PT-MD-0000-HS-PL-0005-01	LCP Security Management Plan	B1
LCP-PT-MD-0000-LR-SD-0001-01	Standard for Drug and Alcohol	B1
LCP-PT-MD-0000-IM-SD-0001-01	Coding Standard	B3
LCP-PT-MD-0000-HS-SD-0003-01	Worker Site Access Standard	B3
LCP-PT-MD-0000-LR-CT-0004-01	Collective Agreement between the Lower Churchill Transmission Construction Employers' Association Inc. and the International Brotherhood of Electrical Engineers, IBEW Local 1620	B1
LCP-PT-MD-0000-HR-SD-0003-01	Code of Business Conduct and Ethics	B1
LCP-PT-MD-0000-HR-MN-0001	LCP Site Handbook	B1
LCP-PT-MD-0000-HR-SD-0002-01	LCP Respectful Workplace Standard	B1
LCP-PT-MD-0000-HS-FR-0008-01	Site Access Authorization Form	B1



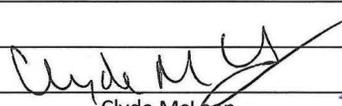
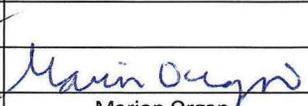
Nalcor Energy – Lower Churchill Project



CONTRACT-SPECIFIC ENVIRONMENTAL PROTECTION PLAN TEMPLATE

Nalcor Doc. No. LCP-PT-MD-0000-EV-FR-0002-01

<p>Comments:</p> <p>This document supercedes LCP-SN-CD-0000-EV-PL-0006-01 Revision B2.</p>	<p>Total # of Pages: (Including Cover): 9</p>
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B1	26-Feb-2014	Issued For Use	 Clyde McLean	 Marion Organ
Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval

CONFIDENTIALITY NOTE:
 This document contains intellectual property of the Nalcor Energy – Lower Churchill Project and shall not be copied, used or distributed in whole or in part without the prior written consent from the Nalcor Energy – Lower Churchill Project.

Revision					Remarks
N°	By	Verrif.	Appr.	Date DD-MMM-YYYY	

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2.2 Brief Description/Scope of Work of Contract.....	4
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2.4 Responsibilities.....	4
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2.7 Installations Required.....	5
2.8 Applicable Policies and Training.....	5
2.9 Site Specific Environmental Concerns:	5
2.10 Plans	6
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2.12 Monitoring/Auditing	7
2.13 Environmental Contingency Measures	8
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1 SCOPE

This Contract Specific Environmental Protection Plan (C-SEPP) template shall be used to complete a C-SEPP by the Contractor and shall describe the Contractor's procedures and methods to be implemented during site activities to minimize pollution, protect and conserve natural resources, restore damage, and control noise and dust within reasonable limits. The C-SEPP must be accepted by the Lower Churchill Project (LCP) Environment and Regulatory Compliance (ERC) Manager, as part of the Work Plan, prior to the start of any on-site activities or mobilization to the site.

A project wide Environmental Protection Plan (EPP) has been prepared and is part of the Contract Documents. The EPP will serve as a resource to Contractors as they prepare their own C-SEPP. Select contract packages will include this C-SEPP template/outline and specific instructions on how the C-SEPP is to be properly completed. Contractors are responsible for developing, implementing, and maintaining their own C-SEPP.

The C-SEPP shall include the following information:

- Description of construction sequence and work methods.
- Roles and responsibilities.
- Mitigation procedures for all areas of environmental concerns.
- Procedures for environmental monitoring.
- Maintenance requirements for environmental control structures.
- Procedures for post-activity clean-up and demolition.
- Contingency planning for environmental concerns.

The C-SEPP shall also include any permits, registrations or notifications required by Federal, Provincial or aboriginal stakeholders for the proposed activities. The Contractor may be required to prepare additional environmental documentation prior to any fieldwork for non-time critical removals. The Contracting Officer will determine the type of environmental documentation required at each site.

2 C-SEPP OUTLINE/PROPOSED TABLE OF CONTENTS

2.1 CONTRACTOR’S NAME

Provide name of company

2.2 BRIEF DESCRIPTION/SCOPE OF WORK OF CONTRACT

Include scope of work, methods of construction, etc.

2.3 SCHEDULE OF WORK

Include a detailed schedule of work including sequence of activities (GANTT type chart).

2.4 RESPONSIBILITIES

List all responsible personnel (i.e. Project Manager, Environmental Coordinator, Health and Safety Manager, Field Supervisor, Regulators, etc.) including work specific roles and responsibilities including accountabilities and qualifications and interface roles and responsibilities between Contractor and Subcontractors. A table similar to that shown below would be acceptable.

Name	Title/Responsibility	Contact Information

2.5 EMERGENCY CONTACTS

List emergency contacts required for the protection of environmental and human health. A table similar to that shown below would be acceptable.

Name	Governing Agency	Title/Responsibility	Contact Information

2.6 DESCRIPTION OF RESOURCES

Identify resources required (personnel, facilities, equipment, consumables or other requirements) required to complete contract.

2.7 INSTALLATIONS REQUIRED

List any temporary or permanent installations such as bridges, culverts, cofferdams, settling ponds, etc.

2.8 APPLICABLE POLICIES AND TRAINING

List any environmental policies, compliance procedures and rules for contractors and subcontractors to follow. Also list any environmental training, including site specific training available to employees, or managers, as well as subcontractors. Attach any applicable documentation regarding policies or training.

2.9 SITE SPECIFIC ENVIRONMENTAL CONCERNS:

List any potential environmental concerns and sensitive issues associated with specific construction activities. The items listed below must be identified and located, on a site plan or sketch that shall be submitted with the C-SEPP. In the case of linear developments, this shall be located on a plan and profile by kilometer markings (or structures in the case of transmission lines). The plan shall identify the following:

- Endangered/threatened species or identified critical habitat within the project site.
- Wetlands within the project site.
- Cultural and archaeological resources within the project site.
- Water resources (all water bodies or watercourses such as ponds, lakes, streams) within the project site.
- Coastal zones within the project site.
- Trees and shrubs that will be removed within the project site.
- Existing waste disposal sites within the project site.
- Timing restrictions regarding construction of various construction sites.

2.10 PLANS

The following full plans are to be prepared:

- Sedimentation and Erosion Control Plan
- Rehabilitation Plan
- Compliance Monitoring Plan
- Dewatering Plan
- Blasting Plan

2.11 GENERAL ENVIRONMENTAL PROTECTION PROCEDURES

A complete list of activities requiring mitigation measures, as outlined in the EPP is provided below (1–35). List or reference specific procedures and methods for environmental protection and mitigation as they apply to the specific contract. Note: all activities will not apply to all contracts.

- Scheduling and timing of Construction Activities
- Construction Entrance
- Linear Developments
- Winter Construction
- Equipment Operations and Movement
- Vessel Operations (Barge/Boats)
- Helicopter Traffic
- Clearing of Vegetation
- Pumps and Generators
- Surveying
- Drilling
- Surface Water and Groundwater Use
- Storage, Handling and Disposal of Fuel and other Hazardous Materials
- Sewage Disposal
- Solid Waste Disposal
- Working within 15 meters of a Body of Water
- Watercourse Crossings – Fording, Culverts and Bridges
- Buffer Zones

- Alterations to a Body of Water/Instream Works
- Working In/Around Marine Environmental
- Grubbing and Disposal of Related Debris
- Quarrying and Aggregate Removal from Borrow Areas
- Trenching
- Excavation, Backfilling and Grading
- Erosion Prevention and Sediment Control
- Site Water Management
- Dewater Work Areas
- Blasting and Waste Rock Disposal
- Concrete Production
- Dust Control
- Noise Control
- Resource Specific Mitigations
- Commissioning
- Reservoir Impoundment
- Site Rehabilitation

The activities listed above coincide with General Environmental Protection Procedures of the EPP, and if applicable to the specific contract, they should be reviewed and included in the C-SEPP. The Contractor should confirm that they agree with the specific measure noted in EPP or propose an alternative for consideration.

2.12 MONITORING/AUDITING

Describe any monitoring activities required. Monitoring may include surveillance monitoring, compliance monitoring, wildlife monitoring, etc. The following details should be included:

- Analytical parameters and laboratory to be used for samples.
- Sampling locations.
- Frequency of sampling.
- Reporting (frequency of reports and what to include).
- Corrective Actions (how to identify, document and execute).

2.13 ENVIRONMENTAL CONTINGENCY MEASURES

List specific environmental contingency measures to be implemented should the environmental protection procedures be unsuccessful in protecting the environment. Contingency measures should be included for the following:

- Fuel and hazardous materials spills (including details on spill response equipment).
- Forest fires (including details on spill response equipment).
- Wildlife encounters and nuisance presence.
- Discovery of historic resources.
- Alternative protection procedures for erosion and sediment control and site water management (measures to be implemented in the event initial mitigations are not successful).

2.14 PERMITS, REGISTRATIONS, NOTIFICATIONS, APPROVALS AND AUTHORIZATIONS

List all permits, registrations, notifications, approvals and authorizations that are required. A table similar to that shown below would be acceptable.

Required Registrations / Approvals / Permits / Authorizations / Notifications	Issuing Department	Individual Obtaining Permit

2.15 DOCUMENT CONTROL

Provide details on document control methods.

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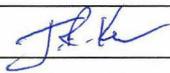
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Inter-Departmental / Discipline Approval (where required)

Department	Department Manager Approval	Date
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1 EXECUTIVE SUMMARY

Nalcor Energy is committed to developing the Lower Churchill Project (LCP or the Project) with complete dedication to minimizing the risks of injury or ill health to personnel and damage to property or the environment as low as reasonably practicable. Nalcor Energy believes that Health and Safety Performance is fundamental to the achievement of project success, as well as its overall business and project objectives. It is therefore the Project Delivery Team's expectation and requirement that all personnel associated with the Project will play an integral role in the implementation of its Occupational Health and Strategy, performing at the highest possible levels and fostering continuous improvement in the areas of Health and Safety.

This Health and Safety Management Plan provides guidance on how the Lower Churchill Project scope of work can be safely executed. This Plan is focused for all levels of LCP management and specifically identifies the strategies and practices that Project personnel will employ to ensure that Health and Safety Performance Excellence is achieved. Individual responsibility and total commitment to a strong safety culture are well defined and established elements for achieving Incident and Injury free performances on the Project.

Nalcor believes that achieving its safety commitment of "Zero Harm - Nobody Gets Hurt" requires a proactive Health and Safety Management System, which is in place at the work-face level for all Contractors and Suppliers. The Health and Safety Management vision of the Lower Churchill Project is the ***"Relentless pursuit of an injury and illness free workplace where nobody gets hurt."*** Project excellence is not achievable without performance excellence in safety.

Eliminating all work related injuries, while effectively managing and executing the Project, is what ultimately defines us, as well as the overall success of the Project.

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Key Focus Areas:

Nalcor recognizes that the following focus areas of the Health and Safety Program are the key to the success of its Health and Safety effort. All Health and Safety Plans associated with the Project should include the following key focus areas and the intent of the initiatives:

- **Management Commitment:** Management must convince the workplace that safety is a core value by actively and visibly participating in the Health and Safety Effort and by providing adequate resources.
- **Workplace Participation:** All personnel must actively participate in the Health and Safety Effort to promote understanding, ownership and commitment.
- **Effective Communication:** Open and honest communication across all levels of personnel, supervision and management must be achieved. The safety process must reinforce and foster mutual feedback and respect.
- **Positive Reinforcement:** Positive reinforcement and constructive feedback must be promoted to ensure that desired worksite behaviours occur frequently.
- **Performance Measurement:** Leading indicators must be captured, analyzed and communicated to indicate how the workplace is proactively committed to the achievement of an injury/incident free working environment.
- **Caring about the Worker:** Focus must be placed on the worker as an individual. A work environment, which is safe and maintains a high level of employee morale and positive attitude must be created and maintained.
- **Empowerment:** Personnel must be empowered to immediately stop any unsafe behaviours or conditions that they find during the course of their work. Personnel must correct these unsafe behaviours or conditions as soon as practicable.

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- **Accountability**: All personnel must understand that each individual is responsible for his or her own safety. First line supervision must understand that they are accountable for the safety of their direct reports and that they must undertake the coaching role.
- **Competency**: All personnel must be fully competent to perform their daily work activities in a safe and productive manner.
- **Pro-activity**: A pro-active approach to the Health and Safety Effort must be emphasized and practiced. This will allow unsafe workplace behaviours and conditions to be addressed before they turn into incidents.
- **Risk Management**: A process to identify and mitigate hazards must be implemented. When hazards are identified, steps must be taken to eliminate or reduce exposure by designing in safety, changing work procedures, requiring additional PPE or raising safety awareness.
- **Systemic Approach**: Ensure that all systems are designed to include a clear description of scope and objectives, processes and procedures used in the work activity, identify workers and management responsible for the execution of the processes and procedures, a measurement and verification process and a feedback system that analyses measurement and verification information for continuous improvement.
- **Partnership**: Learn from others to evaluate and implement the best possible Health and Safety Practices used for implementation.

Key Strategies for Achieving the Project's Safety Management Vision

1. Ensuring clear accountability for safety performance with line management. This may be accomplished through:
 - Clearly defined roles and responsibilities within the job description of each member of line management.
 - The establishment of Safety performance targets for each member of line management.

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- Periodic performance reviews (at least annually) shall be carried out to assess overall safety performance and accountability of line management.
- Line management health and safety performance initiatives, creativity and timely achievement of established targets will be recognized/rewarded, as appropriate. Poor overall performance will be noted and discussed with individual with an action plan to enhance overall performance.

2. *Implementing a formal leadership training program for all levels of management and supervision.*

This strategy will be accomplished by ensuring that:

- All project management and supervisory personnel attend and actively participate in the Nalcor safety leadership training program as soon as practicable.
- Project management and supervisors are encouraged to attend follow-up training sessions as and when provided.
- All Leadership Training Program attendees are encouraged to implement lessons learned from the training into the work environment, as well as engaging others in working discussions with Health and Safety as the issue.
- Leadership is encouraged to interact with other leaders/managers to discuss lessons learned and implementation strategies.

3. *Demonstrating tangible commitment and involvement by Senior Management towards the “relentless pursuit” of safety performance excellence is essential. This will be realized by:*

- Providing the appropriate level of resources, equipment and personnel to execute each work task safely.
- Actively participate in FELT Leadership, which includes strong, visible management commitment, recognizing management’s role of being a teacher, trainer and coach,

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always maintaining effective communications, and undertaking timely and meaningful auditing and re-evaluation processes.

- Establishing and maintaining Health and Safety as our core value through continually safeguarding the well-being of project personnel, the general public, and the environment through safe and environmentally responsible work practices associated with the design, construction, transportation and commissioning. Health and Safety must not be prioritized along with other business priorities.
- Continually striving to maintain an accident and incident free working environment at all project and contractor work sites, and ensuring total compliance with all Health and Safety applicable regulations.
- Always challenge and correct wherever possible any Unsafe Acts, Conditions or Procedures in a timely manner.
- Be actively involved in the SWOP process.

4. *Selecting competent Contractors for executing the work, while coaching and guiding them in the delivery of the Project in order to achieve our Vision. This is best accomplished by the following:*

- The Project Delivery Team, through line management will ensure that Contractor Health and Safety performance is monitored, and unsatisfactory Health and Safety performance and mitigating action are addressed in contract terms and conditions, as well as duly executed as and when appropriate.
- The Project Delivery Team will ensure an effective and workable procedure is in place to evaluate, and third party services shall ensure that prior to commitment, the risks are appropriately reviewed and mitigating measures are identified and addressed.
- The Project Delivery Team will define third party performance expectations, as well as communicate and monitor Contractor performance requirements to ensure the following:

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- Establish and execute contracts and agreements that clearly incorporate Health and Safety requirements.
- Become actively involved in monitoring, mentoring and coaching Contractors, and ensuring Contractors' roles and responsibilities are clearly defined.
- Establish Health and Safety performance targets, metrics and measures. Ensure Health and Safety performance with Contractors are regularly reviewed and communicated, as well as Integrate appropriate actions/performance enhancement plans to improve overall Contractor performance.
- The Project Delivery Team and Line Management will periodically coordinate and/or conduct internal and external Health and Safety audits on Contractors and third party performance.

5. *Involve all workers in safety management. This will be initiated by the following:*

- Ensuring that all Employees and Contractor understand that they have a stake in the overall success of the project --- Health and Safety is everyone's responsibility.
- Actively encourage Employee involvement by holding them accountable and ensuring everyone does their part through periodic monitoring, inspections, assessment and audits.
- Encouraging participation into the Joint Occupational Health and Safety Committee (JOHS).
- Incorporating daily safety inspections as part of the Employee/Contractor job task.
- Ensuring Employees and Contractors are informed about safety inspections, injury and illness statistics, and other safety-related issues.
- Management and Line Supervisors should assign meaningful tasks to Employees and Contractors that support safety.

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- Management and Line Supervisors should place value in Employee/Contractors input and feedback with regard to improving the Health and Safety Program, as they often know more about safety problems and solutions than managers do.
- Holding Employees accountable by:
 - Including Health and Safety responsibilities in job descriptions, including compliance with Safe Work practices a part of performance evaluation.
 - Setting and measuring achievements toward meeting safety targets.
 - Ensuring Employees/Contractors with reckless or unsafe behaviours are appropriately disciplined and recognizing Employees and Contractors who contribute to keeping the workplace safe.

6. *Utilizing Safe Work Practices/behaviours to avoid accidents. This is best accomplished utilizing the following practices:*

- Site Health and Safety Orientations must be carried out prior to work commencement at the construction Site. The Health and Safety orientation is the most important communication tool that management has to clearly convey the safety expectations and responsibilities of the job task and working environment. To ensure everyone knows how hazards will be effectively identified, communicated and controlled.
- Ensure Safe Work Practices are clearly defined, documented and communicated to Employees and Contractors.
- Utilize SWOP (Safe Workplace Observation Program) as a means of not only recognizing unsafe work practices and behaviours, but recognizing the application of Safe Work Practices and behaviours. Please refer to Appendix "C" for additional information about the SWOP.

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- Incorporate and communicate Lessons Learned from incidents and near misses. Encourage reporting and investigating Near-Miss incidents and glean lessons learned and communicating them to other potentially affected personnel.
- Target safe work practices and procedures with the primary goal of eliminating incidents and injuries in the workplace.
- Employ frequent opportunities for reminders of established Safe Work Practices and behaviours to Employees and Contractors.
- Solicit feedback and input from Employees and Contractors regarding enhancement of Safe Work Practices/behaviours for tasks they are frequently involved with executing. Ensure that this feedback is heard, evaluated, addressed and timely feedback is provided in all cases.
- Review safe work practices periodically (at least annually) to ensure they are effective, meet regulatory requirements.

7. *Risk management and control practices can best be incorporated in daily work activities utilizing the following practices:*

- A TBRA (task-based risk assessment) is a risk management tool that should be used to evaluate risk prior to a new or complex work activity. The TBRA identifies personnel interaction with the work activity, the tasks to be performed, and the hazards associated with those tasks. The TBRA identifies known and potential hazards and emphasizes risk reduction.
- Step Back 5X5 is a process that encourages workers to identify hazards associated with all tasks before starting a job. It helps to promote a hazard management culture through continual self-evaluation. It is based on the principle of “engaging the mind before engaging hands” by: Stepping back 5 paces from the job; Investing 5 minutes

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(nominal) to step through the job mentally and identify plans to control hazards before starting the job. It is an informal personal planning process and essentially a mental JHA applied before starting all jobs.

- Systematically listen to those personnel that understand the risks of a particular task not only when a crisis occurs, but as the right way to manage activities on the Project.
- Develop safe working rules, practices and procedures based on risk experience, safety knowledge and competent work direction.
- Assess all anticipated known risks prior to starting a new activity or one that is conducted very rarely.
- Ensure Employees and Contractors are effectively trained in risk management practices and procedures, as well as actual application of risk management in actual practice. This includes processes, methods and tools available.
- Stimulate and maintain the desire and commitment of line management, contractors and employees to perform risk management practices in daily work activities.

8. *Establishing strong functional expertise in Health and Safety Management to be fully engaged in both strategic direction-setting and day-to-day project delivery activities. This can be accomplished by the following:*

- Selecting trained, capable, educated and experienced Health and Safety Personnel to provide appropriate guidance and direction for the overall Health and Safety Management effort, both strategically and on a daily basis.
- Providing strong functional and technical expertise to support the execution and implementation of Health and Safety Practices, policies, and processes relative to Contractor and Employee safety.

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- Focusing function and technical support on effective contractor Health and Safety Management throughout the course of the Project.
- Preparing and reviewing Project Safety and security management plans.
- Supporting the Project level execution of Contractor qualification and performance assessment processes.
- Supporting and contributing to the health and safety performance reporting processes.
- Supporting and facilitating construction, Contractor and Employee Health and Safety training.
- Monitoring regulatory developments, evolving issues and industry best practices, and proactively facilitates the continuous improvement of the Major Projects Health and Safety Management System.
- Providing coaching and mentoring to applicable Project Management to enhance Major Project's Health and Safety objectives.

9. *Focus on measuring leading indicators (e.g., field observations, interventions and Site inspections.*

This can be achieved through due consideration of the following:

- Project Management actively supports the concept of utilizing leading indicators as a measure for proactively controlling loss/damage.
- A "balanced scorecard" providing information on a range of Health and Safety activities will be utilized for the Project rather than a single performance measure.
- Measurement of leading indicators provides information on how the Health and Safety Management System operates in practice, and identifies areas where remedial action is required and provides a basis for continuous improvement and provides a mechanism for feedback and consequential motivation.

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- Employees and Contractors must clearly understand exactly what proactive/leading indicators are being measured and what significance the use of the measurement will have on producing the desired performance result.
- Leading indicators are to be utilized as a means of publicizing data with the Project workforce, which focuses attention on a particular program area and is, by doing so, will lead to safety improvements in a short period.
- Key Project activities in the Health and Safety Management System that need to be encouraged, reinforced, and to visibly drive the culture. Such activities will be selected and measured, wherever possible.

10. *Development of an Incident Management and Emergency Response Management Plan/Program that reflects the uniqueness/specifics of the work and associated work locations. This can be achieved with consideration of the following:*

- Identifying all reasonable/probable risk events/scenarios specific to the Lower Churchill Project that may require incident management and/or emergency response. Examples for the LCP will include, but not limited to, fire, explosion, flooding, civil unrest, equipment failure, vehicle/transportation incidents (including helicopter incidents), extreme weather, and missing or lost personnel.
- Ensuring adequate resources are available at the Site location or, where possible, mutual aid agreements are established, which would allow appropriate resources to be moved to the Site in the event they are required.
- Identifying Key Incident/Emergency Response Personnel, Communications Links, Roles and Responsibilities, Emergency Support Services, Logistics coordination, Alert/Emergency Criteria. Contact numbers must be continuously updated/maintained.
- Ensuring key communications links are established, communicated, maintained and tested via drills on a frequent basis.

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- Developing procedures which provide clear instructions to Emergency Response Team with a focus of minimizing and/or containing damage and risk to others.
- Ensuring external agencies such as the RCMP, RNC, and the OH&S Division are contacted as and when appropriate, and stipulated in the incident/emergency management procedures.
- Business Recovery measures are identified and implemented after the incident/emergency is stabilized and under control.
- Fully investigate all emergency response incidents, and other incidents as appropriate, to identify lessons learned and communicate these to affected personnel.

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2 PURPOSE

The purpose of this document is to outline the overall Health and Safety Management Plan for the Management of Occupational Health and Safety on the Project. This LCP Health and Safety Management Plan defines the LCP expectations for Health and Safety planning and performance, as well as describes how the Project will establish the Health and Safety Management System, including implementing the associated initiatives. It serves to provide the guidance, framework, and details of how the Safety Credo will be embedded with the LCP.

This Health and Safety Management Plan has been developed in full alignment with the Health and Safety Management System, as well as all applicable Nalcor Energy Resources Health and Safety Policies. The Health and Safety Management System and applicable processes and procedures will be utilized throughout the Project. In the event that any Contract/Subcontract Company or functional group also has control mechanisms, in which safety work practices are identified in the plan, the more rigorous of the two will be implemented.

This Health and Safety Management Plan will help ensure that work conducted at all stages of the LCP complies with the intentions of the overall Health and Safety Management System, Health and Safety Policy and the Safety Credo.

The Project Delivery Team must fully understand and effectively apply the LCP Health and Safety Management Plan, as well as supporting documents, policies, programs and procedures to all phases of design, construction, commissioning, and full power. The ultimate objective to ensure that all risks are minimized to As Low And Reasonably Practicable (ALARP) and a relentless pursuit of an incident free working environment is maintained at all times.

The LCP Health and Safety Management Plan must be utilized effectively by all Lower Churchill Project Delivery Team Members. Contractors and Subcontractors must have Health and Safety Plans that align with this plan. For the Strait of Belle Isle Crossing (SOBI), the Contractor executing the work will bridge to this Health and Safety Plan via coordination mechanisms.

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3 SCOPE

The Project Delivery Team provides the overall project management for the planning and execution of the LCP and will fully utilize this Health and Safety Management Plan. It is intended that this Health and Safety Management Plan be applied to all parties associated with the LCP, including Nalcor Energy LCP Employees, Contractors, Suppliers, and Consultants. It is a key functional component of the overall LCP Project Management System. Nalcor Energy LCP will require each of its Contractors to have an effective and functional Health and Safety Environmental Management System in place, which is reviewed during the Contract bidding evaluation phases of all planned and executed Contract activity. Consistency of the Contractor Health and Safety Management System with the Nalcor Energy LCP Health and Safety Plan shall be addressed through a bridging document. Periodic due diligence audits will be conducted by Nalcor Energy LCP Health and Safety personnel to ensure all objectives, programs and practices monitored are maintained and achieved.

The LCP Health and Safety Management Plan is applicable for all phases of the Lower Churchill Project, including Planning, Design (Preliminary and Detailed), Procurement, Construction, Over-site, Completion and Ready for Operations. This includes the following Sub-Projects of the LCP (Phase I):

- Muskrat Falls Generation
- Labrador-Island Transmission Link
- Labrador Transmission Assets

This Health and Safety Management Plan is intended to incorporate all applicable Nalcor Health and Safety Practices, Policies, Procedures and Programs, as well as achieve compliance with applicable legislation and regulations, which includes the Newfoundland-Labrador OHS Act and Applicable Regulations. Variations in the standards must be communicated to all LCP Personnel, which includes all Contractors and Subcontractors. As such, this Plan will function as an overarching document and focal

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point standard, by which the Nalcor Health and Safety documents and subcontractor documents must bridge and adhere to.

4 DEFINITIONS

Hazard

The potential to cause harm, including ill health and injury, damage to property plant, products or the environment, production losses or increased liabilities.

Integrated Management System (IMS)

A framework of “coordinated” and “controlled” functional management resources, processes, procedures and tools that organize and direct the LCP with regards to established “project success criteria”, as defined in the LCP Project Charter.

Project Delivery Team

The Project Delivery Team includes managers who functionally report up to the LCP Project Director.

Management System (functional)

This system identifies management resources, processes, procedures and tools necessary to facilitate the achievement of the accountabilities/responsibilities of a functional group. The LCP functional groups correspond to the various functional responsibilities such as Health and Safety, Environmental, Quality, Engineering, Commercial Services, Project Services, etc., as identified in the Project Charter.

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5 ABBREVIATIONS AND ACRONYMS

A/I	Accident/Incident
ALARP	As Low as Reasonable Practicable
ATV	All-Terrain Vehicle
CoF	Certificate of Fitness
CSA	Canadian Standards Association
DnV	Det Norske Veritas
FMEA	Failure Modes and Effects Analysis
FTA	Fault Tree Analysis
H&S	Health and Safety
HAZID	Hazard Identification Review
HAZOP	Hazard Operability Review
HSE	Health, Safety and Environment
IRS	Internal Responsibility System
ER	Emergency Response
ISO	International Organization for Standardization
PDT	Project Delivery Team
JOHS	Joint Occupational Health and Safety
LCP	Lower Churchill Project
LITL	Labrador Island Transmission Link
LMS	Learning Management System
LTA	Labrador Transmission Assets
MF	Muskrat Falls

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MOC	Management of Change
MSDS	Material Safety Data Sheet
NE	Nalcor Energy
OHSAS	Occupational Health and Safety Assessment Standard
PMT	Project Management Team
PPE	Personal Protective Equipment
PTW	Permit to Work
QRA	Quantitative Risk Assessment
RCMP	Royal Canadian Mounted Police
RFO	Ready for Operations
RNC	Royal Newfoundland Constabulary
SCAT	System Causation Analysis Technique
SOBI	Strait of Belle Isle
SWOP	Safe Workplace Observation Program
TDG	Transportation of Dangerous Goods
TBRA	Task Based Risk Assessment
TLV	Threshold Limit Value
TSA	Task Safety Analysis
WHMIS	Workplace Hazardous Material Information Sheet

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6 REFERENCES

- LCP Security Management Plan – Nalcor Doc. No. LCP-PT-MD-0000-HS-PL-0005-01
- Occupational Safety and Health Act
- Project-Wide Emergency Response Plan – Nalcor Doc No. LCP-PT-MD-0000-HS-PL-0004-01

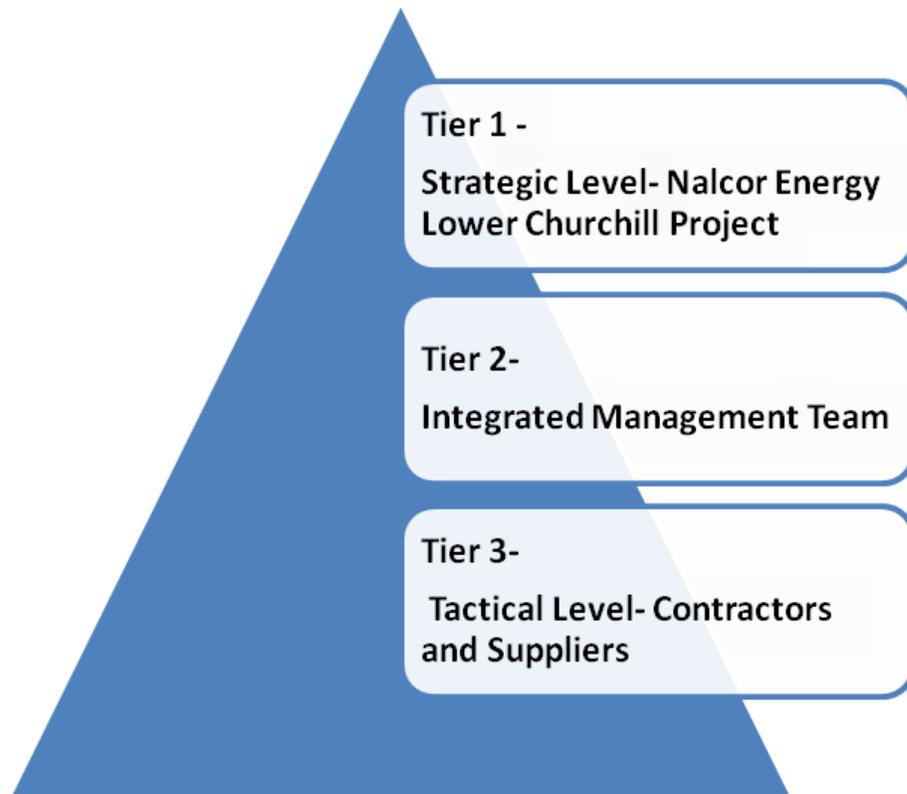
7 ROLES AND RESPONSIBILITIES

This section denotes specific roles and responsibilities for key positions within the project team. If each individual filling these positions effectively executes these roles/responsibilities, the building of an effective Health and Safety culture will be assured.

The following chart (along with the explanation below it) identifies the three (3) distinctive tiers with respect to how Occupational Health and Safety is typically managed in an Integrated Management Model and will be managed for the Lower Churchill Project. The Tiers identify the level of involvement for Nalcor Energy, the Project Delivery Team, as well as Contractors and Suppliers with each taking on a broader role. The chart also clearly defines roles and responsibilities within each tier level.

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Figure 1 : Occupational Health and Safety Management Roles and Relationships for Project Delivery Team Scope- LCP



Tier 1: Strategic Level

- Communicates and demonstrates “Zero Harm - Nobody Gets Hurt” Commitment
- Establish LCP Safety Management System and Strategic Management Plan
- Establish expectations of Consultant’s Health /Safety Plan through Coordination Procedures
- Review and Approve Health and Safety Plan and Site Plans
- Chair Project Level Health and Safety Steering Committee
 - Monitors Performance and coaches Consultants, Contractors and Suppliers to achieve desired outcomes.

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Tier 2: Project Delivery Team

- Responsible for scope level management of work.
- Develops a LCP Health and Safety Management Plan based upon Nalcor's Health and Safety Management Plan
- Develops Site Specific Health and Safety Plan for all work sites.
- Establishes the necessary plan enablers (people, processes and tools)
- Selects subcontractors and suppliers who are able to execute their work scope safely.
- Demonstrates "Zero Harm - Nobody Gets Hurt" commitment.
- Reviews and approves Subcontractors Health and Safety Management Plans
- Charters and Chairs Site Health and Safety steering committee.
- Monitors performance and coaches Subcontractors to achieve desired outcomes.

Tier 3 Tactical Level

- Develops a Project Health and Management Plan based on its Company Health and Safety Management Plan
- Develops Site Specific Health and Safety Plan(s) for its Worksite
- Utilizes its people, processes, and tools to manage work-place safety
- Focuses on Task Based Hazard Management and Work Competency
- Participates in Health and Safety Steering Committees
- Proactively engage the worker to promote a "Zero Harm - Nobody Gets Hurt" mindset

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7.1 PROJECT DIRECTOR

The Project Director is responsible for ensuring the Lower Churchill Project – Health and Safety Management Plan is fully implemented and effective, providing input on strategy development for each project deliverable, sanctioning the manpower and resources necessary for implementation of the LCP Health and Safety Management Plan and holding personnel accountable for its implementation and continued maintenance. The Project Director communicates and coordinates with Nalcor Corporate Staff, as well as Project Staff on a daily basis.

The Project Director’s responsibilities from a Health and Safety perspective, include, but are not limited to, the following:

- Clearly communicate Health and Safety expectations for the Project.
- Demonstrate tangible commitment and involvement toward the relentless pursuit of Safety Performance Excellence.
- Provide leadership for full implementation of Health and Safety policies, management systems and safety requirements to achieve Health and Safety objectives.
- Ensuring compliance with all applicable regulatory requirements is achieved and maintained.
- Be responsible for health and safety of personnel.
- Be a good role model for others to follow. Continually promote a high level of Health and Safety awareness.
- Periodically audit the Health and Safety programs effectiveness with the target for continuous improvement.
- Ensure all incidents are reported and investigated as required and corrective action taken to prevent recurrence.

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- Ensure all core competencies and training needs are identified and training objectives outlined and achieved.
- Take all reasonable measures to prevent injuries to all personnel on the Site (including visitors), who are exposed to hazards on the Worksites under their control.
- Actively participate in safety plan activities
- Recognize significant safety achievements/accomplishments
- Reinforce Health and Safety as integral core values.
- Enhance workplace morale and attitudes

7.2 PROJECT MANAGER

The Project Manager is responsible for ensuring the Lower Churchill Project – Health and Safety Management Plan is fully implemented and effective, providing input on strategy development for each project deliverable, sanctioning the manpower and resources necessary for implementation of the LCP-Health and Safety Management Plan and holding personnel accountable for its implementation and continued maintenance. The Project Manager communicates and coordinates with the Project Staff on a daily basis.

The Project Manager's responsibilities from a Health and Safety perspective, include, but are not limited to, the following:

- Clearly communicate Health and Safety expectations to the respective Project Management Team.
- Provide effective leadership and guidance at the Project Management Level for full implementation of Health and Safety policies, management systems and safety requirements to achieve Health and Safety objectives.
- Demonstrate tangible commitment and involvement toward the relentless pursuit of Safety Performance Excellence.

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- Ensuring compliance with all applicable regulatory requirements is achieved and maintained during project planning, design, construction and overall execution of the project.
- Support and attend (where possible) the formal health and safety leadership training periodically.
- Be responsible for Health and Safety of all Project personnel.
- Be an engaged role model for others to follow. Continually promote a high level of Health and Safety awareness.
- Assist the Project Director, as well as the Health and Safety Manager to audit the Health and Safety programs effectiveness with the target for continuous improvement.
- Ensure all incidents are reported and investigated as required and corrective action(s) taken to prevent recurrence and communicated to others to prevent recurrence.
- Ensure all core competencies and training needs are identified and training objectives outlined and achieved within the Project Management Team.
- Take all reasonable measures to prevent injuries to all personnel on the Site, including visitors who are exposed to hazards on the Worksites under their control.
- Actively participate in safety plan activities as well as periodic reviews.
- Recognize significant safety achievements/accomplishments.
- Reinforce Health and Safety as integral core values.
- Enhance workplace morale and attitudes through effective communications, recognizing accomplishments and outstanding Health and Safety performance.

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7.3 LCP HEALTH, SAFETY, SECURITY AND EMERGENCY RESPONSE MANAGER

The Nalcor Energy LCP Health, Safety, Security and Emergency Response Manager is responsible for ensuring the LCP-Health and Safety Management Plan is developed in conjunction with those developed by Nalcor Energy Corporate policies and best practices, regulatory guide lines, major Contractors, and communicated to the Project Director, as well as all Nalcor Energy LCP Managers, Supervisors and Employees, Contractors, Subcontractors and consultants.

The LCP Health, Safety, Security and Emergency Response Manager's responsibilities include, but are not limited to, the following:

- Clearly communicate Health and Safety expectations for the project.
- Be responsible for promoting Health and Safety practices, policies and procedures for all personnel.
- Be responsible for establishing strong functional expertise in Health and Safety management, who are fully engaged in strategic-direction setting and day-to-day Project delivery activities with Area/Scope Managers and Construction Managers.
- Provide technical expertise and guidance pertaining to Health and Safety related issues, conditions, incidents and actions.
- Take all reasonable measures to prevent injuries to all personnel on the Site, including visitors who are exposed to recognized hazards on the worksites under their control.
- Demonstrate tangible commitment and involvement toward the relentless pursuit of Safety Performance Excellence.
- Coach Management and Supervisory Staff on effectively incorporating Health and Safety practices, policies and procedures as and when necessary.
- Provide safety feedback to Workers, Supervisors, and Managers.

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- Be a visible and effective role model for others to follow. Continually promote a high level of Health and Safety awareness.
- Actively participate in safety planning activities.
- Coordinate formal Health and Safety leadership training for all levels of management and supervision.
- Recognize significant safety achievements/accomplishments in a timely manner.
- Continually reinforce Health and Safety as integral core values.
- Enhance workplace morale and attitudes through effective interaction.
- Periodically audit the Health and Safety programs effectiveness with a target of continuous improvement and establish key performance indicators.
- Ensure all incidents are reported and investigated as required and corrective actions are taken to prevent recurrence. Communicate lessons learned from incidents and near misses to potentially affected personnel to better prevent recurrence.
- Ensure all core competencies and training needs are identified and training objectives achieved.
- Monitor effectiveness of hazard evaluation and reporting process.
- Actively participate in the audit/assessment process, providing guidance, support and professional expertise.

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7.4 LCP HEALTH AND SAFETY MANAGEMENT TEAM

The LCP Health, Safety, Security and Emergency Response Management Team responsibilities from a Health and Safety perspective include (but are not limited to) the following:

- Ensuring that supervisors, leaders and employees comply with the requirements of the LCP-Health and Safety Management Plan to the extent applicable to their respective mandates.
- Attend and participate in formal Health and Safety Leadership Training targeted at all levels of management and supervision.
- Ensuring that Health and Safety programs comply with contractual and regulatory requirements.
- Reinforcing that workers are informed of Site specific hazards and conditions and are adequately trained in safe work practices and procedures.

7.5 SUPERVISORS, LEADERS AND EMPLOYEES

Supervisors, Leaders and Employees are responsible for:

- Fully understanding the LCP-Health and Safety Management Plan and communicating the specific requirements applicable to their team members and contractors ensuring that deliverables are met within the stipulated timeframes.
- Line Management will be held accountable for the Health and Safety Performance of their subordinates and contractors.
- Communicating Health and Safety expectations to your subordinates and always being a good role model and example.
- Actively participate in Health and Safety Plan activities.
- Ensuring compliance with all corporate policies, procedures and practices included in this Management Plan and applicable regulatory requirements.

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- Confirming that all workers are suitably trained and adequately qualified and have sufficient knowledge and experience to perform their work safely.
- Participation in hazard assessments carried out at the Worksites.
- Promptly report high potential Health and Safety near-misses and incidents.
- Monitor the Worksite and correct any unsafe conditions or unsafe worker behaviours promptly.
- Attend and participate in formal Health and Safety Leadership Training targeted at all levels of management and supervision.
- Ensure recognized hazards are eliminated to the extent practicable and ensuring any remaining identified hazards are adequately controlled/communicated to affected personnel. Identify and correct unsafe behaviours and conditions as soon as practicable.
- Always provide constructive feedback to subordinates.
- Continually assess leading and lagging performance indicators for trending to define and implement continuous improvement opportunities.
- Ensure appropriate personal protective equipment is readily available at the Worksite, correctly used, stored and maintained and replaced when necessary.
- Be a safety resource and informal trainer/coach.
- Understand the capabilities and limitations of subordinates.
- Make every effort to enhance workforce morale and attitudes.

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7.6 PROJECT DELIVERY TEAM, EMPLOYEES, CONSULTANTS AND STAFF

Project Delivery Team, Employees, Consultants and Staff are responsible for ensuring the LCP Health and Safety Management Plan is maintained and followed and identifying areas for continuous improvement to their respective managers and supervisors. Additionally, they are responsible for the following:

- Acquaint themselves with the recognized hazards that may exist in the activity they will be undertaking or the locations they will be working and the appropriate mitigating measures.
- Be a good role model to co-workers.
- Actively participate in Safety Plan Activities.
- Refuse to undertake unsafe work or utilize unsafe equipment believed to be unsafe.
- Perform all tasks with due regard to safety, as well as Health and Safety of co-workers, the public and the environment. Pre-plan safety as an integral core value.
- Participate in safety orientations, training sessions, programs and meetings and make positive suggestions to improve worker safety (utilize the SWOP program)
- Comply with all applicable safety policies, procedures, programs and regulatory requirements.
- Always use the required personal protective equipment and clothing.
- Report all Safety, Health and Environmental incidents, as well as Near-Misses to your supervisor.
- Continually evaluate your own competency and make every effort to enhance your skills and capabilities.
- Know your co-worker's abilities and limitations, as applicable.
- Always use the appropriate safety and personal protective equipment required for the job.
- Report all unsafe conditions, imminent danger and potential hazards to your supervisor immediately.

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7.7 CONTRACTORS AND SUBCONTRACTORS

Contractors are responsible for familiarizing themselves with the LCP-Health and Safety Management Plan, as well as for ensuring workers are orientated to the safety plan for health, safety and environmental objectives, which are to be achieved and maintained. All Contractors and Subcontractors providing a service or support to the LCP-Health and Safety Management Plan are required to work in accordance with the provisions of this Plan.

Additionally, they are responsible for the following:

- Acquaint themselves with the hazards that may exist in the activity they will be undertaking or the locations they will be working as well as appropriate mitigating measures.
- Refuse to undertake unsafe work or utilize unsafe equipment believed to be unsafe.
- Perform all tasks with due regard to safety, as well as health and safety of co-workers, the public and the environment.
- Participate in safety orientations, training sessions, programs and meetings and make positive suggestions to improve worker safety.
- Comply with all safety policies, procedures, programs and regulatory requirements.
- Always use the required personal protective equipment and clothing.
- Report all Safety, Health and Environmental incidents, as well as Near-Misses to your supervisor.
- Report all unsafe conditions, imminent danger and potential hazards to your Supervisor immediately.

NOTE: *All personnel related to the Project are responsible for their own safety, the safety of their fellow workers and for applying these LCP-Health and Safety Management Plan principles to their work task each day.*

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Utilizing a well-defined bid and selection process; Nalcor Energy-Lower Churchill Project Contractors are responsible for providing fully certified equipment onshore and offshore (where applicable) that meets its class designation, including the equipment, crews, and Health and Safety management systems. The Contractor also operates and maintains the right to the obligations defined in the Contractor's Health and Safety Policies and Procedures to ensure that Health, Safety and Environmental management is integrated into all of its business activities. All Contractors will:

- Advise each manager, supervisor, employee and contractor of his/her Health and Safety Roles and responsibilities prior to job commencement.
- Comply fully with all applicable Occupational Health and Safety Act and applicable regulations.
- Provide safe working rules, practices and procedures based on risk experience, safety knowledge and competent work direction.
- Assess all anticipated known risks prior to starting a new activity or one that is conducted very rarely.
- Ensure employees are qualified and trained to perform the tasks they are assigned.
- Make every effort to eliminate or minimize potential damage to equipment, vessel or environment.
- Investigate all incidents/accidents and take corrective action as appropriate.
- Ensure an immediate and effective response to emergencies is established and maintained and that all personnel understand their roles and responsibilities.
- Provide competent and trained professional staff to support Health and Safety activities.
- Monitor and report Health and Safety performance with a focus on continuous improvement.
- Establish a strong Health, Safety and Environmental culture within all working groups/teams and Contractor for The Lower Churchill Project.

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- Every Employee of the main Contractor has the responsibility to:
- Promptly report all Hazards, Incidents and Near Miss occurrences
- Practice good “common sense” safety principles
- Provide constructive ideas and concerns so as safety efforts and initiatives might be further strengthened
- Become actively involved in the Health and Safety Program
- Comply with all federal, provincial and local regulations directly related to Health, Safety and Environmental

The above objectives will be accomplished by implementing the Health and Safety Plan in conjunction with the LCP and Contractor Health and Safety Policies and Procedures, as well as the Newfoundland and Labrador OHS Act and associated regulations. ***(NOTE: In the event of a conflict regarding regulatory/required information within this plan and the Contractor’s plans, the most stringent requirement will always take precedence.)***

7.8 ACCOUNTABILITY

All Personnel working on the Lower Churchill Project are accountable for:

- Establishing and maintaining Occupational Health and Safety through continually safeguarding the well-being of Project personnel, the general public, and the environment through safe and environmentally responsible work practices associated with the design, construction and transportation of the Nalcor Energy-Lower Churchill Project structures and equipment.
- Continually striving to maintain an accident and incident free “Zero Harm – Nobody Gets Hurt” working environment at Nalcor Energy-Lower Churchill Project and its contractors Worksites.
- Ensuring total compliance with the OHS Act and all applicable Health and Safety regulations.
- All Personnel involved in the Nalcor Energy-Lower Churchill Project are accountable for keeping to the following Safety Rules.

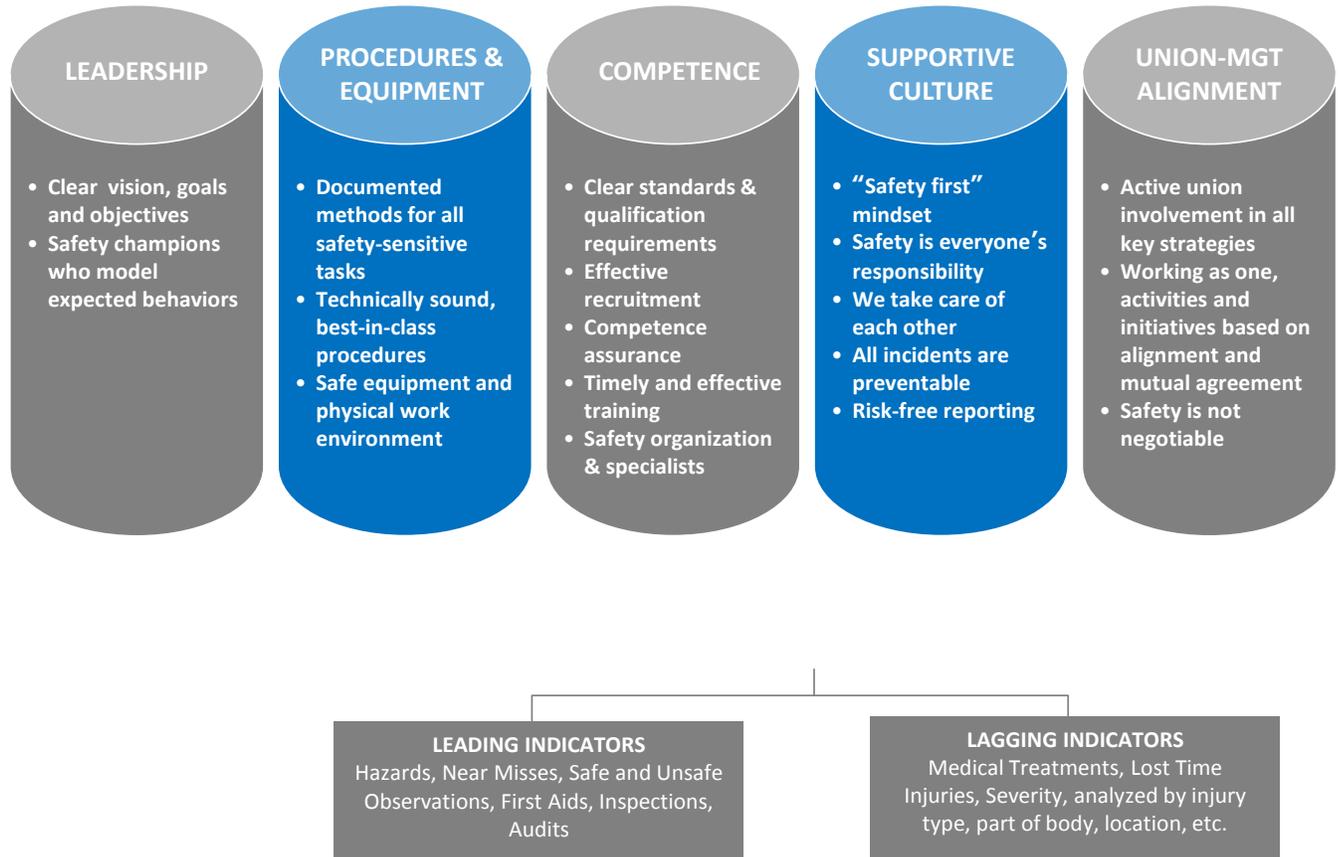
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- Ensure Health and Safety always core values within all aspects of the Project and are not prioritized along with other business priorities.
- Always follow established Safe Practices and Procedures – if they are not safe, advise your Supervisor and have them changed or modified.
- Always challenge and correct wherever possible any Unsafe Acts, Conditions or Procedures that you observe or otherwise come to your attention.
- Report all Safety Observations and Undesired/Near Miss Events and use your Safe Workplace Observation Program (SWOP) cards (see it – fix it – report it)
- Only start on a task when you have all the authorizations and permits in place.
- Always STOP/Intervene a task if you are not satisfied that it is safe to continue or it presents a risk to others.

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8 HEALTH AND SAFETY MANAGEMENT SYSTEM FRAMEWORK

Figure 2 : Health and Safety Management System Framework



The foundation of the Health and Safety Functional Management System Framework has been established and implemented based on the following:

- Safety Credo (Section 8.1- Figure 3)
- Health and Safety Policy (Sections 9, 9.1)
- Guiding Principles and Performance Objectives (Section 9.2)
- Occupational Health and Safety Management Plan (A Management Plan that describes in detail of how the specific guiding principles and objectives will be achieved using specific enablers.)

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- Enablers (People, Practices, Procedures and Tools that enable the implementation of the Plan)
- Roles and Responsibilities (Section 7)
- Individual Behaviours and Actions (Engaging personnel to act in a manner so as to minimize risk to the individual, the environment and stakeholders)

8.1 SAFETY CREDO

Our approach to managing safety on the Lower Churchill Project is rooted within the Safety Credo. Every member of the Lower Churchill Project is expected to work in accordance to the Safety Credo (Section 9.0) and to utilize the available tools and procedures that are required to complete their job safely.

The safety of our Employees, Contractors, Visitors and the public is our first and most important priority. Our goal is a workplace where “Nobody Gets Hurt -- Zero Harm” and a working environment where each and every employee is always concerned for their own safety and the safety of others. Everyone on the Lower Churchill Project is personally committed to these basic safety values as the foundation for our success as a safety leader.

The Safety Credo has three (3) basic rules to live by:

- 1) I always follow safety requirements and best practices
- 2) I always take time to complete my work safely
- 3) I always take action when I see unsafe acts or conditions

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Figure 3 : Safety Credo



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9 HEALTH AND SAFETY POLICY

A written general policy statement can effectively reflect corporate management’s positive attitudes and acceptance of overall responsibility for health, safety and environmental protection. It demonstrates to NE-LCP Managers, Supervisors, Employees, Contractors, Subcontractors, Consultants and Visitors that the Health and Safety of workers and the preservation of the natural environment is a priority and takes precedence over expediency and shortcuts.

The LCP Health and Safety Policy reflect the Project Delivery Team’s commitment to Health and Safety, and shall form the basis upon which the Health and Safety Management Plan and the LCP Health and Safety Management Plans of all Contractors, Suppliers, and Consultants working on the LCP are based.

This Policy and the goals embodied within it outline commitment and management to maintaining a safety culture within our organization in regards to the organizations of our Contractors and Subcontractors, and in all Project activities. It mandates the tangible demonstration of this commitment through compliance with the Health and Safety Policy and by making continual improvement an integral part of activities.

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9.1 NALCOR ENERGY CORPORATE OCCUPATIONAL HEALTH AND SAFETY POLICY



Nalcor Energy
Occupational Health and Safety Policy

The safety of our employees, contractors, visitors and the public is our first and most important priority. Our goal is a workplace where nobody gets hurt -- zero harm -- and a working environment where each and every employee is always concerned for their own safety and the safety of others. In support of this goal, Nalcor Energy and its employees are committed to the following guiding principles

- 1) Employees will govern their actions in accordance with Nalcor Energy's Internal Responsibility System for safety. This includes adherence to the principles of employee and role related responsibilities for their personal safety and the safety of their co-workers, contractors, visitors, and members of the public.
- 2) Nalcor Energy shall establish and maintain an Occupational Health & Safety Management System (HSMS) which:
 - a. meets or exceeds legislated requirements and is compliance with accepted industry standards and practice; and
 - b. documents health and safety objectives for Nalcor Energy; and
 - c. contains a mechanism for performance measurement and continuous improvement; and
 - d. facilitates both the formal and informal involvement of employees in the development, maintenance, and improvement of occupational health and safety within the organization.



President and CEO
Nalcor Energy

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9.2 GUIDING PRINCIPLES

The guiding principle upon which this Health and Safety Management Plan is built, includes the following:

- All incidents are preventable.
- Ownership by senior management and on-Site supervision is mandatory through direct involvement, a review of Health and Safety programs and efforts, and a focus on continuous improvement. Management must lead by example.
- Ensure appropriate resources and personnel are provided and available to execute the work safely and without adverse impact to health.
- Safety is a line organization function and cannot be delegated.
- As reasonable and practicable, Project Delivery Team has an obligation to eliminate or mitigate all known hazards and to ensure workers are fully competent and are supervised by a competent individual in the tasks to be performed.
- Management must understand and incorporate various safety practices and processes within the LCP and recognize when work activities, practices and procedures come in conflict with one another and instituting measures for mitigation.
- All Project Delivery Team personnel and Contractor personnel associated with the work have the right to be aware of the hazards, the right to participate, and the obligation to stop unsafe work without retribution.
- All personnel associated with the work are empowered to contribute to the Health and Safety efforts.
- Safety performance requires establishing procedures and programs, conducting training, contractor employee involvement, routine self-evaluation, and continuous improvement.

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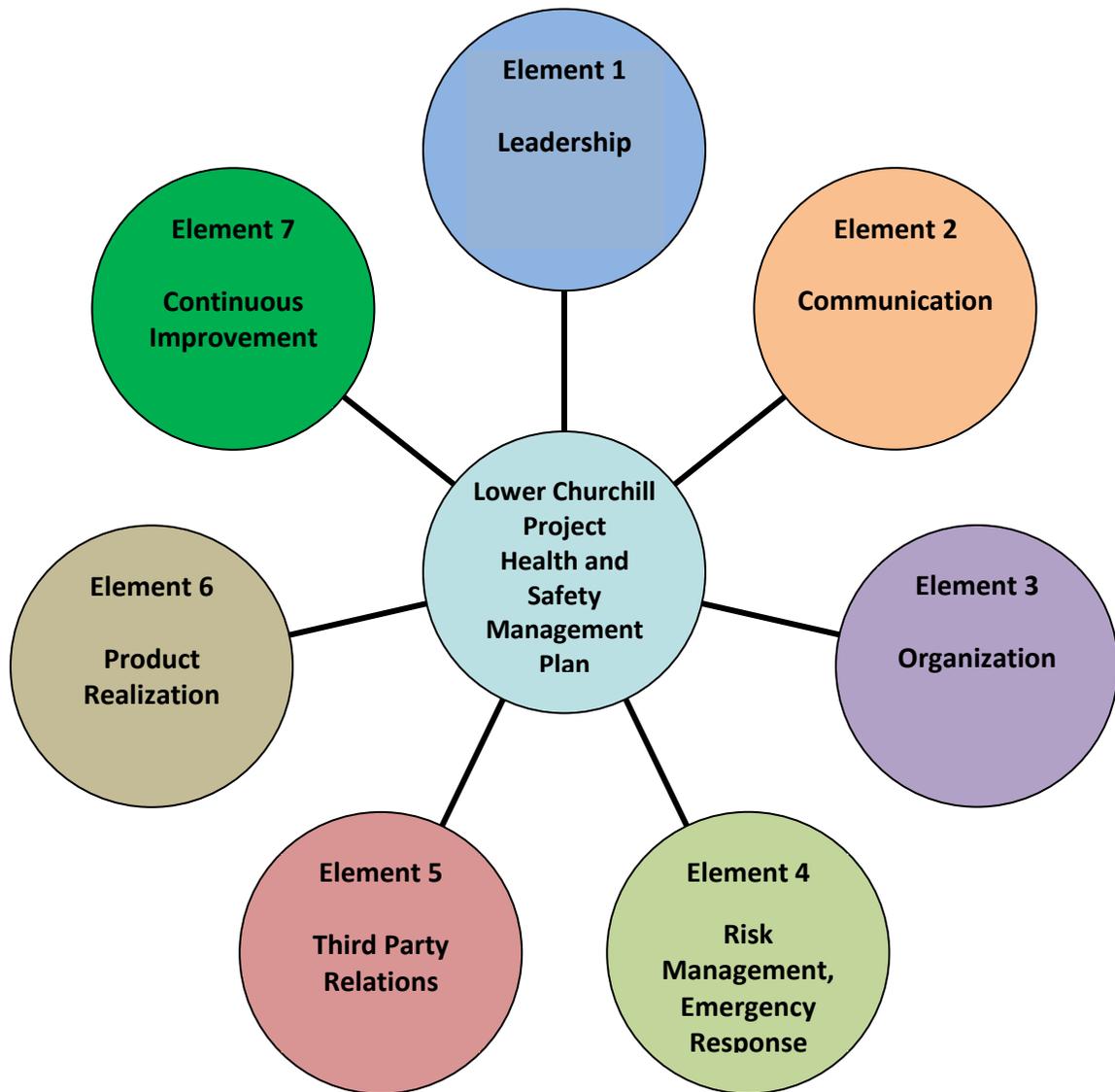
- Prospective contractors must clearly understand that past health and safety performance will be part of the criteria used to select contractors to perform work for the LCP.
- When necessary, a contractor is expected to improve or implement processes where gaps exist between their programs and the LCP’s expectations.
- Continuous improvement must be a permanent objective for the LCP. Opportunities for improvement must be identified, evaluated and applied systematically and logically.

9.3 HEALTH AND SAFETY MANAGEMENT PLAN FORMAT

The LCP Health and Safety Management Plan is structured in accordance with the OHSAS 18001 Plan-Do-Check-Act Model for continuous improvement. It also incorporates the seven core elements of Health and Safety Management as noted in the following figure:

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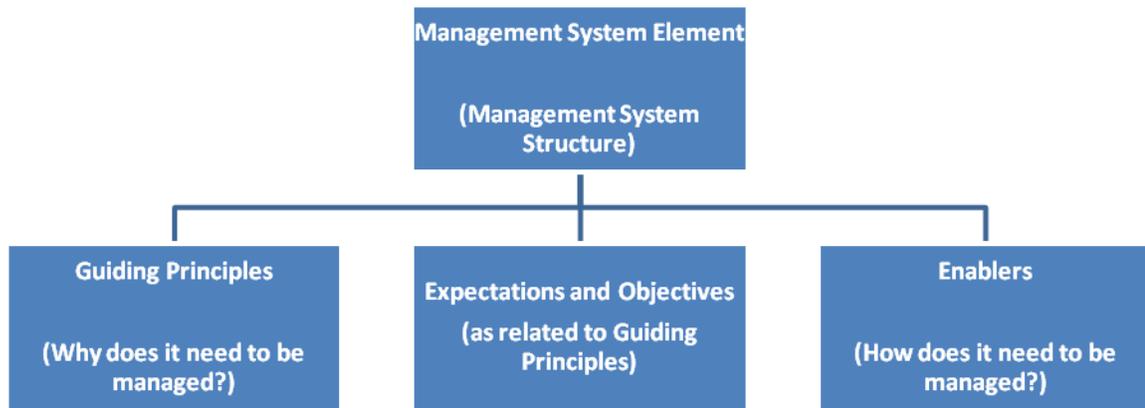
Figure 4 : Seven Core Elements of Health and Safety Management



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The Health and Safety Management Plan is structured to be both user-friendly and a useable resource. The basic format of the Plan includes a listing of sub-elements, guiding principles and enablers as defined below:

Figure 5 : The Health and Safety Management Plan (Basic Structure)



9.3.1 Element 1: Leadership (Commitment, Personal Behaviour, Accountability)

The Project Delivery Team is responsible for supporting the development, implementation and assessment of Health and Safety initiatives and control mechanisms addressing emerging issues and providing feedback as and when appropriate. The Project Management Team must establish the overall tone of Health and Safety Management and its foundation of the Project’s overall culture.

Leadership Expectations: It is expected that all members of the Project Delivery Team will:

- Ensure that a positive Health and Safety Culture and Management System are established, implemented, communicated and supported at every level of the organization.
- Communicate Health and Safety performance expectations to others.
- Visibly demonstrate their commitment to the achievement of the Project’s Health and Safety goals and objectives.

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- Be interested, visible and active in promoting Health and Safety processes and initiatives.
- Deal promptly and appropriately with Health and Safety improvement actions and suggestions within their area of control.
- Give appropriate consideration of Health and Safety performance as a key indicator of overall performance requiring equivalent management effort.
- Establish and maintain the standard for acceptable Health and Safety behaviours within the project by setting a model example themselves.
- Nominate Health and Safety Management Representative responsible for the overall coordination of the Management System and ensure the representative is trained in each of the Management Elements, expectations and roles responsibilities.
- Allocate appropriate resources to achieve our Health and Safety priorities and objectives.
- Where applicable, a clear Zero Tolerance policy is communicated to all employees (Examples include Drug and Alcohol Policy, Workplace Violence/Horseplay, etc.)
- A clearly defined disciplinary program must be communicated to all employees and applied fairly and uniformly.
- A clearly defined substance abuse prevention policy is posted and included in orientation literature.
- Business Code of Conduct is posted and in place.

Demonstrating Health and Safety Leadership: The Project Management Team can demonstrate Health and Safety Leadership by the following:

- Carry out Site visits with the principle objective to review, discuss or promote Health and Safety issues.
- Establish, Manage and Track Project and Individual Health and Safety performance toward established goals and objectives. Promote overall Health and Safety Performance Awareness.

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- Make Health and Safety a key agenda item at Management Meetings.
- Taking a proactive approach to the prevention of incidents as an integral part of our operations overall.
- Become actively involved in Health and Safety Coordination and Steering Committee (JOHS).
- Strive to achieve all aspects of personal Health and Safety performance Contract.
- Include Health and Safety roles, responsibilities and accountabilities in Manager job descriptions.
- Include Health and Safety performance as an integral part of the performance appraisal process.
- Include the nominated Health and Safety Management Representatives on the organization chart.
- Ensure effective Health and Safety Orientation Programs are in place covering Safety Standards, Policies, Procedures and Core Values.
- Enable Supervisor Health and Safety responsibility training to be provided periodically.
- Provide Behaviour based Health and Safety Training Programs periodically.
- Ensure Behavioural observations are performed.
- Encourage Health and Safety Surveys be performed, analyzed and used to establish corrective actions, as appropriate.

Taking Personal Responsibility: The Project Delivery Team, as well as personnel at all levels, must take personal responsibility for Occupational Health and Safety. To accomplish this, all personnel should exhibit the following:

- Sincere caring for others, their safety and their well-being.
- Be aware of their influence as a role model at work and during their spare time.

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- Sound health and safety behaviour on and off the job.
- Intervene constructively with at-risk behaviours and conditions
- Are attentive to others behavioural changes, and respond appropriately
- Follow defined Health and Safety policies, procedures, rules and standards.

Understanding Accountabilities: Everyone associated with the Lower Churchill Project, its operations and activities is accountable for their actions. Deviations from standards of acceptable behaviour are dealt with in a fair and consistent manner. Personnel at all levels of the organization must:

- Understand what is expected and are held accountable for their actions and inactions.
- Use their authority and responsibility to react to all observed or known at risk behaviours or unsafe conditions.
- Respond in an open and fair manner to incidents reported and issues raised.
- Practice tolerance for mistakes but are aware of and accept consequences for reckless behaviours.
- Must be open and receptive to constructive feedback from others.

9.3.2 Element 2: Communications (processes, information and documentation)

Effective and open communications are essential to the success of any Project. Successful internal communication is crucial to the development of an informed and motivated workforce. Efficient external communications preserves Nalcor's reputation and enhances our business standing and credibility.

Communications Expectations: For effective communications, arrangements must be made, which ensure that Managers can:

- Identify, develop and maintain systems for the control of information necessary for working safely and assure regulatory compliance with Health and Safety issues.

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- Ensure that personnel are properly informed of Health and Safety risks and control measures.
- Encourage employees at all levels to raise Health and Safety concerns without reprimand and shall respond to these concerns in a timely and appropriate manner.
- Fully support consultation on Health and Safety matters to explore opportunities for influencing issues.
- Ensure Health and Safety campaigns and initiatives receive adequate publicity.
- Support Health and Safety Representatives and committees to contribute to the Project's Health and Safety performance.
- Establish an effective channel between management, employees, third parties and clients concerning existing, new or evolving health and safety issues.
- Encourage Personnel at all levels to give feedback, propose improvements, share information and best practice.
- Support proper liaison with Clients, Contractors, Sub-Contractors and external bodies on Health and Safety issues occurs.
- Ensure that the LCP is represented on industry bodies and positioned to influence and shape Health and Safety policy and regulatory matters.
- Health and Safety achievements are given due publicity and recognition.

Establishing Effective Health and Safety Communications: Effective communications can be achieved through effective training, interaction, forums, policies, programs and health and safety meetings. The following Health and Safety Communication tools have been put in place to enable effective communications:

- Periodic Health and Safety meetings/daily toolbox talks carried out at the Worksite.
- Health and Safety Representatives committee meetings (JOHS Committee)

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- New Employee Orientation Sessions
- Periodic Project newsletters
- Health and Safety bulletins and alerts (Communicating Lessons Learned)
- Industry forum representation and participation
- Management site visits with focus on Health and Safety
- Meetings with Clients, Contractors/Subcontractors on Health and Safety issues.
- Emphasize and promote Health and Safety publicity campaigns
- Effective communication channels are in place without filtering mechanisms
- Forward communications which outline changes to Health and Safety practices, policies and procedures
- Training programs reviews carried out periodically to ensure current technology, applicable risks and regulatory requirements are addressed
- Employees suggestion program
- Encourage use of a Safety slogan/theme program
- Participate and support Safe Work Observation Program (SWOP)
- Track leading and lagging indicators

Expectations concerning Information and Documentation Management: The availability of accurate, relevant and current information and documentation is a key contributor to successful Health and Safety performance. Processes for capturing and sharing knowledge are in place to deliver the best available Health and Safety practice to our operations. Effective information and documentation management systems are in place such that:

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- Drawings and other pertinent documentation necessary for health and safety compliant operations are identified, current and readily accessible.
- All applicable regulations, codes and standards are identified, current and readily accessible.
- Document retention and archiving requirements are established and satisfied.
- The currency of the system and procedures is ensured.
- Roles and responsibilities in relation to information and documentation management are clearly understood.
- Appropriate use is made of electronic information management systems.

Effective Information and Documentation Management Mechanisms: The following mechanisms and management systems can be utilized to effectively store, research, retrieve and retain Project Information and Documentation:

- Integrated Management System
- Document management system
- Health and Safety plans and interface documents
- Health and Safety library and databases
- Internet
- Communicating Health and Safety Regulatory Changes and Interpretations
- Document Retention Procedures/Programs.
- Document Disaster Recovery Procedures
- Periodic Assessment/Audits of Informational Systems for Effectiveness, Compliance with Policies and Procedures.
- Regulatory Compliance Plan in place.

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- Lessons learned capture and implementation process.

9.4 ELEMENT 3: ORGANIZATION (COMPETENCE, PERSONAL DEVELOPMENT, ROLES/ RESPONSIBILITIES):

The success of Health, Safety and business performance within the Lower Churchill Project is largely influenced by the competency of Employees, Contractors and Sub-Contractors. While the maintenance of a stable, competent and motivated workforce is also a critical factor, Managers must also consider competency and personal development, as well as the following:

- Effective recruitment, selection and placement processes are in place and fully functional.
- Health and Safety competence requirements are identified, gaps analyzed and training programs are in place to close the gaps.
- A Health and Safety mindset and competence requirements are applied in recruiting, selection, succession planning and promotion at all levels.
- Personal appraisal/performance and development reviews are undertaken for employees.
- LCP employees are encouraged and supported in their career development.
- To the extent practicable, succession planning is in place.
- Ensure that a comprehensive training program is in place for all individuals to ensure the correct level of competence and Health and Safety awareness is attained prior to any change in their job duties.
- Health and Safety training is provided by competent personnel and its effectiveness is properly reviewed.

Means to Accomplish Workforce Competency and Personnel Development: Occupational Health and Safety must be included as a part of overall:

- Recruitment, selection and placement procedures.

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- Resource forecasting and allocation.
- Project site inductions.
- Position/role descriptions including competency requirements.
- Succession planning.
- Competency Assurance Systems/Testing and Verification.
- Personal appraisal and development programs, including a review of overall Health and Safety performance
- Training need analysis
- Training matrices / plans
- Program effectiveness evaluation including review of assigned tasks and targets with respect to health and safety roles.
- Competence training in health and safety policies and procedures, hazards awareness and required certifications

Understanding Roles and Responsibilities within the Organization: The defining and understanding of individual roles and responsibilities are key to the achievement of our project Health and Safety objectives. It is very important that the appropriate level of resources is allocated and responsibilities are clearly defined and communicated. To do so, arrangements must be in place to ensure that:

- Health and Safety roles and responsibilities are a clearly defined and integrated part of all job task roles, and are clearly communicated and understood.
- Appropriate resources are allocated to enable Project Delivery Team to reach its Health and Safety objectives.
- Appropriate health and safety resources are allocated in relation to project execution.

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- A health and safety function is in place to support the organization, is identified on organization charts, and reports at the highest appropriate level within the organization.
- Health and Safety committees and representatives are appointed, their roles are defined and they are involved in health and safety processes at all levels

Policies, Procedures and Programs for Assuring Competency/Personal Development: The following policies, procedures and programs are in place within the Lower Churchill Project to assure competency and personal development:

- Recruitment, selection and placement procedures.
- Resource forecasting and allocations.
- Position descriptions which include clearly defined Health and Safety competency requirements.
- Orientation/ Induction training program focusing on these expectations given to all employees.
- People surveys and interviews.
- Site health and safety procedures.
- Health and Safety resources included in budgets.
- Health and Safety function identified on organization chart and participates in business management meetings as appropriate.

9.5 ELEMENT 4: MANAGEMENT OF RISK/EMERGENCY PREPAREDNESS/HEALTH (RISK ASSESSMENT, EMERGENCY PREPAREDNESS, OCCUPATIONAL HEALTH, MOC)

The Lower Churchill Project must ensure that Occupational Health and Safety Risks arising from, or associated with its activities, are identified, addressed and effectively managed so as to eliminate or reduce them to a level that is As Low As Reasonably Practicable (ALARP). An effective means of risk management must be in place and fully functional and ensure the following:

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- Health and Safety risks are identified and their consequences and probabilities properly assessed to ensure that risks, as reasonably practicable, are assessed based on probability of occurrence, risk, severity, consequences to personnel and the environment and are controlled utilizing the following hierarchy (preferred actions to least desirable actions): **a)** Risk Elimination, **b)** Engineering Design to Mitigate Risk, **c)** Incorporate Safety Devices for Risks that cannot be mitigated, **d)** Provide Warning Devices or **e)** Personal Protective Equipment.
- Appropriate risk reduction or mitigation measures are identified and implemented and managed to completion.
- Risk assessments are facilitated and undertaken by competent personnel, including (where necessary) expertise external to the Project.
- Risk assessments are subjected to an appropriate review and validation process.
- Risk assessments are properly documented and action items closed in a timely manner.
- Affected personnel are made aware of, and understand risk assessment results, as well as recommendations relating to their activity.

Enabling Measures to the Risk Assessment/Mitigation Process: The following processes can assist with the execution of an effective risk assessment/mitigation task:

- Risk Policy is in-place and supporting risk management program, which includes the assessment of Health and Safety related risks.
- Ensure identified risks are addressed at the appropriate level within the project organization, given the nature and magnitude of the risk.
- Ensure adequate risk control equipment/practices are included as part of design, construction and operations.
- Risk register and risk mitigation / control plan are in-place and updated periodically.

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- Risk mitigation /control measures are effectively communicated to all affected personnel.
- Throughout the project execution phases perform various Health and Safety specific risk assessment / management activities.
- Conduct risk/hazard assessments, including the following techniques: HAZID (Hazard Identification), HAZOP (Hazards Operability Analysis), QRA (Quantitative Risk Assessment), FTA (Fault Tree Analysis), FMEA (Failure Modes and Effects Analysis).
- Conduct constructability assessments with due consideration of Health and Safety Factors/Issues.
- Conduct Task Based Risk Assessments (TBRA- Refer to Appendix C, page C-2 of this Plan)
- Implement Step Back 5 x 5 (Utilizing the 5x5 Risk Matrix to evaluate a particular work tasks)
- Implement WHMIS
- Conduct ergonomic assessments
- Conduct fire risk assessments
- Implement hazard recognition and reduction methods included in training

Changes in operations, organization, facilities, systems and procedures must be properly evaluated and managed in such a way as to minimize any potentially adverse Health and Safety impacts. Best Practices should be captured during the transitional phase. For changes of this nature, the following measures must be in place to allow for proper assessment and control:

- Organization, staffing, roles and responsibilities for change management
- Management systems, processes and procedures
- Facilities, plant, process and equipment
- Work scope/tasks include change management documentation requirements

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- Applicable regulations, procedures and standards
- Changes are appropriately documented, reviewed, approved, communicated and authorized prior to execution
- Change implemented is periodically monitored and reviewed and any action items resulting from the review are addressed in a timely manner prior to change closure

Enabling measures for Managing Risk as a result of Changes to Organization, Facilities, Systems and Procedures:

- Management of change process
- Personnel transfer/promotion processes
- Change control processes and procedures
- Levels of authority for change approval
- Monitoring, audit and review processes
- Change item action tracking
- Document/Communicate Changes
- Review/Approval Process
- Work scope changes
- Matrix of compliance related to authority rules and regulations.
- Monitoring, audits and review process
- Revision controlled technical documents

Emergency Preparedness is essential in order to protect personnel, the environment and assets. Emergency Response Plans are in place to allow us to respond effectively and efficiently in the event of

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an actual emergency. In order to effectively respond to an emergency, the following systems, plans, procedures and training must be in place:

- Emergency response plans are based on an assessment of potential incidents and threats, and are documented and well understood by all affected parties
- Emergency response management plans/programs must reflect the uniqueness/specifics of the work and associated work locations.
- Personnel with emergency response roles and responsibilities are fully trained and competent
- Appropriate emergency response facilities and equipment are provided and maintained in fully operable condition.
- Personnel security is assessed and included in emergency response plans.
- Interface arrangements with contractors, subcontractors and the community include well defined emergency response responsibilities.
- External communication roles concerning emergency responses are documented and understood by all parties.
- Emergency response drills and exercises are undertaken regularly.
- The competency of those involved in ER is assessed on an ongoing basis.

Emergency Response Plan Effectiveness/Efficiency: To best ensure the effectiveness and efficiency of the Emergency Response Plan, the following will be implemented at the Project Office and/or Field Construction Sites:

- Coordination procedures and documents clearly defining Emergency Response roles and responsibilities with Contractor interface.
- Emergency Response procedures and plans have been established and organization will be fully trained

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- New Employee / Visitor Orientation includes Emergency Response overview and discussion of specific roles and responsibilities.
- Periodic Emergency Response drills and exercises will be carried out with the target of continuous improvement.
- Emergency Response training conducted, including hands-on and simulated exercises, as appropriate.
- Duty rosters established and maintained current insuring that all key positions will be fully manned.
- Emergency Response facilities on site established and maintained in fully operable condition (e.g. first aid equipment, firefighting equipment, and emergency phone numbers posted at conspicuous locations).
- Evacuation plans prepared and in place and known to appropriate personnel.
- Equipment inspection records established and maintained current.
- Media interface training for emergency situations.

Occupational Health: The Lower Churchill Project will actively monitor its activities to ensure that appropriate measures and programs are in place to protect our employees from harm as a result of occupational health hazards. To accomplish this, Managers will ensure that:

- Prevent occupational illness or injury to the Project Team and field workforce by managing medical, public health and occupational health risks.
- Minimize the seriousness of injuries and illnesses by ensuring access to quality primary and emergency medical care.

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- Ensure that well planned, well documented and drilled procedures are in place for responding to remote medical incidents requiring significant medical attention and/or evacuation.
- Verify that all National, Provincial and Local Health Regulations are incorporated in Project plans and facility designs.
- Ensure satisfactory health management of Project Sites through health inspections and surveillance.
- All employees are encouraged to raise occupational health issues and concerns as they arise.
- Establish expectations that construction and installation contractors implement procedures and programs for ensuring healthy working conditions for personnel during the course of the Project.
- Ensure communication of known health related hazards and remedial measures to all affected personnel.
- Ensure that project activities do not inadvertently affect the health of Project personnel or local communities.
- Appropriate corrective/ preventative measures are implemented in a timely manner.
- Follow-up actions are taken to ensure appropriate provisions are adopted and fully implemented.
- Identify and implement regulatory and best practice medical practices, procedures and programs.

Implementing Health Measures and Programs: Methods for Implementing Measures and Programs designed to protect all personnel from harm as a result of Occupational Health Hazards include the following:

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- Employee Health Questionnaires
- Food Services Contractor Health Plans must be prepared and periodically reviewed/updated, which include organization charts, medical emergency response, worker immunizations/medical evaluations, known health risks, training requirements and health inspections, food handling, preparation and storage requirements.
- Ensure all personnel are fully trained and prepared for working conditions in Newfoundland and Labrador.
- Applicable periodic physicals
- Health communications through bulletins, e-mails, programs, training and procedures.
- Follow-up medical examinations, as identified and applicable.
- Medical evaluations for known and specified regulated activities
- Health Risk Assessments
- Worksite Health Assessments
- Worksite Health Inspections
- Health Awareness Training
- Health Related Awareness Bulletins
- Budget for medical and health assessments related to remote project locations, during planning phase.

9.6 ELEMENT 5: THIRD PARTY RELATIONS (CLIENTS/PARTNERS, CONTRACTORS/SUPPLIERS, COMMUNITY)

Establishing and Maintaining Effective Client/Partner Relationships: Effective Client and Partner interfaces and working relationships are critical for the Lower Churchill Project and for our common Health and Safety Performance. We work closely with clients and partners to manage our roles and align expectations and goals. Arrangements must be in place to ensure that:

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- Health and Safety expectations, objectives, responsibilities, roles and interfaces are clearly defined, documented and agreed between the involved parties.
- An open dialogue on Health and Safety issues is retained at appropriate levels within the organization.

Client/Partner Interface Processes: Processes that enable more effective Client/Partner Interfaces include the following:

- Health and Safety meetings (or segments of meetings)
- Bridging documentations
- Audit plans
- Reporting processes
- Role and responsibility definitions.

Third Party Contractors and Suppliers: The risk presented by third parties (contractors/sub-contractors and suppliers) can have a significant impact on the Project's health and safety performance and reputation. Such risks need to be properly managed to minimize potentially adverse effects. Third party health and safety performance is reflected in the overall LCP performance. To maximize Health and Safety Performance, the following must be considered and implemented:

- Third parties are selected based in part on consideration of their Health and Safety performance, planning, programs, policies and procedures.
- Health and Safety programs and overall compatibility with the Project's Management Systems.
- Third parties Health and Safety standards must be broadly similar to those of the Project and are appropriate to the risk criticality of the services and products provided.

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- Suppliers and sub-contractors are involved at an early stage to allow risks to be identified and properly managed.
- The Project requirements with respect of Health and Safety Responsibilities and performance are defined and communicated to third parties.
- Third parties have clearly defined roles and responsibilities for their individual managers.
- Interfaces between the Project and third parties is clearly defined and effectively managed.
- Monitoring of third party performance includes Health and Safety and deficiencies are identified and corrected and preventative measures are put in place.
- Contractors/subcontractors and suppliers understand that consequence for poor Health and Safety performance, or lack of agreed improvements, can be up to and including stop work orders and in extreme cases termination of work
- Lessons learned from third parties are captured and openly shared within the Project Delivery Team.

Effective Selection Processes: Processes that enable the effective selection of contractors and suppliers include the following:

- Selection strategy documentation for major and minor package suppliers
- Contractor pre-qualification and selection process
- Pre-bid Meeting reviewing Health and Safety Expectations with bidders
- Pre-contract award Health and Safety assessment
- Safety performance terms and conditions included in contracts
- Health and Safety Coordination Procedures contained in all contracts
- Health and Safety development program/improvement plan

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- Regular meetings with all contractors
- Site visits to Contractor/Supplier Worksites
- Interface documentation review
- Performance monitoring plans and strategies
- Periodic Performance Audit and associated follow-up
- Contract and/or project close-out reports
- Contractor Health and Safety Plan prepared to address the specific scope of work

Relationships with Neighbouring Communities: Keeping good community relations are crucial for our long term success. In the course of the Lower Churchill Project, we must be focused on being a good neighbour and seek to find opportunities to contribute to the well-being of communities in which we operate. Effective means of ensuring good relationships are maintained with Neighbouring Communities include ensuring the following:

- Risks to the communities associated with the Lower Churchill Project are openly communicated to the appropriate parties in a timely manner.
- Our project contributes in a positive manner to the communities where we operate.
- We cooperate with authorities, non-government organizations and industry organizations on health and safety matters.

Maintaining Effective Relationships: Good relationships with the Neighbouring Communities of the Lower Churchill Project Worksites are very important to the overall success of the Project. Effective means of maintaining Community relationships include the following:

- Emergency response plans (including the focus on the neighbouring community)
- Open facility and family days with Health and Safety focus, as and when appropriate.

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- Health and safety initiatives with local schools, and voluntary groups.
- Stakeholder management plans that include consideration for Health and Safety issues through all phases of the Project.

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9.8 ELEMENT 6: PRODUCT REALIZATION: (EQUIPMENT AND MATERIALS)

Interfaces and relationships with clients and partners are critical for the Lower Churchill Project overall Health and Safety performance. The Project Delivery Team will work closely to manage our roles and align expectations and goals. To accomplish this, the following arrangements must be in place:

- Proper selection and specification of the facility, equipment and materials take place.
- Effective procurement processes and quality control systems are in place to minimize risk importation.
- Facility, equipment and materials provided are safe, compatible, of good quality and fit for their intended service and are renewable/recyclable (whenever possible).
- Fully compliant with equipment inspection, certification, quality assurance and maintenance requirements.
- Appropriate information, instruction and training on the safe use, handling storage and environmentally sound methods of disposal of plant, equipment and materials are made available to affected personnel.

Ensuring Project Facility, Equipment and Materials meet Project Expectations: Ever effort will be made to ensure that applicable standards, standard industry practices and regulatory requirements utilizing the following processes:

- Specification and procurement processes are in place and reviewed periodically.
- Operating, inspection and maintenance procedures including Health and Safety stipulations.

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- WHMIS assessments/product data sheets.
- Certification plans are in place and reviewed periodically.
- Information, instruction and training are current, available and reviewed.

9.9 ELEMENT 7: CONTINUOUS IMPROVEMENT (INCIDENT INVESTIGATION AND ANALYSIS, AUDITS, MEASUREMENT REVIEW AND IMPROVEMENT INITIATIVES):

A continuous improvement mechanism must be implemented to consistently evaluate the mechanisms and controls being utilized to achieve the key safety elements. The following are effective means of evaluating the key safety elements:

Audits and Assessments: Audits/assessments are often utilized as a prudent means to monitor compliance and help elevate continuous improvement. On the LCP, Project and Regulatory requirements will be audited periodically to ensure effective management. Audits, assessments, and performance review activities and systems are various means to assure compliance with both internally and externally imposed standards within the Project. Arrangements for audits and assessments will include the following:

- Audit programs that specifically address Health and Safety practices, policies and procedures that are in place and ensure they are followed.
- Audit scopes and frequencies are risk based.
- Audits are conducted by competent persons.
- Findings and actions are agreed with auditors and well documented.
- Audit results are communicated to the appropriate level of management.
- Lessons learned are shared with appropriate parties.

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- Audits will be carried out to regularly assess compliance with the elements of the Health and Safety Management Plan.
- Periodically, assess compliance with Health and Safety regulatory requirements will be evaluated.
- Audits may also be performed by personnel outside the Project, having Health and Safety expertise and auditing expertise.
- Auditors are identified, notified and involved in the planning and process to the appropriate level.
- Findings are properly communicated to auditors and to an appropriate level of Project management, along with any trends noted.
- Findings resulting from an audit are assessed, documented, prioritized and monitored until satisfactorily resolved.
- Audit entitlement/expectation is agreed with clients and documented in contract and interface documents.
- Properly constituted management reviews will be undertaken periodically.
- Effective Health and Safety audit procedures are in place to evaluate compliance with work procedures, work rules and permits for critical tasks/activities.

Audit Effectiveness: To ensure overall audit effectiveness, the following procedures, programs and follow-up must be in place:

- Documented Audit programs and defined schedules
- Auditing procedures and well defined protocols
- Auditor training program

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- Timely Audit reports, Responsible Individuals Assigned Actions (as appropriate), Target Dates for Completion and Follow-up
- Internal and external audits are conducted
- Periodic Review of Audits, Audit Trending and Communicating Trends to Management
- Interface documents
- Multi-faceted/disciplined teams to perform the audit.

Measurement and Review: Interfaces and relationships with clients and partners are critical for our overall Health and Safety performance. We will work closely with clients and partners to manage our roles and align expectations and goals. This will be further enhanced using the following:

- Leading and lagging Health and Safety indicators are measured, reviewed and used as input to generate improvement initiatives.
- Health and Safety feedback from all parties is used as input to improvement plans.
- Health and Safety driven management reviews are conducted periodically.
- Improvement plans include data from all available and applicable sources.
- Processes exist to manage Health and Safety improvement actions to completion.
- Health and Safety improvement plans are considered in the Project strategy process.

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10 MANAGING HEALTH AND SAFETY ON THE LOWER CHURCHILL PROJECT

Nalcor carries ultimate responsibility for Health and Safety Management and performance within the Lower Churchill Project. In terms of practical implementation of Health and Safety arrangements described in this Plan, the LCP Vice President expects his Management Team to take the lead in ensuring that all applicable arrangements are implemented within their areas of authority.

Nalcor Energy's Health and Safety Internal Responsibility System (IRS) is the cornerstone, which the Health and Safety Program is based. It is also a set of legal obligations for managing Occupational Health and Safety. The defining principle of the IRS is that everybody within the organization, from members of the Board of Directors to a temporary front line Employee, has a role and responsibility for Health and Safety. A second, and equally important principle is that solutions to Health and Safety issues in the workplace come from Employees themselves i.e. internal to the organization. While it is recognized that external assistance may sometimes be required (e.g. OH&S Branch of Government), it should be the exception rather than the rule.

An IRS works when:

- There is an unbroken chain of responsibility for Health and Safety flowing down through the organization and accountability for fulfilling Health and Safety obligations flows upward through the organization.
- Each Employee takes the initiative on Health and Safety issues, and works to solve problems and make improvements on an ongoing basis.
- Depending on their position within the organization, their qualifications and authority, each Employee accepts responsibility and accountability for their defined role.

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Figure 6 : Nalcor’s Internal Responsibility System



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The Health and Safety function exists to provide the necessary support, advice and guidance in order to assist personnel on discharging their Health and Safety obligations. The Health and Safety function will also audit the Lower Churchill Project systems and activities to provide assurance that our Health and Safety implementation is compliant with applicable legislation or other relevant standards and improvement opportunities are identified and acted upon.

This Plan is built on the following Nalcor Energy commitments:

- The Nalcor Energy “Safety Credo” (Section 8.1)
- The Nalcor Energy “Guiding Principles” (Section 9.2)
- The Nalcor Energy “Core Elements” (Section 8, Figure 5)

10.1 HEALTH AND SAFETY MANAGEMENT INTERFACE

For MF, LTA and LITL, LCP Site Personnel will interface via daily, weekly and monthly meetings and stewardship sessions with the Project Delivery Team to ensure that:

- Health and Safety goals, objectives and scopes are fully understood and discussed by all management positions responsible for Health and Safety.
- The Project Delivery Team and all LCP personnel must clearly understand their roles and responsibilities for all Project activities.
- All Management personnel on the Project must clearly understand the processes and procedures linked to their areas of responsibilities.
- Joint construction and facility inspections must be conducted in an atmosphere of mutual cooperation to promote visible participation and endorsement of Health and Safety Plan Objectives whenever possible.
- The interface process must be reviewed on a periodic basis, and continuous improvement plans are formatted and implemented as and when required.

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For the Strait of Belle Isle (SOBI) Marine Crossing, the Contractor(s) executing the work will interface via daily, weekly and monthly meetings and stewardship sessions as warranted with the Project Delivery Team. The objectives of these interface sessions are as follows:

- Health and Safety goals and objectives, as well as work scope are fully understood and discussed by all management positions for Health and Safety.
- The Contractor(s) management personnel must clearly understand their roles and responsibilities for all Project activities, as well as the processes/procedures linked to their areas of responsibilities.
- Site inspections must be conducted periodically in an atmosphere of mutual cooperation to promote visible participation and an endorsement of Health and Safety Plan Objectives whenever possible.
- Plans for continuous improvement must be developed, implemented, and progress tracked periodically.

Upon completion of principal Construction, The critical phases of commissioning and RFO (Ready for Operations) will require that additional Health and Safety Roles and Responsibilities must be carried out to ensure safe transition from Construction to Operations. These include, but are not limited to, the following:

- Health and Safety Management Plan for RFO developed and communicated in advance of RFO Activities.
- Risk Assessments and Task Analysis are executed during commissioning phases.
- Emergency Response Planning and Drills (Training and Establishing Roles and Responsibilities with Operations during Transition Period)
- Develop Health and Safety Procedure for Handover to Operations Personnel with roles and responsibilities clearly defined.
- Ensure appropriate Health and Safety Resources are in place to provide adequate oversight.

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- Communications procedures must be developed, clearly defined and communicated to all affected parties.
- Ownership of process procedures must be clearly defined in a procedure.
- Post Testing Debriefs must be carried out, fully documented and maintained on file.
- Health and Safety Equipment for RFO must be clearly defined, purchased and available on Site in adequate timeframe to ensure coverage is 100% at minimum.

The following chart depicts how Health and Safety will interface with the Lower Churchill Project during three (3) distinctive Project Phases: **Engineering/Design/Procurement**, as well as the **Early Works Phase Construction**, and the **Construction Phase**. Health and Safety Management Plans for the Lower Churchill Falls Operation will be developed, communicated and implemented prior to project handover/operations.

Table 1 : Health and Safety Focus Areas during Principle Construction Phases

Engineering/ Design/ Procurement	Early Works Phase Construction	Construction Phase
<ul style="list-style-type: none"> • Health and Safety Planning Documents (Safety, Medical, Security, ERP) 	<ul style="list-style-type: none"> • Early Works- Health and Safety Plan – Site Plans 	<ul style="list-style-type: none"> • Construction Phase - Health and Safety Plan – Site Plan
<ul style="list-style-type: none"> • Constructability Reviews (per Component) 	<ul style="list-style-type: none"> • Risk Assessments 	<ul style="list-style-type: none"> • Logistics/Transportation Oversight
<ul style="list-style-type: none"> • Contract Evaluations/Input/ Procurement 	<ul style="list-style-type: none"> • Task Safety Analysis (TSA’s) 	<ul style="list-style-type: none"> • Task Safety Analysis (TSA’S)
<ul style="list-style-type: none"> • Design Reviews 	<ul style="list-style-type: none"> • Emergency Response Planning/Training/Drills 	<ul style="list-style-type: none"> • Emergency Response Planning/Training/Drills.
<ul style="list-style-type: none"> • Risk Assessment Reviews- Confirm all Health and Safety Hazards/Risks are identified and mitigations are to be in place. 	<ul style="list-style-type: none"> • Oversight Audits and Inspections (worksites, security, medical, regulatory compliance) 	<ul style="list-style-type: none"> • Oversight Audits and Inspections

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Engineering/ Design/ Procurement	Early Works Phase Construction	Construction Phase
<ul style="list-style-type: none"> Contract Work Scope Development 	<ul style="list-style-type: none"> Health and Safety Training (Energy Isolation –Lock-out/Tag-Out; Confined Space; Step Back) 	<ul style="list-style-type: none"> Critical Lifts- Planning, Analysis, Execution
<ul style="list-style-type: none"> Risk Register 	<ul style="list-style-type: none"> Health and Safety Kick-off Meetings and Orientations 	<ul style="list-style-type: none"> Document Management
<ul style="list-style-type: none"> Training Plan 	<ul style="list-style-type: none"> Ensure all operations are meeting Nalcor LCP Standards 	<ul style="list-style-type: none"> Coaching
<ul style="list-style-type: none"> Equipment Selection and Procurement 	<ul style="list-style-type: none"> Logistics/Transportation Oversight. 	<ul style="list-style-type: none"> Health and Safety Training (Confined Space, Energy Isolation, Step-Back)
<ul style="list-style-type: none"> Establish High Level Health and Safety Performance Standards 	<ul style="list-style-type: none"> Establish High Level Health and Safety Performance Standards 	<ul style="list-style-type: none"> Establish High Level Health and Safety Performance Standards
<ul style="list-style-type: none"> Define Vulnerabilities in Design, Construction, Procedures and Mitigations 	<ul style="list-style-type: none"> Track incident trends and implement mitigation measures. 	<ul style="list-style-type: none"> Track incident trends and implement mitigation measures.

10.2 LOWER CHURCHILL PROJECT REQUIREMENTS- HEALTH AND SAFETY INTEGRATION

Health and Safety has been identified as a cornerstone of the overall Lower Churchill Project Requirements. It must be fully integrated into all phases of the project. Nalcor has elected to adopt the OHSAS 18000 (an internationally recognized ISO formatted standard for Occupational Health and Safety) as its standard for Health and Safety Policies, Procedures and Programs for the corporation and the Lower Churchill Project.

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The OHSAS methodology and requirements require full integration of Health and Safety into in all stages and aspects of the Lower Churchill Project. The Newfoundland and Labrador Occupational Health and Safety Act and associated regulations must always be considered as one of the documents to be consulted in support of the integration.

Effective planning for Health and Safety is essential if the LCP is to be delivered on schedule, without cost overrun, and without experiencing incidents or damaging the health of Site personnel. A focus on continuous review, oversight and improvement must be undertaken and maintained to ensure the flawless execution of this project. The following chart reflects how Health and Safety will be integrated into the Lower Churchill Project:

Figure 7 : Integrating Health and Safety with Lower Churchill Project Requirements



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10.3 HEALTH AND SAFETY ORGANIZATION – LOWER CHURCHILL PROJECT

The Health and Safety Organization within the Lower Churchill Project will be provided with the appropriate level of support throughout the course of the project. The overall responsibility for safety performance on the Project will be the responsibility of Nalcor Energy Corporation. However, Health and Safety support will engage the resources of all personnel to fully support through total buy in to the Project Standards, Programs, Policies and Procedures.

As noted on the organizational chart on the next page, the Health and Safety Organization will include Health and Safety professionals from Nalcor and Subcontractors. The Health and Safety Organization is made up of the following support functions and organizations:

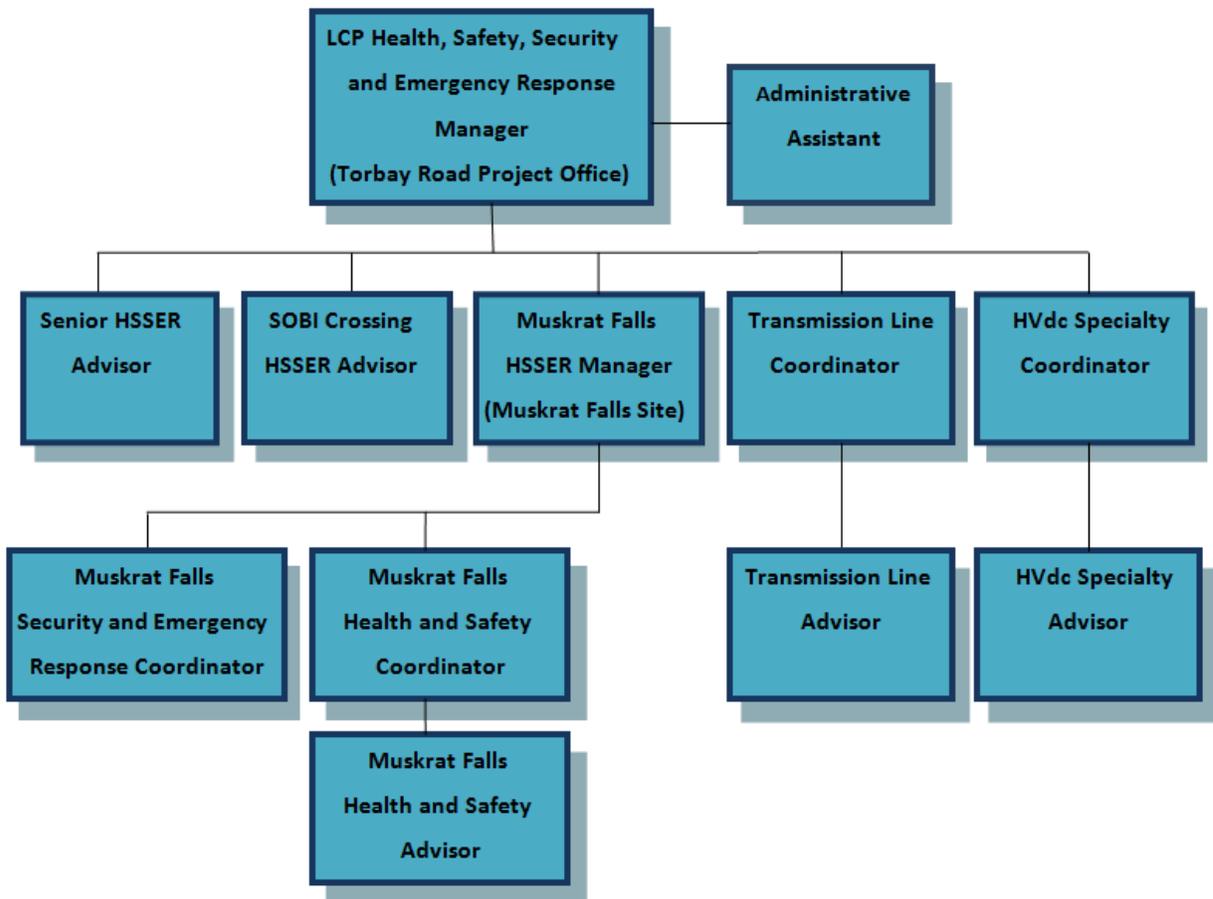
- The Project Delivery Team will have project oversight in terms of establishing governing corporate policies, procedures and programs. Corporate support includes oversight/auditing, policy and procedure development, health and safety initiatives and functional/directional support.
- The **Health, Safety, Security and Emergency Response (HSSER) Manager for the Lower Churchill Project**, located in St. Johns Torbay Road Office, will be providing functional support and expertise to the Project, as well as monitor and manage the overall Health and Safety direction of the Lower Churchill Project. The HSSER Manager also ensures consistency in direction, competencies, regulatory compliance, as well as implementation and application of Health and Safety policies, programs, procedures and strategies. The **LCP Senior HSSER Advisor** will report directly to the LCP HSSER Manager and will provide technical HSSER Support for the LCP, as and when required.
- The **Muskrat Falls Health, Safety, Security and Emergency Response Manager** (located at the Muskrat Falls Site) will report directly the Muskrat Falls Site Manager with a functional reporting to the LCP HES, Safety, Security and Emergency Response Manager. **The Muskrat Falls Health and Safety Coordinator** will be responsible for monitoring, tracking and reporting day to day activities at the Muskrat Falls Site and will have **Health and Safety Advisors** reporting to this

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position. The Muskrat Falls Security and Emergency Response Manager will report to the Muskrat Falls HSS and ER Manager and providing support to Transmission Line/Switchyard Activities and Operations as well.

- The **SOBI Crossing HSSER Advisor** will report directly to the SOBI Crossing Project Manager with functional support from the LCP HSSER Manager.
- The **Transmission Line/Switchyard HSSER Coordinator** will report to Component #3 and #4 Site Managers with functional support from the LCP HSS and ER Manager. This position will also manage and direct activities of the **Transmission/Switchyard Health and Safety Advisors**, who will provide on-Site Health and Safety Support.

Figure 8 : Health and Safety Organizational Chart



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11 CONTRACTOR MANAGEMENT

For onshore and offshore (where applicable for the SOBI work) construction, exploration and development operations, the work activities will be performed using contracted equipment and personnel. The competency and behaviour of the Contractors along with their integration into the operation as a whole can have a major impact on health, safety and environmental performance. Where applicable, LCP will ensure union management on Health and Safety are working cooperatively in the achievement of its vision. The Nalcor Energy - LCP will strive to engage reputable and fully qualified Contractors who have demonstrated an ability to conduct their activities in a manner consistent with the Nalcor Energy Health and Safety core elements as outlined above. The Lower Churchill Project has established certain minimum requirements and expectations that will ensure that Contractors conduct their activities in a safe and environmentally sound manner. These requirements form the basis of the Nalcor Energy guidelines and are conveyed to prospective Contractors during the bid process.

11.1 CONTRACTOR SELECTION CRITERIA

All Contractors are formally evaluated on their health, safety and environmental performance prior to awarding of a contract. To assist Nalcor Energy LCP in evaluating the quality and effectiveness of Contractors' Health and Safety management systems, each prospective Contractor will complete and submit, in support of the bid proposal, the Nalcor Energy LCP Bid Evaluation Questionnaire that provides an overview of the Contractors Health and Safety management system in terms of the following:

- Health and Safety Policy and commitment
- Management Involvement and Leadership
- Hazard Assessment and Risk Control
- Appropriate Safe Practices, Procedures and Rules

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- Training Program, including Orientation and Competency
- Communications/Health and Safety Meetings
- Incident Reporting, Investigation Policy and Analysis
- Regulatory Requirements/Compliance Plan
- Personal Protective Equipment (PPE) Policy and Program
- Environmental
- Emergency Preparedness
- Accident Statistics and Records
- Modified Work Programs/ Early Return to Work
- Maintenance Policy and Programs
- Substance Abuse and Testing and Accommodation Programs
- Subcontractor Management and Control Programs.
- OHS issued STOP Work, Non-Compliance Orders and/or Convictions for Violations of OHS Act/associated regulations.

11.2 CONTRACTOR HEALTH AND SAFETY PERFORMANCE MEASUREMENT

Details and frequencies of any monitoring, audits and review of Health and Safety Performance are contained in the Contractor’s overall Performance Reporting Procedures and the Contractor’s management systems.

Health and Safety statistics are prepared on a monthly basis by the Health and Safety Coordinator and forwarded to the Project Delivery Team for review. Additionally, a monthly update will be provided to the project management team, including the Contractor’s workforce to provide feedback on Health and Safety Performance and facilitate opportunities for continuous improvement.

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The Lower Churchill Project will ensure the timely follow-up and completion of corrective actions identified through field inspections, audits, incident investigation and safety meetings. It is the responsibility of the Senior Manager on a Worksite or marine vessel to ensure that all corrective actions are implemented and closed out in a timely basis. It is the responsibility of the Contractor Health and Safety Manager to ensure that action items are traced for verification of close out. As and when necessary, the Project Delivery Team will coach and guide the Contractor in the delivery of the Project in order to achieve its Vision.

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APPENDIX A

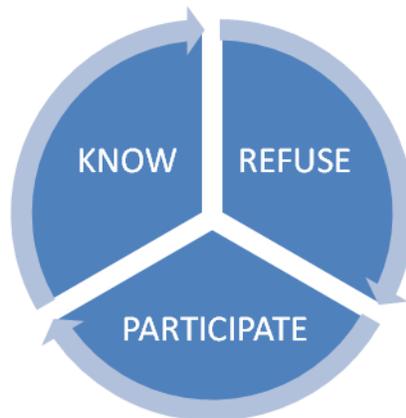
RIGHTS AND RESPONSIBILITIES OF EMPLOYEES

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Appendix “A”- Rights and Responsibilities of Employees

Each and every employee has certain rights under provincial Occupational Health and Safety law, including:

- Right to Know about the hazards within their workplace - All persons have the right to know of any working condition that may in any way pose a health safety and environmental hazard or risk within the workplace; (e.g. WHMIS).
- Right to Refuse hazardous work - All personnel have the right to refuse work when they have reasonable grounds to believe that the work may be hazardous to them, to their fellow worker and to the facility/vessel.
- Right to Participate in the development, implementation and improvement of environmental health, and safety programs - All persons have the right to participate in identification and management of Health and Safety issues; e.g. JOHS Committee



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Right to Know

The Nalcor Energy-Lower Churchill Project, in cooperation with its major contractors, will use a variety of processes to ensure all employees, including contractors, sub-contracted employees and following consultants are informed of any hazards that may be present in the workplace. These programs include the following:

- Employee Training and Orientations
- Occupational Safety & Health Committees/Representatives
- Group Safety Meetings
- Task Based Job Safety Analyses
- Permit to Work System
- Onsite Emergency Drills
- Signage and Placards
- Safety Alerts and Bulletins

Additionally, applicable Health and Safety documents and relevant legislation including the Contractor Safety Plan will be made readily available to all personnel.

Right to Refuse

As per Section (45) of the Newfoundland and Labrador Occupational Health and Safety Act – Chapter O-3 (1992):

1. A worker may refuse to do work that the worker has reasonable grounds to believe is dangerous to his or her health or safety, or the health and safety of another person at the workplace:
 - a. Until remedial action has been taken by the employer to the worker's satisfaction;
 - b. Until the committee or worker health and safety representative has investigated the matter and advised the worker to return to work; or
 - c. Until an officer has investigated the matter and has advised the worker to return to work.

2. Where a worker refuses to do work under subsection (1) his or her employer may reassign the worker to other work that is reasonably equivalent to the work he or she normally performs and the worker shall accept the reassignment until he or she is able to return to work under subsection (1).

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3. Where a worker is reassigned to other work under subsection (2) the employer shall pay the worker the same wages or salary and grant him or her same benefits the worker would have received had the worker continued in his or her normal work.
4. Where a worker has reasonably refused to work under subsection (1) and has not been reassigned to other work under subsection (2) the employer shall pay the worker the same wages or salary and grant the worker the same benefits the worker would have received had the worker continued to work, until he or she is able to return to work under subsection (1).
5. A reassignment of work under subsection (2) is not discriminatory action under section

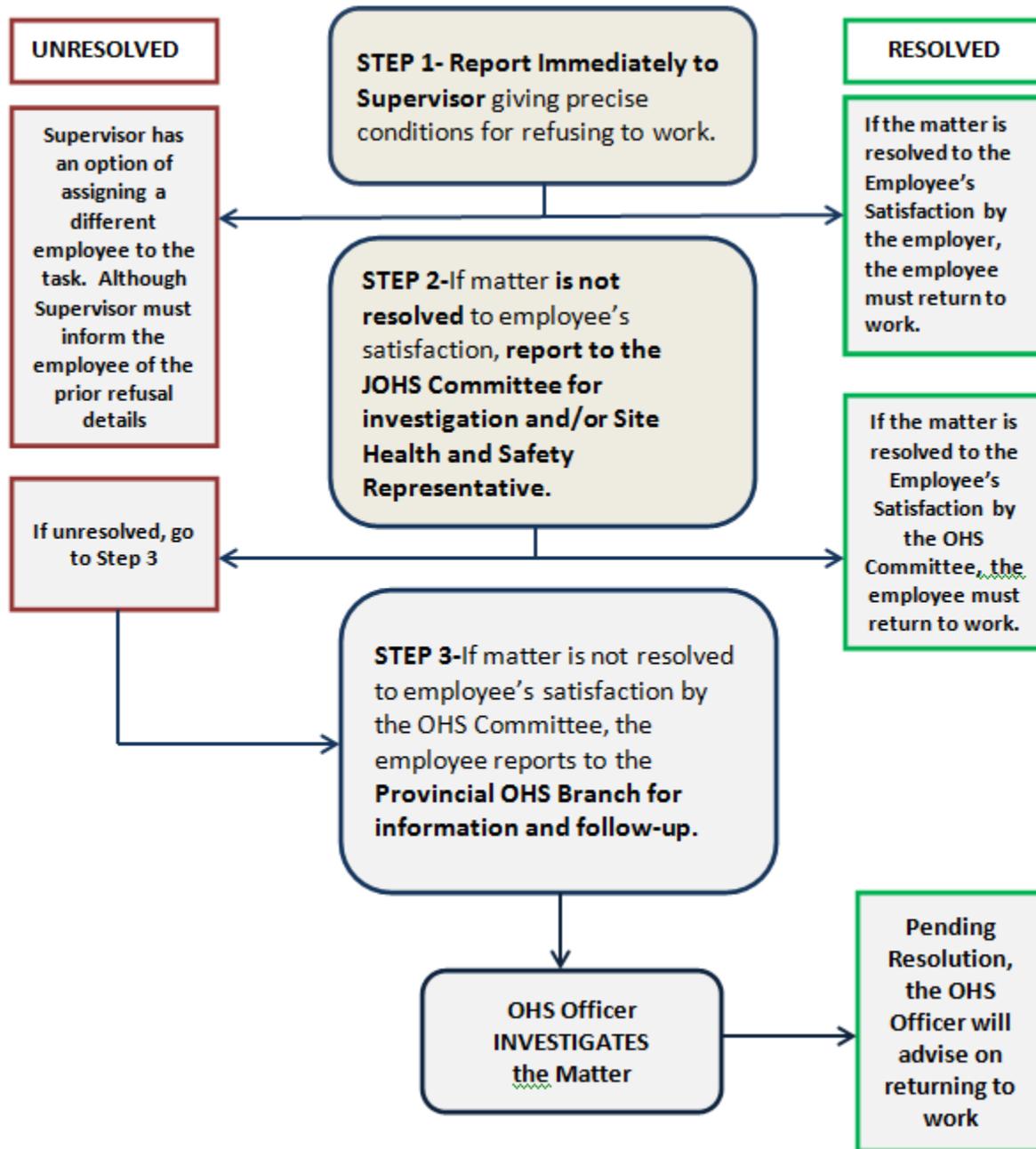
Discriminatory Action Prohibited

Section 49 of the Health and Safety Act of Newfoundland and Labrador states that an employer or union shall not take a discriminatory action against a worker by dismissing him or her or by deducting wages, salary or other benefits, or by taking other disciplinary action against him or her:

- Because of the worker's participation in or association with the committee, worker health and safety representative or workplace health and safety designate at the workplace, or because the worker is a worker health and safety representative or workplace health and safety designate;
- Because the worker has testified or is about to testify in a proceeding or inquiry under this Act or regulations;
- Because the worker has given information to the Workplace, Health, Safety and Compensation Commission, an officer or another person concerned with the administration of the Act or the regulations concerning the health, safety and welfare of workers at his or her workplace; or
- Because the worker has reasonably refused to work under his or her right to do so.

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Right to Refuse- Three Step Process For Resolution (as per OHS Act):



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Right to Participate (JOHS Committee)

Under PART IV of the OCCUPATIONAL HEALTH AND SAFETY REGULATIONS - COMMITTEES, REPRESENTATIVES AND DESIGNATES Section (25) identifies the Operations of committees, representatives and designates;

An employer shall ensure that:

- An occupational Health and Safety committee is established;
- a worker Health and Safety representative is appointed; or
- a workplace Health and Safety designate is designated; and
- a copy of the Act/ regulations under the Act are easily accessible.

Minutes of all regular meetings and special committee meetings shall be recorded in the form prescribed by the commission and one copy (1) shall be kept on file with the committee, one (1) copy shall be filed with the commission, one (1) copy shall be posted in a prominent place in the workplace and one (1) copy shall be forwarded to Nalcor Energy-Lower Churchill Project Health and Safety Group.

A worker Health and Safety Representative or a workplace Health and Safety designate shall report to the commission in the form required by the commission.

An occupational health and safety committee shall:

- Meet within two (2) weeks of its establishment
- Elect co-chairpersons as required by subsection 38(6) of the Act
- And notify the commission of the elected co-chairs

Health and Safety (JOHS) Committee

It is the policy of the Nalcor Energy-Lower Churchill Project, as well as a regulatory requirement to ensure that all personnel are provided an opportunity to be involved in EHS development and improvement efforts. Formal Health and Safety Committees provide leadership and direction for the Company and its business units and to allow for participation and input at all levels. The Health and Safety Committee structure is designed to establish positive, two-way communication throughout the organization and facility. The organization and function of the Health and Safety Committee shall be designed to meet the intent of applicable Newfoundland and Labrador legislation.

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The Committee shall:

- Consist of at least equal worker and management representation; Conduct meetings on a regular monthly basis or (every three (3) weeks for rotational crews where applicable)
- Prepare Committee meeting minutes and post minutes on the vessel or in onshore office bulletin boards for worker review and submit signed copies of these minutes to the Operator and the regulator
- Shall seek to identify aspects of the workplace that may be unhealthy and/or unsafe

In addition, as required under the Occupational Health and Safety Act and Associated Regulations, the Committee shall:

- Be notified and consulted where there is a likelihood that the safety or health of an employee is, or may be, endangered by exposure to a hazardous substance
- Be informed of all injuries and other “Hazardous Occurrences”
- Participate in incident investigations
- Have the right to accompany an officer of the division when health and safety inspections are being conducted

NOTE: During the Nalcor Energy-Lower Churchill Project all Safety Committees shall hold meetings on a monthly basis. If there are worker crews who change shift (e.g. every 3 weeks for rotational crews where applicable) each crew will have in place a safety committee.

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APPENDIX B

HEALTH AND SAFETY TRAINING

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Appendix “B”: Health and Safety Training

The following Health and Safety Training Opportunities will be provided to Employees, Consultants and Contractors to ensure core competencies are established and maintained.

Health and Safety Induction/Orientation

Prior to mobilization to any of the Lower Churchill Project work sites an Health and Safety Inductions/Orientations will be conducted for all LCP senior Management Personnel, Employees, Contractors, Subcontractor, Visitors and consultants. The Induction/Orientation shall provide an overview of the LCP and Contractor Health and Safety Programs and the Induction/Orientation will include the following:

- Project Overview
- Health and Safety Goals and Objectives
- Health and Safety Responsibilities
- Alcohol and Drug Policy
- Communications
- Training & Competency
- Hazard Identification and Reporting
- Personal Protective Equipment
- Site Specific Safety Policies
- Inspections and Audits
- Incident Reporting and Investigation
- Environmental Protection and Waste Management
- Emergency Preparedness
- Site Security

Informal Communications and Promotion

In addition to the induction and orientation, communication of Health and Safety Performance related information:

- Monthly Health and Safety Performance Updated
- Notices and Bulletins
- Safety Alerts
- Posters

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Personnel Qualifications Competency and Training

The Lower Churchill Project will ensure all project personnel are suitably qualified and trained as per the Contractor's "Training Matrix". The company training matrix will identify the training requirements for each position within the contractor's organization and will comply with Provincial and Federal legislative requirements and guidelines. Internal controls will be established by the Lower Churchill Project to ensure all appropriate personnel comply with the requirements and contractual arrangements and will require all contractors to cooperate in this effort.

Contractor's formal and in-house competency and training programs must consider the level of training required for the position and responsibilities of the personnel involved. The aim of their training programs is to provide an understanding of their procedures, equipment, risks and potential hazards that may occur. Details respecting Contractor's Competency and Training process shall be guided by the following:

- Selection and Control of Contractor Personnel;
- Competence Assessment and Records;
- Training;
- Induction Programs.

Health and Safety Training Matrix

Contractors will maintain independent training matrices which identifies the training requirements for each position in their respective organizations. The training matrix will be maintained up to date to ensure that personnel onshore/offshore have received the required regulatory and job specific training.

Service companies will be required to maintain a training matrix to ensure that all personnel who are working onshore/offshore on vessel are trained and competent in their positions. Training Matrices must be made available on work vessels (as appropriate) and at the worksites onshore/offshore.

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APPENDIX C

HAZARD IDENTIFICATION AND EVALUATION

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Appendix “C”: Hazard Identification and Evaluation

Job tasks will be reviewed and assessed for hazards/risks and risk management will be applied and utilized to reduce the risk as low as practicable. The following Nalcor risk methods and programs will be utilized on the Lower Churchill Project:

Be Safe Program



BeSafe is a behaviour-based safety program designed to develop skills in employees so that they can have respectful safety discussions with others. It is part of Nalcor’s second phase of a safety culture initiative aimed at strengthening personal responsibility for safety. It provides a standard conversational structure with which respectful discussions can occur around positive safety behaviours or potentially unsafe behaviours.

It allows employees to: Clearly and respectfully communicate safety concerns or observations, reinforce positive safety behaviours and engage in a collaborative problem solving approach to identify options to overcome potentially unsafe behaviours.

The objectives of the *BeSafe* program are to: understand key components of Nalcor’s Safety Culture including Personal Responsibility for Safety. understand what **BeSafe** is and why it is needed and practice **BeSafe** discussions.

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BeSafe is a 3-step process that provides guidance on safety conversations.

1. Say Something	B E S	Behaviour is the focus Express your observations Safety is the motivation
2. Discuss Options	A F	Acknowledge the other person’s view Form an agreement
3. Express thanks	E	Express gratitude

Task Based Risk Assessment (TBRA)

The “Task Based Risk Assessment (TBRA)” will provide LCP personnel with guidance and information with respect to the assessment of risk associated with hazards that will be present in the activities of the Lower Churchill Project. A TBRA will be conducted and/or reviewed when the following circumstances apply:

- When a job is being undertaken for the first time and the risks are unknown
- For non-routine jobs or new jobs where experience is limited
- Any job that is intuitively deemed to be a high risk
- IF IN DOUBT- CARRY OUT A JOB SAFETY ASSESSMENT (TBRA)

During the planning and preparation phase, TBRA, including hazard identification and hazard analysis, will be conducted by a multi-discipline team that brings expertise and knowledge in Construction, Drilling, Engineering, Operations and Health and Safety. All contractors involved in Task Based Risk Assessments will follow their own Risk Matrix System if compatible and acceptable to the Lower Churchill and Nalcor Energy corporate “Tasked Based Risk Assessment” procedure. The identification of occupational work hazards will be conducted utilizing but not limited to the following guidelines:

- Hazard Identification
- Specific Hazard Assessment
- Identify Hazard Effect and who may be affected
- Identify Risk Rating

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- Identify Controls
- Review Residual Risk After Controls Are Applied
- Document and Record
- Approval to Proceed
- Permit to Work Systems
- Regular Site Inspections by the Contractor Health and Safety Personnel and
- Audit of compliance and effectiveness to Safety Management Systems periodically assisted or conducted by Lower Churchill Project Health and Safety Personnel.

The need for continual monitoring and identification of hazards both at the operations and management levels is recognized as important by Lower Churchill Project and Contractors. These systems are in place to ensure that all incidents are reported, the causes investigated, and any necessary amendments made to operating practices or training of personnel are detailed in the Health and Safety Management Systems.

All Health and Safety risks, including risks associated with change, must be identified and effectively managed. Task Based Risk Assessment identification includes evaluating and prioritizing risks utilizing the Lower Churchill Project Risk (or contracted company) matrix to establish a definitive overall risk characterization and then eliminating or controlling the risks. These systems confirm that there is a two-way flow of communication/information between all project personnel.

In addition to pre-tour meetings, toolbox/tailgate meetings, work permits, etc., a TBRA gives the crew performing a particular job the opportunity to formally identify the dangers and hazards associated with that job and also what potential injuries and/or damage could result from them. Further, it allows the crew performing that job to clearly communicate what is to be done in order to eliminate or isolate those dangers and hazards so the work can be completed safely. Wherever possible, an alternative means of accomplishing the activity that removes the risk entirely shall be sought.

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Inspections and Audits

Lower Churchill Project Inspections and Audits shall be conducted on the contractors to identify potential health and safety issues. The purpose of the inspection and audit process is to:

- Identify and correct actual or potential hazards;
- Ensure continued compliance with regulations and company standards;

The following is a summary of potential inspections/audits for the marine vessels and equipment:

- Transport Canada Inspections;
- Classifications Survey;
- Nalcor Energy-Lower Churchill Project Inspections and Audits.

A Health and Safety Inspection Checklist is included in Appendix “O”

Behavioural Based Safety Program

A Behavioural Based Safety Program is a tool used to continuously improve safety performance through the identification, observation and reduction of at-risk behaviours and the elimination of incidents. Contractors who have these programs in place will use their programs to enhance overall safety performance in the work place (e.g. STOP, etc.). These programs shall be similar to the Lower Churchill Project and Nalcor Energy Corporate “Safe Workplace Observation Program (SWOP) (see it – fix it – report it)”. This tool is for all employees to use when identifying or observing hazards in the work place. The workers shall immediately correct and/or report potential hazards to their immediate supervisors and shall use the Nalcor Energy-Lower Churchill Project SWOP program or the contractor’s similar booklet to record the hazard observation and actions taken to mitigate such hazards.

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The Lower Churchill Project has a goal of becoming a safety leader. One of the key components in achieving “best in class” safety performance is a well developed system for the reporting, review, and analysis of sub standard conditions and practices (acts) as well as loss and “near miss” incidents.

The Safe Workplace Observation Program (SWOP) has been designed with a simple concept in mind: If an individual sees something that does not appear to be safe, if appropriate, they must take immediate action to correct it and then report the situation to their Supervisor for follow-up.

By reporting your “Observations” an individual will be helping to ensure that the conditions, practices (acts), or situations that create hazards in the workplace are identified, analyzed, and corrected before a significant loss can occur.

Since it is also important to recognize when something is done well, SWOP also has a commendation component to recognize the importance of celebrating successful safety performance.

Permit to Work (PTW)

Nalcor Energy-Lower Churchill Project takes into consideration that contractors will operate their business aspects at the work site and will require contractors to employ a permit to work system.

A “Permit to Work” system is a formal written system which provides a means of managing non-routine and higher risk tasks and activities. The permit to work procedures provide a method for supervisors and crew members to follow when undertaking certain types of tasks recognized to generate particular exposures to personnel or the site. The PTW system also furnishes management a formal method to administratively

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coordinate and control work that may adversely impact other concurrent work, impair safety systems or otherwise endanger personnel at the work site. The permit to work also provides a means of formal communications between personnel involved with the permitted job and those personnel that may be affected by it, and supervisors who have influence on how, when and where the work is done. The PTW system shall:

- Limit the scope of the task;
- Ensure supervisors and crew members follow procedures, are well informed, understand and follow the applicable safety precautions and recognize the need for and use of required safety equipment; (E.g. Personal Protective Equipment)
- Control the work within specified time limits;
- Encourage pre-task planning in order to minimize risk to personnel at the work site, and reducing the inconvenience and interference to other operations/activities as well as reduce any adverse impact;
- Enhance awareness of personnel responsible for overall safety by providing documented details of any known risks, of potentially hazardous activities in progress and appropriate mitigating measures;
- Provide a continuous control and record of ongoing work activities, detailing the nature of the work, required precautions/safeguards, and the responsible competent person in charge, this control and recording will be identified in a detailed “Permit to Work” system/process;
- Ensure that upon completion of work, equipment and site are left in a fully operable state, as well as a tidy and safe condition; and
- Provide formal notification of completion of all work to the Person in Charge (PIC). This notification is a part of a “Permit to Work” system/process.

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The issue of a permit to work does not, by itself, make a job safe. A permit to work is not simply permission to carry out a potentially hazardous task, but a critical communications and training tool for all affected personnel. It is part of a clearly defined system which assists in determining how a job can be performed safely; precautions that may need to be taken; specific procedures to safely perform the task; and ways to reduce the risk and hazards related to specific tasks. In accordance with Health and Safety Procedures, the use of permits is mandatory for certain operations; these include but are not limited to the following:

- Pressurized systems where there is a possibility of pressure release;
- Any marine vessel work performing over the side work;
- Hot/Cold work;
- Entry into confined space;
- Working on or isolating mechanical, pneumatic or electrical equipment;
- Any diving activities;
- Work involving handling of dangerous materials such as explosives etc.; and
- Heavy lifts.

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All new personnel shall receive induction and awareness training on the PTW and contractor JRS where applicable or the Lower Churchill Project TRSA process if required.

Incident Investigation and Reporting

The Lower Churchill Project is committed to providing a safe and healthy workplace for its Employees, Contractor Personnel, Subcontractor Personnel, Vendors and the general public. Safety is our No. 1 priority and it is one of the Company's seven (7) core values. Nalcor is committed to **Zero Harm – Nobody Gets Hurt**. We believe this is both achievable and sustainable, while we each have a personal responsibility for safety. The incident management plan must reflect the uniqueness/specifics of the work to be carried out and associated work locations.

Every Accident/Incident is a combination of causes. The Lower Churchill Project through the application of our Health and Safety Management system will endeavour to prevent incidents from occurring. The Lower Churchill Project encourages a culture where accidents/incidents are reported without prejudice. The Lower Churchill Project's Health and Safety Management system will be used to identify and report all accidents/incidents that occur in the workplace. In the event that an accident/incident does occur it will be investigated to the extent required to determine the basic and root cause and to effect appropriate corrective actions.

Accident/Incident investigations will be initiated as promptly as possible. The findings of the investigations will be documented and appropriate recommendation(s) will be developed and communicated to prevent recurrence of similar or other incidents. The appropriate ensuring recommendations will be assigned to an individual/position and implemented. All decisions and actions will be communicated.

Any accident/incident that could have resulted in significant injury or property damage (near miss) and all incidents that result in injury or property damage (including spills) will be investigated.

Accidents/Incidents (A/I) Investigations

Accidents and Incidents that must be investigated include the following:

- Fatalities
- Lost Time
- Medical Aid
- Vehicle Accidents/Incidents
- Fires and Explosions

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- Chemical and Pollutant Spills
- High Potential Near Miss incident

All employees are required to report any and all accidents/incidents/near miss incidents/spill hazard to their immediate Supervisor immediately. The supervisor will discuss the occurrence with the reporter in order to determine corrective actions. The Supervisor will immediately report the accident/incident/near miss incident/spill hazard to his Manager who will in turn report to the Lower Churchill Project representative on site immediately or within a 24 hour period of being notified of the incident. A final written A/I report shall be forwarded to the Lower Churchill Project representative no later than 14 days after the initial report was made. The A/I report shall identify the basic and root causes, recommendations and responsible person to ensure that recommendations and actions are completed and closed. The Contractors/sub-Contractors shall ensure that mitigations are taken and ensure that such incidents may never re-occur.

Accident/Incident Regulatory Reporting Requirements

Under Section 54 of the Newfoundland and Labrador Health and Safety Acts and Regulations requirements:

1. Where an accident takes place at a workplace:
 - That results in serious injury to a person or results in the death of a person; or
 - That had, or continues to have, the reasonable potential of causing serious injury to or the death of a person

The employer, or principal contractor shall immediately notify the Assistant Deputy Minister of the accident by reporting through the [24 Hour Accident Reporting Line](#) (709) 729-4444.

2. Where an accident is reported under subsection (1), notification shall immediately be given to the committee, the worker health and safety representative or the workplace health and safety designate.

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APPENDIX D

CHANGES AND MODIFICATIONS TO PROCEDURES AND EQUIPMENT

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Appendix “D”: Changes and Modifications to Procedures and Equipment

Modification of Contractors Procedures and or Personnel

Changes and modification applies to changes to programs, procedures, equipment and organizational structure, which may impact the health, safety, environment and financial wellbeing of the project. To better manage and control significant and/or major changes to or within the organization or contracted companies may require a more formal approach to accomplish the desired changes efficiently (e.g. Change Management). Such changes shall be reviewed through the Task Based Risk Assessment process, as any significant and critical changes should be subjected to an analysis, assessment and communication process.

Contractor Equipment Modification

Where significant modification are intended, it is the responsibility of the contractor to ensure that changes process is followed and a formal approval process is initiated for any significant equipment modifications. Depending upon the degree of modification requested a certifying authority’s approval may be required.

Equipment Fitness for Purpose

Any equipment used within the Lower Churchill Project, where applicable, shall have a Certificate of Fitness (CoF) for the area of operations. The contractor shall ensure that equipment complies with any regulatory requirements and industry standards and maintained. For example if a marine vessel is to be used on the Lower Churchill Project it shall meet all Transport Canada classification requirements, either costal trade or ocean going. Any equipment on the vessel that is not under the jurisdiction of Transport Canada may be certified by a certifying company (e.g. DnV). All certificates for vessels/equipment must be made available on the vessel or equipment used onshore must have a current safety inspection certificate and be made available for review.

The Lower Churchill Project will ensure that all Contractor equipment is fit for purpose. Only appropriately certified equipment will be used. If proper certification does not arrive with the equipment, the equipment will not be put into service until such time as verification can be made.

Any additional HS critical equipment requires appropriate certification prior to use (e.g. pressure vessels, materials handling equipment and lifting gear). It is the responsibility of the Contractor to ensure that any such additional equipment is fit for purpose and safe to use prior to commencing service.

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All lifting equipment (e.g. lifting slings, shackles, pad-eyes, etc.) is visually inspected by a competent person from the contractor prior to use and certified by a qualified 3rd party at least semi-annually. Certification certificates must be at the work site for review by the Lower Churchill Project personnel. A color coding system shall be in place for the purpose of identifying dates for inspection and/or testing. All Kevlar slings must be kept stowed in a secure area of the Tool Room and shall be used for specific uses only and visually inspected prior to each use and again before returning to the Tool Room.

The Lower Churchill Project will foster recognition and agreement from all contractors that reliance on the certification process alone is not sufficient to reduce operational risk of equipment design and construction to “As Low As Reasonably Practicable” (ALARP), and that this requires the personal, active, and visible involvement and participation of all workers and management at all levels.

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APPENDIX E

WORK STANDARDS, PRACTICES AND PROCEDURES

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Appendix “E”: Work Standards, Practices and Procedures

The work standards, practices and procedures described in this section are designed to reduce the likelihood of accidents/incidents in the workplace and are consistent with the Lower Churchill Project safety policies and procedures, safety management principles and legislative requirements. This section does not, however, cover all aspects of safety and special circumstances that may arise which will require professional judgment and common sense.

Occupational Health Hazards

The occupational health hazards most commonly encountered in worksite operations include the following:

- **Chemical Hazards** - Hazards resulting from harmful exposure to hazardous chemicals stored, handled or used in the workplace.
- **Illumination Hazards** - Hazards resulting from prolonged exposure to inadequate levels of lighting.
- **Radiation Hazards** - These are hazards resulting from exposure to harmful levels of ionizing and non-ionizing radiation.
- **Biological Hazards** - These are hazards resulting from exposure to living organisms such as viruses, bacteria, fungi and parasites.

Control of Occupational Hazards

The following engineering and administrative controls, safe work practices and personal protective equipment will be used to control exposure to occupational health hazards:

Chemical Hazards

As per the Canadian Federal requirements all worker working in a work place that will be exposed to or working in close proximity to Chemicals and Controlled products will have completed training in Workplace Hazardous Materials Information System (WHMIS), or equivalent training.

Ergonomics Hazards

Ergonomics is the practice of fitting workplace conditions and job demands to the capabilities of the working population. Simply put it is matching the work to the worker.

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Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker. Examples of musculoskeletal injuries include:

- Tennis elbow: an inflammation of a tendon in the elbow
- Carpal tunnel syndrome: a condition affecting the hand and wrist

Ergonomic hazards include repetitive and forceful movements, vibration, temperature extremes and awkward postures (that arise from improper work methods and improperly designed workstations, tools and equipment). Ergonomic issues are often a factor of work station design, repetitive work activity, improper lifting and reaching.

Heat Stress Hazards:

When a worker is exposed to extreme heat, a qualified person shall measure and record the conditions at frequent intervals. When a worker is exposed to extreme heat, that worker shall be instructed by a competent person on the symptoms of heat stress and the precautions to be taken to avoid injury from heat stress.

Cold Stress Hazards

When a worker is exposed to extremely cold temperatures, a qualified person shall measure and record the conditions at frequent intervals. When a worker is exposed to extreme cold, that worker shall be instructed by a qualified person on the symptoms of cold stress and the precautions to be taken to avoid injury from cold stress. For further information, refer to Appendix "F" which discusses PPE requirements for extreme cold weather conditions.

Noise Hazards

Where sound levels in a space exceed 85 dB, the entrance(s) to that space will be fitted with a sign identifying it as a "High Noise Area". The maximum time exposure of a worker in that space will not exceed the limits prescribed the American Conference of Governmental Industrial Hygienists Threshold Level Booklet. Where it is not reasonable or practicable to maintain the prescribed limits, appropriate hearing protection will be used.

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Illumination Hazards

All lighting systems, including emergency lighting, must be properly maintained. Adequate illumination shall be provided in all working areas, taking into consideration the nature of the work involved and the accepted standards of quantity and quality of light requirements. In an emergency situation when failure of the normal lighting system might constitute danger to a worker's health or safety, emergency lighting independent of the normal lighting source shall be available and tested on a regular basis to ensure that it will function in an emergency.

Where ambient lighting levels are not suitable for a particular job/task then additional lighting shall be procured.

Radiation Hazards

Storage, handling and use of radioactive substances will be licensed by the Canadian Nuclear Safety Commission. The amount of radioactive substances will be kept at a minimum stock necessary to carry out operations, and will be stored away from accommodation areas and passageways in a steel weather-proof container that is properly labelled.

Vibrational Hazards

Constant exposure to vibration has been known to cause serious health problems such as back pain, carpal tunnel syndrome, and vascular disorders. Vibration related injury is especially prevalent in occupations that require outdoor work, such as forestry, farming, transportation, shipping, and construction. There are two classifications for vibration exposure: whole-body vibration and hand and arm vibration. These two types of vibration have different sources, affect different areas of the body, and produce different symptoms.

Whole-body vibration is vibration transmitted to the entire body via the seat or the feet, or both, often through driving or riding in motor vehicles (including fork trucks and off-road vehicles) or through standing on vibrating floors (e.g., near power presses in a stamping plant or near shakeout equipment in a foundry).

Hand and arm vibration, on the other hand, is limited to the hands and arms and usually results from the use of power hand tools (e.g., screwdrivers, nutrunners, grinders, jackhammers, and chippers) and from vehicle controls.

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Occupational health effects of vibration result from extended periods of contact between a worker and the vibrating surface. Potential health effects of chronic whole-body vibration and hand and arm vibration exposure include the following:

- Whole-body Vibration: Back pain
- Hand and Arm Vibration: Decreased grip strength; Decreased hand sensation and dexterity; Finger blanching or “white fingers”; Carpal tunnel syndrome

Biological Hazards

Hygiene inspections will be conducted of accommodation areas, including food storage and preparation areas, where applicable.

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APPENDIX F

PERSONAL PROTECTIVE EQUIPMENT

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Appendix “F”: Personal Protective Equipment

All persons working on the LCP including visitors, will be required to use personal protective equipment (PPE) that is appropriate for the work being performed and the nature of the hazards involved. No person will be permitted to enter an area, or perform any work, where personal protection is required unless that person is correctly attired with the necessary protective clothing or equipment.

All personnel on site will be required to wear standard PPE (i.e., hard hat (with side impact protection), safety boots, high-visibility safety vest, and safety glasses meeting requirements noted below). With respect to the requirements for additional PPE, a risk assessment will be carried out prior to work commencement to determine additional PPE requirements considering site conditions, the nature of the work activity and associated safety risks.

Nalcor Energy requires contractors to ensure that their personnel are instructed in the proper use and care of that equipment.

Cold Temperature Clothing

Clothing must be suitable for the working conditions and must provide protection for low temperatures, high wind velocities and the resulting wind chill factors. The following chart is for determining wind chill factors:

		Air Temperature (Celsius)																
		0	-1	-2	-3	-4	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60
Wind Speed (km/hr)	6	-2	-3	-4	-5	-7	-8	-14	-19	-25	-31	-37	-42	-48	-54	-60	-65	-71
	8	-3	-4	-5	-6	-7	-9	-14	-20	-26	-32	-38	-44	-50	-56	-61	-67	-73
	10	-3	-5	-6	-7	-8	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63	-69	-75
	15	-4	-6	-7	-8	-9	-11	-17	-23	-29	-35	-41	-48	-54	-60	-66	-72	-78
	20	-5	-7	-8	-9	-10	-12	-18	-24	-30	-37	-43	-49	-56	-62	-68	-75	-81
	25	-6	-7	-8	-10	-11	-12	-19	-25	-32	-38	-44	-51	-57	-64	-70	-77	-83
	30	-6	-8	-9	-10	-12	-13	-20	-26	-33	-39	-46	-52	-59	-65	-72	-78	-85
	35	-7	-8	-10	-11	-12	-14	-20	-27	-33	-40	-47	-53	-60	-66	-73	-80	-86
	40	-7	-9	-10	-11	-13	-14	-21	-27	-34	-41	-48	-54	-61	-68	-74	-81	-88
	45	-8	-9	-10	-12	-13	-15	-21	-28	-35	-42	-48	-55	-62	-69	-75	-82	-89
	50	-8	-10	-11	-12	-14	-15	-22	-29	-35	-42	-49	-56	-63	-69	-76	-83	-90
	55	-8	-10	-11	-13	-14	-15	-22	-29	-36	-43	-50	-57	-63	-70	-77	-84	-91
	60	-9	-10	-12	-13	-14	-16	-23	-30	-36	-43	-50	-57	-64	-71	-78	-85	-92
	65	-9	-10	-12	-13	-15	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	70	-9	-11	-12	-14	-15	-16	-23	-30	-37	-44	-51	-58	-65	-72	-80	-87	-94
	75	-10	-11	-12	-14	-15	-17	-24	-31	-38	-45	-52	-59	-66	-73	-80	-87	-94
80	-10	-11	-13	-14	-15	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
85	-10	-11	-13	-14	-16	-17	-24	-31	-39	-46	-53	-60	-67	-74	-81	-89	-96	
90	-10	-12	-13	-15	-16	-17	-25	-32	-39	-46	-53	-61	-68	-75	-82	-89	-96	
95	-10	-12	-13	-15	-16	-18	-25	-32	-39	-47	-54	-61	-68	-75	-83	-90	-97	
100	-11	-12	-14	-15	-16	-18	-25	-32	-40	-47	-54	-61	-69	-76	-83	-90	-98	
105	-11	-12	-14	-15	-17	-18	-25	-33	-40	-47	-55	-62	-69	-76	-84	-91	-98	
110	-11	-12	-14	-15	-17	-18	-26	-33	-40	-48	-55	-62	-70	-77	-84	-91	-99	
		0 to -10 Low			-10 to -25 Moderate			-25 to -45 Cold			-45 to -59 Extreme			-60 Plus very Extreme				

High Visibility Vests, Coats, Shirts, Jackets on the work site must be compliant with the most current CSA Z96.1 standard.

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All personnel working near “energized” electrical equipment or transmissions lines shall wear Fire Retardant Coveralls (Nomex or equivalent). All coveralls must be equipped with high visibility materials/reflective stripping as per the latest CSA Z-96.1 standard.

When construction site personnel are exposed to the hazard of moving vehicles or heavy equipment, they shall wear distinguishing apparel containing highly visible material suitable for daytime or night time use. Work Vests, Coveralls or Jackets must be equipped high visibility, reflective striping as per CSA Standard- Z 96.1, “Guideline on the Selection, Care and use of High-Visibility Safety Apparel (HVSA).”

Protective Headwear

Protective hard hats are designed to protect the wearers’ head from impact (including side impact) and penetration of falling objects. All personnel will ensure that their industrial protective headwear meets the design standards set out in CSA Standard CAN/CSA Z94.1-92 will be worn when outside offices and other exempt areas. Hardhat liners or other apparel suitable to protect the neck and head from cold injury must be worn with the hardhat in extreme cold. All hard hats must be provided with side impact protection.

Protective Footwear

Protective footwear that meets the design standards set out in CSA Standard CAN/CSA Z195-02 (Green Triangle) will be worn when outside offices and other exempt areas. Safety boots must have Grade 1 Toe Protection. Those personnel working in and around electrical power generation and transmission links must wear electrically resistive safety boots (Orange Omega Symbol) In terrain conditions where there is a risk of ankle injury or falls, footwear with ankle support (between 6 and 8 inches boot height) and aggressive treads must be worn on the site.

Eye and Face Protection

Eye and face protective equipment that meets the design standards set out in CSA Standard CAN/CSA Z94.3.1 will be worn where there is a potential for an injury to the eyes, face, ears or front of the neck. Industrial safety glasses with permanent side shields will be worn when outside offices and other exempt areas. Plastic Lenses must be treated to block UV rays. Safety glasses must have non-conductive frames. CSA approved safety eyewear is required at all times on work sites, except in vehicles and camp facilities.

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The minimum standard for eye protection is CSA approved safety glasses with fixed side shields. Full-face shields, mono goggles or other types of eye protection must be worn when safety glasses are not adequate to protect from impacts (i.e. grinding, abrasive blasting etc.).

Contact lenses should not be worn in areas where dust is common or strong chemicals are used. Where there is a potential for chemical or particulate exposure to the eyes, ensure an appropriate portable eye-wash system, capable of delivering approximately 0.4 gallons per minute for at least 15 minutes, is readily available. Safety goggles face shields or glasses with side shields are also required to be worn to protect from splashes or particle projectiles. Contact lenses should always be removed to adequately flush foreign substances from the eyes.

Prescription vision correcting eyeglasses must be CSA approved safety glasses with rigid side shields or worn under approved safety glasses.

Hearing Protection

Hearing protection must meet the design standards set out in CSA Standard Z94.2- (latest edition) will be used where sound levels exceed 85 db(A). CSA Standard Z94.2 94 hearing protectors such as earmuffs or earplugs will be available and worn in high noise areas (above 85 dB (A) or whenever there is a risk of hearing impairment. Workers should be made aware of their reduced ability to hear warnings and noises when wearing ear protection.

A contractor whose workers will be exposed to noise levels at or in excess of 85 dB(A) must have a hearing conservation program. The plan will address how workers will be monitored and protected from excess noises.

Hand Protection

Gloves suited for the work will be worn to protect against cuts, burns, electricity, chemicals and exposure (heat or cold) to the elements. In most cases, cotton work gloves suitable for visitors/inspectors to the work site. For material and equipment handling tasks, leather palmed gloves must be worn to provide adequate hand protection. For handling chemicals or hydrocarbon products, chemical resistant gloves must be worn. For any question regarding types of gloves for a particular task, the supervisor or safety representative should be contacted.

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Skin Protection

An apron, full-face shield and rubber gauntlet-style gloves will be provided to every person required to handle caustic soda, acids or other corrosive products. Barrier creams or lotions will be provided to workers who may experience a rash on their skin from chemical irritants.

Fall Protection

Every person will use fall protection equipment that meets the design standards set out in CSA Standards Z259 family of standards as prescribed in the OHS Regulations concerning fall protection. CSA Standards identified in this section on fall protection are also referenced in the OHS Regulations concerning fall protection.

Fall protection systems may include barricades, guard rails, work platforms and scaffolding. Contractors must use fall protection to protect themselves from falling. In addition, personal fall restraint and arrest systems will be used where necessary. All workers utilizing fall protection systems are required to complete a training program on fall protection as prescribed by the commission (WHSCC).

Ensure that systems are designed and constructed as per regulatory requirements. Ensure temporary structures are inspected prior to use, regularly during use and when transferred.

Ensure all fall arrest systems, devices and procedures comply with regulatory requirements.

Ensure workers who will use fall protection systems are competent and adequately trained in fall protection systems (i.e. hazards, use, limitations, inspections etc.). The Newfoundland OHS Regulations require that all workers required to utilize fall protection equipment must complete a training program on fall protection as prescribed by the WHSCC. Ensure workers have reviewed the fall protection rescue plan and signed off to ensure they understand it.

Fall restraint systems must be used when working above, over moving machinery or over water where, due to temperature or depth, or current movement, self-rescue is difficult or impossible.

Ensure lifelines optimize connection points for workers' personal fall-arrest devices.

Ensure workers connect lanyards so that the maximum free fall is restricted to 1.2m or otherwise prescribed in current regulatory requirements. Position personnel to prevent pendulum swing falls

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Part of the harness system is two shock absorbing lanyards with locking snaps. Ensure the shock-absorber end is always connected to the safety harness. It is recommended that a full body harness with two shock absorbing lanyards attached to the back “D” ring is worn. (NOTE: Fall arrest systems may have various applications during the course of the project and their configurations could be different from what is recommended above. Any deviations to the system noted above should be approved by the LCP Muskrat Falls Health and Safety Manager or LCP Muskrat Falls Health and Safety Manager or Coordinator.)

Ensure anchoring points meet the health and safety requirements.

A subcontractor whose workers are exposed to the risk of falling must have a fall protection plan for the work. The plan must assess the fall hazards, fall protection and maintenance of fall protection equipment and the plan must be communicated with all workers at the job site.

Drowning Protection

All personnel working near or over the water are required to wear a personal flotation device meeting CAN/CGSB – 65-CCP-14M. Additionally, all personnel who work over-the-side of a marine vessel or in an area where there is a danger of falling overboard will be required to use a life jacket or personal floatation device that meets the design standards set by the Canadian General Standards Board and the Canadian Shipping Act and Regulations. The floatation device must meet the CGSB Standard CAN/CGSB 65.11-M88 or equivalent.

Respiratory Protection

In areas or spaces where there is a hazard of an airborne hazardous substance or an oxygen deficient atmosphere, respiratory protection equipment that is listed in the NIOSH Certified Equipment List will be required. Training will be provided specific to the equipment to be used prior to actual usage. Respiratory Protection must be CSA approved and meet the requirements of CSA Z94.4. (Selection, Use and Care of Respirators). Reference should be made to OHS Regulations s.83, s84, s85 and s86 pertaining to respiratory protection for additional guidance and clarification.

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APPENDIX G

WORKING IN COLD ENVIRONMENTS

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Appendix “G”: Working in Cold Environments

The ability of workers to function and work normally in cold environments is affected by the degree and extent of exposure to sub-zero conditions. Additional precautions must be considered with regard to using lifting equipment in extreme cold temperatures.

Contractors must be adequately prepared to ensure personnel are not put at risk due to exposure to cold conditions. The following standards must be followed when personnel are required to work in cold conditions. The changes to human performance under such conditions are due to two main factors:

1. The environmental temperature
2. The clothing required to maintain a safe core body temperature and to fully function in the environment in the execution of an assigned task.

Cold Safe Work Standards

Rest breaks must be planned for and utilized to allow workers to warm up particularly their extremities. These breaks should not be less than ten (10) minutes in length and should be taken in a heated area. Outer clothing should be removed to prevent overheating and sweating when in the heated area. Returning to cold work while damp or sweaty may result in rapid chilling. The following recommended work practices should be followed:

Under conditions of continuous work in the cold:

- Heated warming shelters (i.e. bus, vehicles) should be provided. Workers should be encouraged to use these at regular intervals, the frequency of use depending on the severity of environmental exposure.
- When entering the heated shelter, outer and middle clothing layers (as necessary) should be removed to prevent overheating and to permit dampness to evaporate. A change of dry clothing may be necessary.
- Warm fluids should be consumed at the work site to provide energy, warmth, and replace fluids lost during work. Significant fluid loss can occur in the cold due to sensible and insensible sweating,

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breathing, and the extra energy requirements of working in the cold. Dehydration in the cold is a serious concern, increasing a worker’s susceptibility to hypothermia.

- The onset of severe shivering, the feeling of excessive fatigue, drowsiness, irritability or euphoria are indications for immediate return to the shelter.

Warm up Schedule for Cold Temperatures

(Threshold Limit Values for Work and Warm-up Schedule for 4 Hour Shift)

AIR TEMPERATURE SUNNY SKY		NO NOTICEABLE WIND		8 KPH WIND		16 KPH WIND		24 KPH WIND		32 KPH WIND	
°C	°F	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	Normal work hours and break periods	1	Normal work hours and break periods	1	75 min.	2	55 min.	3	40 min.	4
-29° to -31°	-20° to -24°	Normal work hours and break periods	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32° to -34°	-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38° to -39°	-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -42°	-40° to -44°	30 min.	5	Non-emergency work should cease							
-43° & below	-45° & below	Non-emergency work should cease									

Source: American Conference of Governmental Industrial Hygienists, Inc. (ACIGH) 1999.

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Notes:

1. *The schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of 10 minutes in a warm location, and with an extended break (e.g. lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at -35oC with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period because they generate less body heat when they are less active and therefore, will get colder sooner.*
2. *The following is suggested as a guide for estimating winds velocity if accurate information is not available: 8 kph: light flag moves; 16 kph: light flag fully extended; 24 kph: raises newspaper sheet; 32 kph: blowing and drifting snow.*
3. *If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be*
 - a) *special warm-up breaks should be initiated at a wind chill of about 1750 W/m², and*
 - b) *all non-emergency work should cease at or before a wind chill of 2250 W/m². Wind chill cooling rate is defined as heat loss from a body expressed in watts per meter squared which is a function of the air temperature and wind velocity upon the exposed body.*

In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing are appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder range because windy conditions rarely prevail at extremely low temperatures.

The above table represents a minimum recommended schedule of maximum cold weather work periods that must be followed by a rest period. The table takes into account the combination of wind and temperature, and applies to moderate to heavy work activity. The notes on the page after the table explain how to adjust its recommendations for lighter work activity.

These TLV’s apply only for workers in dry clothing.

Special Precautions

Exposure to vibration may increase a worker’s susceptibility to cold injury because of the way that vibration can reduce circulation, particularly in the extremities.

Work performed in snow or ice-covered terrain may require tinted safety eyewear with side shields for protection from glare.

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Workers with health conditions that affect normal body temperature regulation or impair circulation e.g. Raynaud's syndrome, diabetes, thrombophlebitis, etc. should take appropriate precautions when working in the cold.

Body parts that have sustained a frostbite injury are sensitive to re-injury. Workers should be aware of this and limit opportunities for re-injury.

If loose or bulky clothing is worn, special care should be taken when working around moving equipment or machinery to prevent clothing entrapment.

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APPENDIX H

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM)

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Appendix “H”: WHMIS (Workplace Hazardous Materials Information System)

The Workplace Hazardous Materials Information System (WHMIS) is a Canada-wide Hazard Communication System that deals with the most basic aspects of health and safety at worksites where chemicals are handled. It is fundamental “right to know” legislation. It enables anyone at a worksite to become knowledgeable about the hazards of the chemicals they handle or are potentially exposed to. Information about hazardous materials or “controlled products” will be provided in two forms:

- Labels or placards on the product containers, and
- Material Safety Data Sheets (MSDS).

Suppliers of controlled hazardous products and employers are both responsible for providing information of the controlled hazardous products and material.

Roles/Responsibilities

Supplier Responsibilities

- Appropriate labelling hazardous materials supplied to the workplace, and
- Preparation of the applicable MSDS.

Employer Responsibilities

- Must make the information available to all workers and ensure that a hazardous substance inventory is maintained for the regulated hazardous materials encountered on the worksite.
- Employers must have a corresponding current MSDS located for easy access by all employees. MSDS expire after three years and must therefore be renewed at the three year point or, the manufacturer can supply written confirmation that since no changes to the product/MSDS have occurred, the life of the existing MSDS is extended by attachment of the written notice.
- Employers must ensure all personnel that would potentially handle or be exposed to controlled products receive adequate training in Workplace Hazardous Materials Information System (WHMIS) and this training is current.

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Worker Responsibilities

- Hazardous products are labelled with supplier labels and/or appropriate worksite labels or other required identification;
- Comply with corresponding current MSDS requirements; and
- Are handled and stored in accordance with Company and legislated requirements.

Labels

- All products shall meet the following label requirements:
- Controlled products, chemicals and other hazardous materials, which have been brought to the workplace, must have a “Supplier Label” attached. If no label is attached or exists, the product should not be accepted, and returned with the carrier;
- The supplier label identifies the product and provides basic hazard information and hazard prevention measures;
- Symbols and written material are used on the labels so that you can immediately recognize the associated hazards;
- Controlled products manufactured at the worksite are to be labelled with “Worksite Labels or placards”. These include controlled products from outside whose original supplier labels may have been damaged, bulk containers of controlled products, and products that have been decanted;
- The worksite label identifies the product and includes basic information on its safe use, handling, storage, and disposal and refers the user to the Materials Safety Data Sheet (MSDS);
- The Hazard Symbol Chart below describe all symbols and classifications to help you prepare a worksite label; and
- For information on the symbols that do or do not apply, consult the respective MSDS. Only those symbols that do apply should be identified on the worksite label.

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WHMIS Hazard Symbols

Symbol

Description



A: Compressed Gas (Oxygen, acetylene, Propane, aerosol spray cans, etc.)



Class B: Flammable and Combustible Materials



Class C - Oxidizing Materials that can emit Oxygen and thereby help other materials burn

Class D: Poisonous and Infectious Materials



D1 - Materials causing immediate and serious toxic effects



D2 - Materials causing other toxic effects that cause long-term eye/skin irritations



D3 - Bio-hazardous infectious materials (Live bacteria or viruses)



Class E - Corrosive materials that cause burns through the skin or eyes, or by inhalation



Class F - Dangerously reactive materials that can burn or explode if exposed to excessive heat, shock, or mixed with other chemical products.

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Material Safety Data Sheets

MSDS provide detailed information on controlled products. MSDS must be made available at the field office/worksites for all controlled products that you will come in contact with. If you find that a MSDS is not available, contact your supplier immediately; they are responsible for providing you with a current MSDS for the product. WHMIS requires a current MSDS to be supplied by the manufacturer of the product. MSDS have a shelf life of three (3) years.

The nine essential sections of a MSDS are as follows:

1. Product Identification and Use: This includes the manufacturer and supplier's name, address and telephone number, the product identifier, and product use. A distributor buying a controlled product for resale does not have its own identification on the MSDS.
2. Hazardous Ingredients: This provides a list of chemical identifications of all controlled products and their concentrations. Where a concentration is expressed as a percentage, it is generally by weight.
3. Physical Data: This includes the physical properties of the controlled product such as odour, density, boiling point, melting point, etc.
4. Fire or Explosion Hazard: This provides information such as the flammability limit, upper and lower explosive limits, and means of extinction.
5. Reactivity Data: This includes the conditions under which the material is unstable, the names of the substances that the product is incompatible with, and the hazardous decomposition products.
6. Toxicological Properties: This provides information on the possible health effects of the product from acute or chronic exposure, exposure limits, and names of toxicologically synergistic products.
7. Preventive Measures: This provides the required Personal Protective Equipment (PPE), specific engineering controls, emergency procedures, waste disposal, and storage and shipping requirements.
8. First Aid Measures: This includes specific first aid measures for workers.
9. Preparation Information: This provides the name and telephone number of the group preparing the MSDS and the date of preparation.

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Waste Management

For the identification, classification, handling and disposal of waste potentially generated during the Lower Churchill Project, please refer to the LCP Waste Management Plan which is part of the overall LCP Environmental Management Plan.

Transportation of Dangerous Goods (TDG)

Dangerous goods include potentially hazardous materials such as explosives, compressed and liquefied gases, flammable liquids and solids, oxidizing materials, and other substances that are poisonous, infectious, radioactive or corrosive. The Transportation of Dangerous Goods Act (TDG) exists to protect people, the environment, or property when goods are being transported by road, rail, sea or air. Shippers, carriers and receivers are all responsible for ensuring that shipments of dangerous goods comply with federal, territorial, provincial and municipal laws. Payments of any fines assessed are the responsibility of those failing to comply.

Responsibilities of the Consignor

The consignor (the shipper) must ensure that in accordance with TDG Regulations the goods are:

- Classified
- Packaged
- Marked
- Labelled
- Documented
- The consignor must provide to the carriers a copy of the shipping document and placards, if necessary. Consignors must also report any dangerous occurrences in accordance with the regulations.

Responsibilities of the Carrier

Carriers must follow all applicable TDG and other legal requirements. They are responsible for:

- Checking the shipment before accepting it;

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- Checking the documentation for accuracy;
- Mounting placards;
- Maintaining or replacing safety marks, labels, and placards, if necessary;
- Ensuring that the driver has in their possession a current TDG certificate;
- Ensuring proper shipping documents as outlined in the regulations are in the vehicle including MSDSs;
- Delivering shipping documents as outlined in the regulations; and
- Reporting any dangerous occurrences that happen during transport.
- Transport vehicle has provisions for containing and cleaning any minor spills that may occur and the driver has been trained to carry out the task as required

Note: TDG Certificates are required to be renewed every three (3) years.

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Transportation of Dangerous Goods Classifications

Class 1: Explosives

 <p>1.1 Major Explosion</p>	 <p>1.2 Major Projection</p>	 <p>1.3 Major Fire</p>
 <p>1.4 Localized Explosion</p>	 <p>1.5 Insensitive Mass Explosion</p>	 <p>1.6 Extremely Insensitive</p>

Class 2: Gases

 <p>2.1 Flammable Gas</p>	 <p>2.2 Non-Flammable, Non-Toxic Gas</p>	 <p>2.3 Toxic Gas</p>	 <p>Oxidizing Gas</p>
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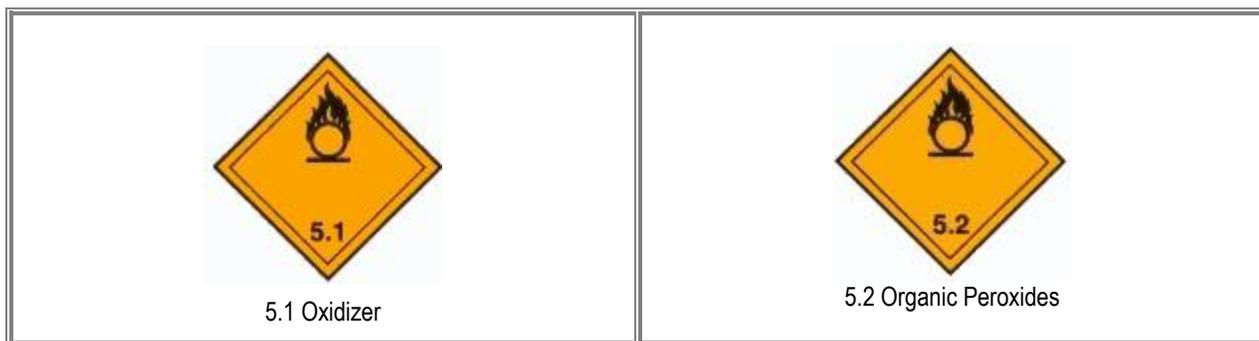


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Class 4: Flammable Substances



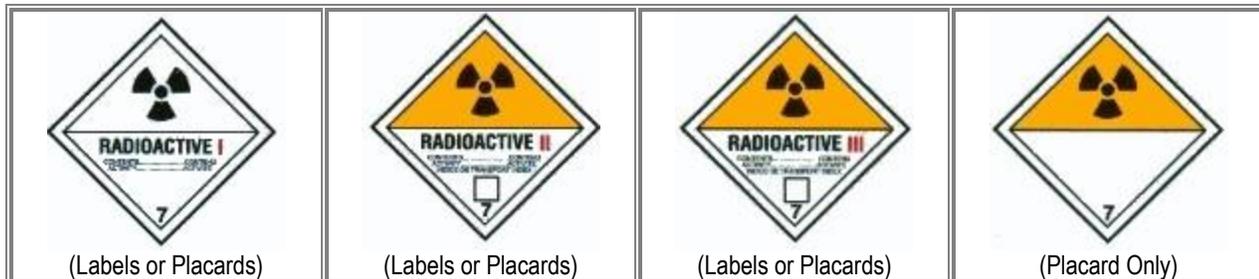
Class 5: Oxidizers / Organic Peroxides



Class 6: Toxic / Infectious Substances

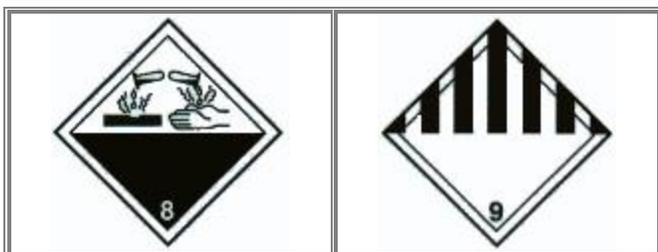


Class 7: Radioactive



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Class 8: Corrosives Class 9: Miscellaneous



UN Number, Packing Groups, Mixed Load

<p>UN 1830</p> <p><i>or</i></p> <p>UN Number (Label)</p>	<p><i>or</i></p> <p>UN Number (Placard)</p>
<p>Packing Groups</p> <p>I Great Danger</p> <p>II Moderate Danger</p> <p>III Minor Danger</p>	<p>Mixed Load (Placard)</p>

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APPENDIX I

TRANSPORTATION

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Appendix “I”: Transportation

Aircraft Safety – Helicopters/Fixed Wing Aircraft

During the course of the Lower Churchill Project, workers may be required to use helicopters to access remote areas to undertake fieldwork or use charter fixed wing aircraft to access areas when commercially scheduled flights are not available. During new hire orientation sessions, aircraft safety requires discussion by a competent individual. All personnel that are required to fly are aware of safety practices/procedures. The following will serve to acquaint workers with the general procedures governing passenger conduct working in and around helicopters and fixed wing aircraft.

Pre-Flight Information

- Prior to boarding the aircraft, all passengers will participate in the safety orientation conducted by the pilot will conduct. A safety orientation will be conducted whenever a new passenger joins the flight or the aircraft type changes.
- Pilot will provide instructions on operating latches, stowage of gear and prohibited items, location of emergency equipment and survival equipment in that model of aircraft as well as how and when to approach or disembark the aircraft.
- Pilot will identify the location of the survival kit. Confirm the kit is adequate to support the number of people in the aircraft.
- Pilot will advise the emergency landing posture for the aircraft type that is to be used that day.
- All passengers will advise the pilot it is their first flying experience or if they have any personal concerns.
- All passengers must dress accordingly; consider the environment and the weather conditions that might be encountered.
- Advise the pilot of the equipment and hazardous goods that you are going to bring on the aircraft.
- Carry, on your person, a reserve of any special medication you require, as delays may occur.

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Embarking and Disembarking – General Aircraft

- Passengers shall approach, board or leave the aircraft only when directed to do so by the pilot or qualified ground crew member.
- Passengers shall obey all instructions given by the pilot.
- Use hearing protection devices provided.
- Conversation with the pilot should be restricted during the take-off and landing phases of the flight, as should intercom discussions among passengers.
- Smoking is prohibited within 10 meters of the landing pad, aircraft manoeuvring or parking areas.

Embarking and Disembarking – Helicopter

- It is preferred that the helicopter be shut down for loading and unloading passengers; in the event this is not possible, passengers shall approach, board or leave a helicopter only when signalled to do so by the pilot.
- Eye protection will be worn while boarding and leaving a helicopter that is not shutdown.
- Passengers shall approach and leave the helicopter within the pilot's field of view and walk in a crouched position while under the main rotor.
- Passengers shall only approach a helicopter, in uneven terrain, by moving up-slope or disembark by moving down-slope.
- Passengers shall not walk behind the rear doors of the helicopter cabin.
- Passengers shall not carry any objects to or from the helicopter above shoulder height.
- Hardhats, baseball caps or other headgear shall be carried to and from the helicopter or be equipped with chin straps for use near helicopters.
- Passengers will leave the helicopter and move away during refuelling.

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- During arrival and departure of helicopters, stay off the landing pad to avoid exposure to flying particles and secure all equipment within the down wash zone of the landing pad.

Vessel Operations

LCP, Contractor and subcontractor workers may be involved in boat operations during the course of the Lower Churchill Project. All workers shall wear a Canadian Coast Guard approved personal floatation device when traveling by boat and when working over water where there are no handrails or lifelines. Specific site conditions will be assessed for hazards using the appropriate risk assessment tool (JSA, LMRA etc.) and additional procedures be developed and implemented as needed.

Before boarding any sea going vessel, personnel working on the vessel must be trained in:

- Survival at sea
- Aircraft rescue at sea
- Cold weather and arctic survival

General Vehicle Safety

It is imperative for workers to exercise a high level of safety responsibility when operating a vehicle either on or off the highway or on any of the sites of the Lower Churchill Project.

All drivers will:

- Possess a valid driver's license.
- Drive at or below posted speed limits.
- Use a vehicle suitable for the conditions expected.
- Will make them-selves familiar with the vehicle jacking tools, emergency equipment and ensure the vehicle has a serviceable spare tire.
- Prior to getting into a vehicle, walk around the vehicle to check for obstacles or hazards.
- Wear a seat belt at all times when the vehicle is in motion. When travelling on frozen lakes or rivers the use of seat belts is not mandatory. Vehicle speed must be appropriate for the ice conditions.

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- Be responsible for passenger safety. All passengers shall wear seat belts at all times when the vehicle is in motion and it is the responsibility of the driver to ensure such.
- Drivers may acknowledge an in-coming call on a two-way radio and will immediately park in a safe location to continue the conversation. Drivers must park in a safe location to retrieve messages or initiate calls.
- Conduct a "Walk Around" Vehicle inspection prior to operating the vehicle each day.
- Comply with traffic laws when operating the vehicle.
- Obey all flag persons, posted signs and warnings when driving on public roads, private roads, property, sites or plants.
- Weather conditions permitting, turn off the engine and set the parking brake when the vehicle is left unattended.
- Turn off the engine when fuelling the vehicle. Check the oil level each time the vehicle is refuelled.
- Report any incident involving the vehicle and/or injury immediately or as soon as reasonably possible to a Supervisor.

All-Terrain Vehicles and Snowmobiles

All-Terrain Vehicles have been increasingly used to undertake work in terrain where regular vehicles cannot operate. All ATV and snowmobile operators shall:

- Have a valid operator's license.
- Be competent in operating an ATV or snowmobile.
- Prior to using an ATV or snowmobile, walk around the unit and check for obstacles or hazards.
- Operate the ATV and snowmobile according to provincial or territorial regulations.
- Operate and maintain the ATV or snowmobile according to manufacturer recommendations.
- Wear the protective equipment specified in the provincial or territorial regulations and by the manufacturer.

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- Inspect the ATV or snowmobile before each use.
- Use ramps to load and unload the ATV and snowmobiles from vehicles or trailers.

Heavy Equipment Hazard Zone

Workers must remain aware of the hazard zone that exists around heavy equipment:

- The work area (including turning radius) surrounding hoes, cranes and drills will be marked with barricade tape.
- Unauthorized workers will remain outside of the marked hazard zone.
- To ensure safety of personnel when loading and unloading materials or products from heavy equipment, “wheel chocks” must be used and the area flagged off.

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APPENDIX J

WORK SITE HAZARDS (WILDLIFE MANAGEMENT)

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Appendix “J”: Work Site Hazards (Wildlife Management)

We live in harmony with most wildlife in Newfoundland and Labrador, often without even realizing it. Our forests and barrens are home to many animals. Unless we intentionally seek them out, some people can go a lifetime without being aware of their presence. As long as humans and wildlife respect each other’s’ boundaries, conflicts can be avoided – but we all have to do our part to make sure we don’t encourage behaviour that could cause problems for wildlife, such as Coyotes and Black Bears.

Identifying Coyotes

The Eastern Coyote belongs to the Canidae family, which also includes wolf, fox and dog. Like most animals, coyotes usually have a natural fear of people, but they also possess natural intelligence and can quickly get used to life in residential areas as long as they have easy access to food. Although attacks on humans are extremely rare, they can occur if a coyote becomes too comfortable around people and starts associating humans with food.

If a coyote enters your work site/area you should never approach a coyote, if a coyote approaches you take the following steps:

- Give it an escape route.
- Throw rocks, sticks or other objects at the coyote.
- If the coyote continues to approach, back away slowly and move toward buildings or human activity.
- Do not turn away or run. This will encourage the coyote to chase you.

Identifying Black Bears

Black Bears are bulky animal with a moderate-sized head; a tapered, brownish muzzle and long nostrils; rounded ears; small eyes; and a short tail. Coat is usually black, sometimes with a white patch on the throat or chest. Feet are furry with five curved, non-retractable claws. Similar to the coyote, black bears usually have a natural fear of people, but they can quickly get used to life in residential areas as long as they have easy access to food. Although attacks on humans are extremely rare, they can occur if a black bear becomes too comfortable around people and starts associating humans with food.

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Little can be done to manage habituated bears. Avoid creating problem bears by making sure food, trash and other attractants are stored properly. Although black bears are usually timid and attacks are extremely rare, they are wild animals and can be dangerous.

If a black bear enters your work site/area takes the following steps:

- Stay calm
- Use “Bear Bangers” or similar noise makers
- Give the bear space and an escape route
- Speak calmly and firmly, avoid eye contact, and back away slowly
- Never run or try to climb a tree
- If the bear begins to follow you, drop something (not food) to distract it
- Be cautious around females with cubs
- If the bear attacks you, fight back and make a lot of noise. Do not "play dead."

Polar Bears

Although Polar bear encounters in Newfoundland and Labrador are rare, they have been sighted in both areas over the last few years. Polar bears are among the largest carnivores in the world. They are strong, fast and agile on ice, land, as well as in water. The best way to be safe is to avoid them completely at all times.

Polar Bear live mainly on sea ice or on land within a few kilometres of the coast. In summer, polar bears often travel along coastlines using points of land and rocky islets near the coast to navigate. They also travel inland and have been seen as far as 150 kilometres from the coast.

To best avoid encounters with all bears, it is always important to stay alert. It is recommended that in remote areas to always travel in groups of at least four people and stay together to increase safety. Creating noise while walking through remote areas will communicate your presence. It is important travel in daylight and be aware of your surroundings. Polar bears may be hard to see. Avoid areas of restricted visibility, pushed up sea ice, boulders, driftwood or vegetation. Watch for tracks, droppings and diggings.

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Never approach a bear. Polar bears defend their space and may consider you a threat. Never feed bears or other wildlife. A bear that associates humans with food is dangerous. Never approach a wildlife carcass. A bear may be in the area. Leave immediately.

It is possible to have an encounter with a polar bear by chance or because it is attracted to your activity. Polar bears are curious and may investigate any strange object, smell or noise. Always stay calm and assess the situation. Each encounter with a polar bear and bears generally is unique. Good judgment, common sense and familiarity with bear behaviour are important.

- **Curious Bears** - If a bear knows you are there and shows signs of being curious such as moving slowly with frequent stops, standing on hind legs and sniffing the air, holding its head high with ears forward or to the side, moving its head from side to side, or trying to catch your scent by circling downwind and approaching from behind, do not run. Back away slowly. Help the bear identify you as human by talking in low tones. Move slowly upwind of the bear so that it can get your scent. Always leave an escape route for the bear. Do not run.
- **Defensive Bears** - If a bear has been surprised at close range or shows signs of being agitated or threatened such as huffing, panting, hissing, growling, jaw-snapping, stomping its feet, staring directly at a person, or lowering its head with ears laid back, do not run. Back away slowly. Do not shout or make sudden movements. Avoid direct eye contact. Act non-threatening. Be prepared to use deterrents. Do not run.
- **Predatory Bears** - If a bear shows signs of stalking or hunting you such as following or circling you, approaching directly, intently and unafraid, returning after being scared away, or appears wounded, old or thin, do not run. Group together and make loud noises. Be prepared to use deterrents. Be prepared to fight back. Do not run.
- **Bears With Cubs** - Never get between a bear and her cubs. If you come across a bear with cubs, do not run. Group together and leave the area immediately. Be prepared to fight back if she attacks.

If you experience a polar bear attack use any available weapon such as rocks, blocks of ice, knives, skis or poles.

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APPENDIX K

WORKPLACE SECURITY

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Appendix “K”: Workplace Security

To address instances where security could be compromised (unauthorized access) at the construction site security practices must be properly implemented. Access to and from construction site locations will be restricted to authorized personnel only and that have a proper site orientation. Temporary vehicle gates will be installed at entrance points to the construction site location and controlled by security personnel.

The following security measures and precautions will be taken during the course of the project:

- The Site Security Provider will be responsible for placement of the security workers during and after work hours as and when warranted.
- All authorized visitors must sign in and out. All visitors must meet training requirements.
- ***All personnel working on site are not permitted to work alone on in isolation at any given time and must be accompanied (“Working Alone or in Isolation” requirements are found in OHS Regulation s.15).***
- Control of equipment and materials entering and leaving the site will be strictly monitored.
- Any hazardous wildlife sightings, security issues and incidents must be reported immediately to the designated LCP Site Environmental Advisor designated representative.

Any illegal conduct by personnel on the construction site is grounds for immediate removal and subject to be turned over to local RCMP.

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APPENDIX L

NALCOR CORPORATE HEALTH AND SAFETY STANDARDS

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Appendix “L”: Nalcor Corporate Health and Safety Standards

The following is the most current list of Nalcor Corporate Health and safety Standards:*

4.4.3.2.2 **Internal Health and safety Communications**

4.4.6 **Electronic Device Use Standard**

4.4.6.1 **Contractor Safety Management**

4.4.6.11 **Energized Power Line Hazards Permits**

4.4.6.12 **Work Methods**

4.4.6.2 **Confined Space**

4.4.6.3 **Electrical Safety Program**

4.4.6.3.1 **New Worker Hard Hat Program**

4.5.1.1 **Data Trending and Analysis**

4.5.3.1 **Incident Investigation and Reporting**

* *A number of the Corporate Health and Safety Standards are undergoing approval process at the current time.*

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APPENDIX M

ELECTRICAL SAFETY

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Appendix "M": Electrical Safety

General:

This appendix considers live line work which will be undertaken only by Nalcor (CFALCO) personnel, in particular in accordance with Nalcor's Electrical Safety Program. The three tables included within this Appendix describing limits of approach (for example) pertains to Nalcor employees only. Contractors are expected to comply with the limits of approach outlined in the OHS Regulations. Any work carried on by contractors on live lines must be fully described in their respective electrical safety program, which must be reviewed and approved by LCP and Nalcor prior to implementation.

Only a worker qualified to work on electrical conductors and equipment shall be authorized to do the work. (OH&S Regulations, Section 478 (2))

Approved live line techniques as determined through a formal risk assessment shall be utilized when performing such work as defined in OH&S Regulations s478 (3) addressing hazard/risk assessments.

The supervisor shall appraise the work and decide whether it can be done safely. If in doubt, he/she shall refer the job to the next level of supervision.

No other work shall be done on a pole or structure upon which live line work is in progress. This rule also applies to the pole or structure on either side of the pole being "worked on".

If possible, work on energized lines or apparatus should be done from below.

When it is necessary for one worker to change his/her working position on a pole or tower, other workers shall not do any work on energized conductors until the worker changing position has reached his/her new position.

Workers doing live work shall devote their undivided attention to the work at hand. Unnecessary conversation shall be avoided.

Neutral wires carried horizontally on the side of the pole below energized conductors shall be removed from the pole or covered with protective cover-up devices before work on the energized conductors is begun.

Neutral circuits shall never be open. Before a job is started, exposed vertical ground wire on wood pole structures within the work area shall be removed or covered with protective cover-up devices. Extreme care shall be exercised to prevent gaffing of protective cover-up devices.

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Minimum Approach Distances:

Workers shall maintain a Working Minimum Approach Distance from all Energized parts when working on or near energized Conductors. Working Minimum Approach Distance (MAD) formerly Working Limits of Approach (Qualified Persons) is defined as the shortest distance allowable between energized live conductors and any part of a worker's body, material, or tool the worker is handling.

Live Line Techniques are required for any approach to energized conductors that is closer than the distance specified in the Working Minimum Approach Distance table. Under no circumstances shall the worker's body, material, or tool the worker is handling come closer to the energized conductor than the distance specified in the Minimum Air Insulation Distance (MAID) formerly Absolute Limit of Approach (Qualified Persons) table, unless an Approved direct contact technique is being utilized.

Nalcor Energy Minimum Approach Distance

Nominal Operating Voltage		Minimum Air Insulation Distance- MAID		Minimum Approach Distance- MAD	
phase to phase	phase to ground	mm	m	mm	m
4.16 kV	2.4 kV	140	0.14	750	0.75
12.47 kV	7.2 kV	140	0.14	750	0.75
13.8 kV	7.96 kV	140	0.14	750	0.75
29.94 kV	14.4 kV	290	0.29	900	0.90
33 kV	19.05 kV	390	0.39	1000	1.00
34.5 kV	19.92 kV	390	0.39	1000	1.00
46 kV	26.56 kV	490	0.49	1100	1.10
66 kV	38.105 kV	600	0.60	900	0.90
69 kV	39.837 kV	600	0.60	900	0.90
138 kV	79.674 kV	900	0.90	1200	1.20
230 kV	132.79 kV	1400	1.40	1700	1.70
735 kV	424.35 kV	5400	5.40	5700	5.70

There is no Minimum Air Insulation Distance at these voltages when working directly on Primary Voltage Circuits using rubber gloves or other approved direct contact techniques. Unless working under the close supervision of a Qualified Person, unqualified persons shall not be allowed to approach exposed energized electrical lines or apparatus any closer than the distance specified below.

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Contractors (unqualified persons) are expected to comply with the limits of approach as outlined in the OHS Regulations. The work of contractors must be stipulated in the respective electrical safety programs.

NOTE: The following charts within this Appendix refer to live line work which will be undertaken by Nalcor personnel, in accordance with Nalcor’s Electrical Safety Program. These apply to Nalcor employees only. Contractors, on the other hand, would be expected to comply with the limits of approach as outlined in the OHS Regulations (which are different from those below). The work scope of contractors must be fully described and addressed within the context of their respective electrical safety programs (which must be reviewed and approved by qualified and experienced LCP/Nalcor personnel.

Minimum Approach Distance (Unqualified Persons)

Nominal Circuit Voltages (phase to phase)	CSA Voltage Range (phase to ground)	Minimum Clearance (meters)
0.75 kV – 25 kV	0.4 – 22 kV	3.0
-69 kV	22 - 50 kV	3.0
-138 kV	50 – 90 kV	4.0
-230 kV	120 – 150 kV	4.6
-345 kV	190 – 220 kV	5.2
-735 kV	220 - 345 kV	6.7

Live Line Tools:

All Live Line work should be planned and carried out to facilitate removal of live line tools and protective cover-up devices at the end of the workday. Hot sticks and protective cover-up devices are all-susceptible to tracking and corona damage if left on the line for long periods, especially in inclement weather. Whenever possible, the hanging of live line tools on Conductors should be avoided.

Live line tools should not be used in rain, high winds, fog, or snow. In an emergency where fuse cutouts and/or disconnects must be operated, extra precautions shall be exercised such as the: wearing of rubber gloves; use of rain guards on the stick; and application of silicone to the stick immediately prior to use.

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When using live line tools, workers shall not place their hands closer to the energized metal parts of the tools than that recommended below:

Normal Circuit Voltage	Minimum Voltage and Clear Stick Distance (meters)
0.75 – 25 kV	0.7
46 kV	0.8
69 kV	0.9
138 kV	1.1
230 kV	1.5
345 kV	2.1
735 kV	4.6

- Except as necessary to secure or release them, hold out ropes or live line tools being used to spread or raise conductors shall be securely fastened and workers shall not hold them.
- The responsibility for seeing that live line tools are frequently inspected, tested and cleaned shall rest with the Supervisor.
- Live line tools such as grip-all sticks, switch sticks, and tools used in the everyday operations shall be dielectrically tested yearly or anytime they become suspect.
- Live line tools such as wire tongs, tie sticks, link sticks, strain sticks, and tools used exclusively for live line maintenance and generally transported in a proper trailer or carrier shall be dielectrically tested every three (3) years or anytime they become suspect.
- Live line tools showing any leakage shall not be used and shall be tagged with a Defective Tool or Equipment Tag and taken out of service.
- Fibre ropes and slings, used in conjunction with live line maintenance, shall be considered live line tools. Their care and storage shall receive the same attention as other live line tools.

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Storage:

All live line tools not being regularly transported should be stored in a dry location and should not be tampered with or handled by un-authorized persons. Live line tools shall be kept free from dirt and moisture, and under no circumstances shall any live line tools be laid directly on the ground.

Transportation:

Live line tools should be transported and remain in the special portable containers designed for their transportation in a manner which prevents mechanical damage and provides protection from the weather.

Servicing:

Live line tools in unsafe condition and requiring treatment or repairs shall be tagged with a Defective Tool or Equipment Tag and exchanged for a tool in good condition. Un-authorized persons shall undertake no repairs.

Protective Rubber Gloves:

Workers shall not touch or work on any exposed energized lines or apparatus except when wearing personal protective equipment approved for the voltage to be contacted.

Rubber gloves are not to be worn while climbing structures due to the risk of accidental punctures from wood splinters and other sharp pole hardware. However, rubber gloves shall be put on before entering the Minimum Approach Distance to energized lines or equipment and shall not be removed until the worker is completely out of the Minimum Approach Distance zone.

Only approved insulating gloves shall be used. Insulating gloves shall never be worn inside out or without leather protectors. They shall be exchanged any time they become damaged or if the worker to whom they are assigned has reason to doubt their condition. Leather protectors or over gloves shall not be worn except when in use over insulating gloves. When not in use, insulating gloves shall be stored in an approved canvas bag, in a cool dry place, away from high voltage equipment, and never stored inside out.

Insulating gloves shall be inspected for cracks or other damage and shall be given the roll and air test before each use.

Class 0 insulating gloves shall be worn on lines or equipment energized at 50 volts AC or 120 volts DC up to 750 volts AC/DC or when deemed necessary by the Supervisor.

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Where the use of Class 0 gloves reduces the dexterity such that a greater hazard is created the work may be performed with insulated tools or equipment only. For example, working on protection and control circuitry behind a substation protection panel requires fine motor skills in a confined area. As such, in this case, the work may be performed without rubber gloves PROVIDED that the worker is using properly rated insulated tools and equipment.

Note: This exception does not apply to work involving aerial service conductors, street lighting, meter removal and other similar activities. In these cases, rubber gloves are mandatory, unless the line or piece of equipment has been confirmed to be de-energized and grounded.

Cover-up Devices:

Protective cover-up devices shall be used on primary voltage conductors, low voltage conductors, telephone circuits, and other wires which are immediately above, below or adjacent to the work area. Except for the part of the conductor which is being worked upon, when work is to be done on or near energized lines all energized and effectively grounded conductors or guy wires within reach of any part of the body while working shall have protective cover-up devices applied.

Line hose, hoods, blankets, line guards, etc., shall be visually inspected before each job. In applying protective cover-up devices, workers shall always protect the nearest and lowest wires first. In removing protective cover-up devices, the reverse order shall be maintained. When possible, protective cover-up devices shall be applied from a position underneath the conductor.

Rubber blankets and other protective cover-up devices shall not be placed on the ground without first protecting them from physical damage and moisture by means of a tarpaulin, canvas, or protective mat. To avoid corona and ozone damage, protective cover-up devices shall not be allowed to remain in place on energized lines or apparatus for long periods, nor stored in close proximity of energized equipment.

When not in use, protective cover-up devices shall be protected from mechanical and chemical damage, and shall always be stored in the containers provided or in special compartments on trucks. Nothing else shall be stored in these containers or compartments.

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Arc Flash:

Arc Flash is a serious type of electrical explosion that can cause considerable property damage, personal injury, and even death. Any worker who is assigned to work or switch exposed energized equipment rated at 600 volts or above, shall wear the appropriate Personal Protective Equipment as prescribed in the charts below as a minimum.

For more information, please refer to Nalcor Corporate Health and Safety Standard 4.4.6.

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APPENDIX N

NALCOR CORPORATE HEALTH AND SAFETY PROGRAMS

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Appendix “N”: Nalcor Corporate Health and Safety Programs

The following is the most current list of Nalcor Health and safety Programs

- **Hazard Recognition, Evaluation and Control and TBRA Information**-Hazard recognition, evaluation and control is a thorough examination of an operation (workplace) for the purpose of identifying what actual and potential hazards exist, evaluation the level of risk in each exposure and making decisions about the effectiveness of new and existing controls. Hazard recognition, evaluation and control are also a major part of the task based risk assessment process.
- **Burning and Welding**- Due to the inherent hazards associated with the use of portable gas or electric arc equipment, burning and welding in any location not specifically designed for such activity is a high risk task. Areas specifically approved for burning and welding are enclosed by non-combustible walls, partitions or spark-tight curtains with non-combustible floors, ceilings and contents.
- **Corporate Fall Protection Program** Nalcor Energy (Nalcor) is committed to providing a safe work environment for its employees and preventing occupational injuries due to falls. Fall Protection is an integral part of our commitment to a safe work environment. Any time a worker is exposed to a fall hazard there will be a procedure and equipment to reduce and/or eliminate the hazard of working at height. Fall Protection shall be achieved through a hierarchy of controls that will involve all levels of management, supervisory and field personnel. This hierarchy shall be: elimination of hazards through engineering (design) and procedural practices; control and mitigation of hazards through passive fall protection; travel restraint systems; the use of fall arrest systems; and finally the use of administrative controls. Supervisors and workers shall be expected to assess the risks associated with a task and ensure that proper mitigation is in place to protect them while climbing and working at heights. Where a worker is unsure of the methods, equipment or procedures to reduce the risk they are to seek direction from their supervisor.
- **Disability Management Policy Statement** - Nalcor Energy is committed to assisting employees who have been injured on the job to return to work in a timely and safe manner through early intervention and active case management. To fulfill this commitment Nalcor Energy has established a Disability Management Program with a primary focus of providing injured employees a timely return to suitable and meaningful employment consistent with their functional abilities and competencies. The Disability Management Program process, is consistent with the requirements of Sections 89 and 89.1 of the Workplace Health, Safety and Compensation (WHSC) Act and applicable policies of the WHSC Commission including the

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requirement to maintain active communication with injured employees, to protect the confidentiality of personal information, and to make every effort to accommodate injured employees per the Re-employment Obligations and Duty to Accommodate provisions of the WHSC Commission Policy RE-18. All stakeholders, whether they be management, union leadership, or employees, are responsible for actively developing, participating and cooperating in the disability management process

- **Incident Investigation** - Incident investigation processes are used to gather accurate information about, and analysis of, safety incidents, including “near misses”, to determine the contributing factors to help minimize the risk of recurrence, identify key prevention initiatives, and generate lessons learned. This is documented and communicated internally through the Corporate Safe Workplace Observation Program (SWOP). While this database specifically addresses safety incidents, SWOP is also utilized to document and track incidents and/or losses related to the environment and property. Employees are required to report all safety incidents, including near misses, to ensure that appropriate preventative measures can be implemented to minimize risks, prevent recurrence and for continual improvement of the safety management system. Refer to Nalcor Corporate Health and Safety Standard 4.5.3.1
- **Noise Level Surveys and Hearing Conservation** - Nalcor Energy shall inform its employees of excessive noise levels in the workplace and provide working conditions and protective equipment to reduce the levels of exposure to those established by the Occupational Health and Safety Act & Regulations.
- **Personal Protective Equipment** - Nalcor Energy requires all employees and contractors wear approved Personal Protective Equipment (PPE) while working in designated work areas and while performing tasks where the use of PPE is compulsory.
- **Safety Footwear and Protective Clothing Allowance** Nalcor Energy will provide financial assistance to employees who, by the nature of their work, are required to purchase PPE, safety footwear and/or protective clothing. Employees covered by a Collective Agreement should refer to the appropriate clause in their Agreement.

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APPENDIX O

NALCOR HEALTH AND SAFETY FIELD INSPECTION CHECKLIST

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Appendix “O”: Nalcor Health and Safety Field Inspection Checklist

General Information and Directions

The purpose of the H&S Field Inspection Checklist is to provide reference and record for conducting a site/field inspection.

When conducting an inspection of a specific field, use the list of items under each heading as a guide to identify areas of potential hazards or areas which need to be addressed.

Assure that all deficiencies, items marked “Not Acceptable”, are actioned via the Safe Workplace Inspection/Tour section of SWOP. Take note of the item and its corresponding SWOP observation reference number in the table provided.

For further information regarding HSE inspections, please refer to MSD-HS-011 Lower Churchill Project – HSE Inspection Guidelines.

Specific Field Input Directions

Place a checkmark in the box for each item which applies to the inspection (Acceptable, Not Acceptable, Not Applicable).

Any items which have been identified as “Not Acceptable” require corrective action and a SWOP card must be completed for each. Note the item and its corresponding SWOP card reference number in the table provided on the form.

Return the completed inspection form to the LCP-HSE Department along with any SWOP cards, which may have been completed by hand. SWOP cards may also be submitted electronically.

Guidelines for Use

Introduction

The purpose of the H&S Field Inspection Checklist is to provide reference and record for conducting a site/field inspection.

Using the Checklist

When conducting an inspection of a specific site/field, use the list of items under each heading as a guide to identify areas of potential hazards or areas which need to be addressed.

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Assure that all deficiencies, items marked “Not Acceptable”, are actioned via the Safe Workplace Inspection/Tour section of SWOP. Take note of the item and its corresponding SWOP observation reference number in the table provided.

For further information regarding HSE inspections, please refer to MSD-HS-011 Lower Churchill Project – HSE Inspection Guidelines.

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Item	Accept	Not Accept	N/A
SITE GENERAL			
Lighting levels adequate for tasks performed.			
All light bulbs/tubes working and lighting covers adequately clean.			
General condition of walls, floors, floor coverings and ceilings good.			
Ventilation ducts clean and unobstructed.			
Staff/kitchen facilities provided away from work areas.			
Staff/kitchen facilities clean and tidy.			
HOUSEKEEPING			
Areas, accesses and landings free of obstructions/tripping hazards.			
Materials arranged/stored safely (including flammables).			
Tools orderly and clean. Unnecessary tools removed.			
Adequate disposal containers available/maintained.			
Adequate storage facilities provided.			
HYGIENE FACILITIES			
Toilets available and working.			
Cleanup facilities available.			
Areas clean and cleaning records maintained.			
FIRST AID			
Certified First Aider(s) identified and available.			
First aid station(s) available and appropriately equipped.			
Locations of first aid kits labelled and easily accessible.			
EMERGENCY RESPONSE			
Emergency exit routes identified and signed.			
Emergency exit lights operational.			
Emergency exit doors clear and easy to open.			
Required fire extinguishers up-to-date.			
Fire extinguishers identified by signs and 1 m clear area around.			
Evacuation maps displayed and up-to-date.			
Muster stations clearly marked.			
Emergency phones numbers displayed.			
Chief and emergency wardens identified and available.			

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Item	Accept	Not Accept	N/A
Emergency alarms checked and tested.			
Emergency equipment available (eye wash, chemical spill kit).			
PERSONAL PROTECTIVE EQUIPMENT (PPE)			
Adequate PPE provided where necessary (gloves, hard hats, etc).			
PPE properly worn where necessary.			
PPE stored and maintained correctly.			
JOB SITE POSTING / SIGNAGE			
Contractor identification sign.			
Contractor safety program.			
OH&S Act and Regulations.			
H&S Representative (name, trade, employer).			
First Aid Certificate.			
Warning signs and barricades adequately posted.			
HAZARDOUS MATERIALS			
Up-to-date MSDS available (no more than 3 years old).			
MSDS available where chemicals are used.			
Containers appropriately labelled.			
Hazardous materials safely stored and/or segregated.			
ELECTRICAL HAZARDS			
All electrical equipment in good condition.			
Electrical equipment inspected and maintained.			
Power boards used. Not double adaptors and piggyback plugs.			
Leads secured and not potential trip hazards.			
Power tools grounded or double insulated (CSA approved).			
Ground fault circuit interrupters in place.			
Explosion-proof devices where required.			
Equipment locked-out for repair.			
Compliance with corporate work protection code.			
Temporary power supply properly identified.			
Overhead lines flagged and secured.			
HAND/POWER TOOLS AND EQUIPMENT			
Guards in place/functioning.			

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Item	Accept	Not Accept	N/A
Grinding discs – speed rating and condition.			
Appropriate retainers (sockets, chippers, etc.)			
Tools/equipment in good condition.			
Defective equipment tagged as required.			
LADDERS, STAIRWELLS AND RAMPS			
No cracks or defects.			
Non-slip feet/bases.			
Correctly used and tied off.			
Non-metallic ladders used.			
Proper size and type.			
Proper handrail and landings.			
Proper filler blocks in metal stairs.			
Proper cleats on ramps.			
SCAFFOLDING			
Appropriately tagged and signed by installer.			
Footings properly supported and nailed.			
Top rail, mid rail and toe board in place.			
Properly erected.			
Proper access platform.			
Acceptable loading.			
Properly attached and capable of at least 4 times maximum load (suspended).			
Outrigger beam tied to fixed support with adequate counterweight (suspended)			
All mechanical/electrical devices in good condition (suspended).			
Independent lifelines for each worker (extend to ground) (suspended).			
SAFE WORK PRACTICES			
Personnel trained/qualified for the task.			
Permit to Work / Isolations / Lockouts used.			
Working and Height			
Safe Lifting Practices (Mechanical/Manual)			
Confined Space Entry procedures and testing.			
Precautions for work at high pressure in place.			

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Item	Accept	Not Accept	N/A
Hot/Cold Work			
Testing procedures.			

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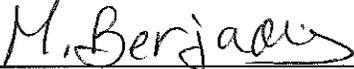
Additional Notes/Observations	SWOP Ref.

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LOWER CHURCHILL PROJECT

Risk Management Requirements for Contractors and Suppliers

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1 INTRODUCTION

All key decisions made by the Lower Churchill Project team are risk-based. Package management is not an exclusion from this rule. Package risk management process adopted by the Project supports selection of Contractors and Suppliers in a way that allows reduce overall Project risk exposure. Same time, it promotes and supports development of effective Contractor's/ Supplier's risk management.

1.1 Purpose

To facilitate effective package risk management and put forward Risk Management Requirements for Bidders (Contract pre-award) and Contractors/ Suppliers (Contract post-award).

1.2 Scope

The scope of this document covers management of risks within the package scope both during the bidding process and after a Contract is awarded. It identifies general package Risk Management Requirements (Figure 1), namely, general guidelines to

- reply to the package Risk Questionnaire (pre-award),
- prepare package Risk Management Plan including package Risk Register (pre-award),
- update package Risk Management Plan (post-award),
- produce Monthly Risk Reporting (post-award).

Normally, a requirement to reply to the Risk Questionnaire is part of any package RFP. Whereas requirements to produce Risk Management Plan/ Risk Register or Monthly Risk Report (items A03 and A04 of SDRL) could be included to/ excluded from the package Risk Requirements. If included to the Requirements, the specific content of these documents will be stipulated by the package RFP (pre-award requirements) and the awarded Contract (post-award requirements) depending on the package scope, form / type of contract and package criticality.

If part of the package scope is to be actually performed on Contractor's/ Supplier's behalf by another parties, associated risks should be reflected in documents listed above.

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1.3 Definitions

Bidder: any entity that responds to a package request for purchase (RFP) issued by SNC-Lavalin on behalf of Nalcor Energy.

Contractor: Any entity that is awarded a contract package to provide on-site construction and/or installation services to Nalcor Energy, with SNC-Lavalin acting as the Nalcor's representative for contract administration.

Fixed Price Contract: a form of contract when payment to deem to cover all costs, overheads and profits, wherein the Contractor/ Supplier includes all necessary contingencies for possible risks. Usually includes Liquidated Damages clauses for a case of Contract term's violations. This type of Contracts is characterised by higher Contractor's/ Supplier's risk exposure.

LCP: The Lower Churchill Project.

RAM: Risk Assessment Matrix is tool to measure deviations from package Contract objectives.

RBS: Risk Breakout Structure identifies sources of risks relevant to package delivery, may be based on package WBS and reflect technical, commercial, organizational, economic, etc. aspects.

Reimbursable Contract: a Contract when all costs incurred in the performance of the Contract are reimbursed and a fee is paid to cover profit and overheads. This type of contracts is characterised by higher Owner's risk exposure.

Risk: A risk is a future event that, if occurs, may cause deviations from the Contract.

Risk Management: The systematic application of management procedures and practices aimed at establishing the context for identifying, analyzing, evaluating, addressing, monitoring and reporting risks.

Risk Register: a log of package risks identified and managed by a Bidder or Contractor/ Supplier that includes risk descriptions, risk addressing actions, assessments of the risks before and after addressing, etc.

SLI: SNC-Lavalin Inc.

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SDRL: Supplier Document Requirement List (document "Contractor Document Requirements"/ SLI # 505573-0000-37AG-I-0015). It includes the document requirements for either a Contractor or Supplier depending on a type of a package.

Supplier: Any entity that is awarded a Contract to provide equipment, materials or services to Nalcor Energy, with SNC-Lavalin acting as the Nalcor's representative for contract administration.

Unit Price Contract: a form of contract when payment to deem to cover fixed sum for each completed unit of work including all unit costs, overheads and profits as well as all necessary contingencies. This type of contracts usually used in case of construction packages is characterised by sharing of risks between the Owner and a Contractor/ Supplier. Namely, a Contractor/ Supplier bears the unit price risks, whereas the Owner covers risks associated with uncertainty about number of units.

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2 RISK MANAGEMENT DELIVERABLES

This section contains general guidelines on preparing major package risk management deliverables. Specific requirements and content of the deliverables (e.g., list of risks that are subject to Monthly Risk Reporting, etc.) will be defined by corresponding sections of RFP and the Contract.

2.1 Risk Questionnaire (Pre-award)

Risk Questionnaire contains a number of generic questions about Bidder's existing risk management system applicable to the proposed package Contract. In addition, some package related risk questions are included. They are based on risks preliminary identified by the Package Owner. The Risk Questionnaire is included to all package RFP's as a mandatory requirement. The Risk Questionnaire responses will be considered in the evaluation of Bidders.

2.2 Risk Management Plan (Pre-award & Post-award)

Depending on the package scope, form / type of contract and package criticality, package Risk Management Plan could be part of the Risk Requirements (SDRL item A04) both pre-award and post-award.

If included to the Requirements pre-award, the Risk Management Plan developed by a Bidder as part of the RFP response will be used for evaluation of Bidder's capability and should contain following items:

- Description of risk management process steps adopted by a Bidder for the contract scope of work / service (usually consists of risk identification, risk assessment "as-is" (before addressing), risk addressing, assessment "to-be" (after addressing), retirement and acceptance of risks)
- Description of organizational context of risk management (usually includes responsibilities of team members in the risk management process, types and frequencies of risk review meetings, risk reporting and communications including rules to prioritize risks, etc.)

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- Description of tools used to support the risk management process (usually includes list of risk categories (e.g. Risk Breakdown Structure (RBS)), Risk Assessment Matrix (RAM) and Risk Register)

Figure 2 provides the Risk Assessment Matrix (RAM) recommended to Contractors/ Suppliers for LCP. (Specific descriptions of risk impacts could be amended in some cases to better reflect package scope, budget and schedule.)

Risk Management Plan pre-award should contain full package Risk Register developed by a Bidder as an appendix using RAM of Figure 2.

Upon award of a Contract, the initial Risk Management Plan should be reviewed with the Package Owner. The content of a Risk Management Plan post-award (including list of risks included to Risk Register) is a subject to the Contract's Coordination Procedure. Guidelines to prepare Risk Registers are described in section 2.3.

2.3 Risk Register (Pre-award & Post-award)

A Risk Register is a log of package risks identified, assessed and addressed by a Bidder or Contractor/ Supplier. If indicated in a particular RFP, the full Risk Register should be submitted by a Bidder with its accompanying Risk Management Plan as part of response to Request for Proposals and will be considered by SLI during the evaluation process.

Depending on the form/ type of contract, managing of and reporting on some of the package risks post-award would be delegated to Contractor/ Supplier and becomes part of the package scope. However, reporting on some risks could not be mandatory in terms of these Risk Requirements. Same time, Contractor/ Supplier is encouraged to manage corresponding risks as part of its internal risk management. The list of risks that become part of the Risk Register post-award and subject to Monthly Risk Reporting (section 2.4) should be agreed and reflected in the Contract's Coordination Procedure. Its content depends on form/ type of contract and normally includes only risks of Medium and High level.

In case of fixed price/ unit price types of Contracts of supply packages, only risks of Schedule and Quality impacts normally become subject to reporting by Contractor/ Supplier post-award. Although, in

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case of fixed price/ unit price types of Contracts of on-site construction/ installation packages besides risks of Schedule and Quality impacts risks of Safety and Environment impacts become the subject to the Risk Requirements.

In case of reimbursable types of Contracts, Cost impacts become a subject to Risk Requirements for both supply and construction/ installation packages.

Managing risks of impacts on Reputation is optional in terms of these Risk Requirements for any types of contract. However, a Contractor/ Supplier could be interested in managing corresponding risks on its own by obvious reasons.

The approved list of package risks that become part of the Risk Register post-award and subject to Monthly Reporting (section 2.4) should be reflected in the Contract's Coordination Procedure.

Following items should be included to a Risk Register both pre-award and post-award for each selected risk (Figure 3):

- Risk Identification No.
- Risk title
- Risk definition (recommended is three part risk definition: cause(s) – risk event – impact(s))
- Comments (additional relevant notes and insights on risk definition and description)
- Risk status (it could be proposed, active, retired, accepted)
- Risk owner (a member of the Bidder's or Contractor's/ Supplier's team who is responsible for managing of a risk)
- Risk category (as part of Risk Breakdown Structure it could point to technical, commercial, organizational, economic, etc. types of risks)
- Assessment of probability of occurrence and impact(s) before addressing ("as-is") (according to the RAM)
- Response strategy (avoid, mitigate, transfer, accept)
- Addressing actions (particular steps to support selected addressing strategy including measures in place)
- Action status (it could be proposed, active, on-hold, completed, retired)

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- Comments on progress of the addressing strategy and actions (is used in Monthly Reporting post-award)
- Assessment of probability of occurrence and impact(s) after addressing (“to-be”) as if all the proposed addressing actions were already implemented (according to the RAM)

Note: As a general rule, representatives of SLI and/ or Nalcor Energy do not take part in risk identification and assessment sessions in case of fixed price and unit price types of Contracts, while in the case of reimbursable type of contract their participation would normally occur. Specific level of involvement of representatives of SLI and Nalcor Energy in risk identification and assessment sessions is to be stipulated by the Contract’s Coordination Procedure.

Following contract award the approved Risk Register should be regularly updated by the Contractor/ Supplier during the phases of the package delivery and submitted as part of Monthly Progress Reports.

2.4 Monthly Risk Report (Post-award)

Monthly risk reporting (as part Monthly Progress Reports) is defined by item A03 of SDRL and consists of two parts. Part One is a structured narrative that describes major risk activities and events during the reporting period and should contain:

- Comments on major changes in the risk register (addition of new risks or addressing actions, change of risk ownership or status, retirement of risks, risk re-assessments, etc.) with a focus on Medium and High level risks.
- Highlights of 5 to 7 most important package risk management activities and events (e.g., risk reviews and workshops (internal and with sub-vendors), implementation of addressing actions and possible related issues, successes and failures related to risk management, any occurred risks, etc.)

Part Two is an updated package Risk Register.

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3 RISK MANAGMENT REVIEWS

Standard requirement is to hold Monthly Risk Reviews based on submitted Monthly Risk Reports.

Review requirements, including types and frequency of the risk management reviews and audits post-award, will be initially introduced in the package RFP and finally stipulated by the Contract's Coordination Procedure.

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4 FIGURES

4.1 Summary of the Risk Requirements for Bidders and Contractors/Suppliers

	Requirement	Description	Reference Documents
Pre-Award	Risk Questionnaire	Contains list of generic risk questions as well as package specific ones; requirements are described in section 2.1.	Appendix of RFP
	Risk Management Plan	Provides description of the risk process, organizational context and tools adopted by a Bidder; requirements are described in section 2.2.	SDRL item A04; Appendix of RFP
	Risk Register (part of the Risk Management Plan)	A log of package risks developed by a Bidder including their assessments before addressing, their addressing actions and assessment after addressing; requirements are described in section 2.3.	SDRL item A04; Appendix of RFP
Post-Award	Risk Management Plan	Provides description of the risk process, organizational context and tools adopted by a Contractor/ Supplier and agreed upon in the Contract's Coordination Procedure; requirements are described in section 2.2.	SDRL item A04; Contract's Coordination Procedure
	Monthly Risk Report	A summary of monthly activities carried out by a Contractor/ Supplier aimed at addressing selected risks; the Coordination Procedure of the Contract defines if all package risks are subject to monthly reporting or only selected ones; requirements are described in section 2.4. Normally, Monthly Risk Reports are a subject to Monthly Risk Reviews.	SDRL item A03; Contract's Coordination Procedure
	Risk Register (part of the Monthly Report)	The Coordination Procedure of the Contract defines if all package risks are subject to monthly reporting by the Contractor/ Supplier or only selected ones; requirements are described in section 2.3.	SDRL item A03; Contract's Coordination Procedure

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4.2 Recommended Package Risk Assessment Matrix

Risk Ranking Score = (Impact Score) x (Probability Score)	Risk Level Colour Code	Low	Medium	High
---	------------------------	-----	--------	------

		IMPACT				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
PROBABILITY	>90% Almost Certain (5)	5	10	15	20	25
	50% - 90% Likely (4)	4	8	12	16	20
	1% - 50% Possible (3)	3	6	9	12	15
	0.1% - 1% Low (2)	2	4	6	8	10
	< 0.1% Rare (1)	1	2	3	4	5
PROJECT OBJECTIVES	Capital Cost, \$M	< 0.1	0.1 - 1	1 -- 10	10 - 100	>100
	Schedule, Mos (First Power Target Date)	< 0.25	0.25 - 1	1 -- 3	3 -- 12	>12
	Product Quality (Availability, Reliability, Performance)	Potential degradation of element performance, system level not affected.	Decrease in system performance, however still above requirement.	Decrease in system performance eliminates all design and operating margins.	Decrease in system performance that substantially affects performance objectives.	System requirement is not achieved, safety objectives are not achievable. System or element is effectively useless.
	People (Health & Safety)	Minor impact on personnel. First aid only. No lost time.	Potential to cause medical treatment of personnel. Lost time incident.	Injury to personnel that does not result in some permanent disability. Multiple lost time incidents outside established targets.	Serious personal injury resulting in permanent disability. Total lost time well outside established targets to the point where operations are temporarily suspended.	Potential to cause single or multiple fatalities.
	Environmental (Physical)	Slight Effect: e.g. Non-reportable spill or release contained within the immediate work area, negligible financial consequences, no lasting effect.	Minor Effect: e.g. Sufficiently large contamination or discharge to damage environment, but no lasting effect. Single breach of statutory or prescribed limit or single complaint.	Localized Effect: e.g. limited discharges affecting the local area and damaging the environment. Repeated breaches of statutory/regulatory limit or multiple complaints.	Major Effect: e.g. Severe environmental damage. The company is required to take extensive measures to restore the damaged environment. Regulatory restriction or enforcement action probable.	Massive Effect: e.g. Persistent severe environmental damage or severe impact extending over a large area resulting in major financial implications for the Project. Direct impact on public with prosecution possible.
	Reputation	No or very minor media attention. Little or no loss in Package Owner's trust.	Some unfavourable media attention. Some loss in Package Owner's trust which can easily be rebuilt.	Local media coverage only. Some loss in Package Owner's trust that will require commitment to rebuild.	Local and possibly national media coverage. A loss in Package Owner's trust that it is doubtful whether it can be rebuilt.	National and international media coverage. An irreparable loss in Package Owner's trust.

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4.3 Sample Risk Register Template

RISK DEFINITION				RISK ATTRIBUTES			ASSESSMENT "AS-IS"							RISK ADDRESSING				ASSESSMENT "TO-BE"						
ID	Title	Three Part Definition	Comments	Status	Owner	Category	Probability	Cost	Schedule	Product Quality	Safety	Environmental	Reputation	Response Strategy	Action(s)	Action Status	Comments on Progress	Probability	Cost	Schedule	Product Quality	Safety	Environmental	Reputation
R-1	Sub-Vendor's Skilled Labour Availability	Due to heated market conditions in Sub-Vendor's industries, shortage of Sub-Vendor's skilled labour could take place , leading to longer delivery timelines and overall package schedule delays	TBD	Proposed	TBD	Commercial	3	0	4	0	0	0	4	Mitigate-Prevent	TBD	Proposed	TBD	3	0	4	0	0	0	4

Nalcor Energy – Lower Churchill Project



LCP HVdc Overland Transmission and HVdc Specialties

Environmental Protection Plan

Nalcor Doc. No. LCP-PT-MD-0000-EV-PL-0010-01

Comments: This document supersedes the Lower Churchill Project (LCP) Project-Wide Environmental Protection Plan for Component 3 and 4a (SLI Document # 505573-0000-68RA-I-0022, Nalcor Energy (NE)-LCP Document # LCP-SN-CD-0000-EV-PL-0008-01)	Total # of Pages (Including Cover): 157
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1 INTRODUCTION

Environmental Protection Plans are of critical importance to large construction projects. The EPP will ensure a high level of environmental protection in all of the Project's work areas during construction and commissioning. This EPP is a working document for use at Site by Project personnel and contractors. It will help ensure conformance with the Project policy statements. It also will serve as a tool for Project participants, including regulators to monitor regulatory compliance and to improve on environmental performance.

This EPP contains standard environmental protection procedures, or mitigation measures, for activities commonly associated with large projects of this type. The objectives of this EPP are to:

- a) anticipate potential negative environmental effects associated with construction; and
- b) implement appropriate mitigation measures to minimize or avoid negative effects where practical.

Negative effects include impacts to air quality and climate, groundwater and surface water resources, soil, biota and their habitats, human health and communities, and natural and historic resources.

Reference documentation, including Federal and Provincial reference documents, guidelines, fact sheets and operational statements for information detailed in the EPP is located in reference document LCP-PT-MD-0000-EV-SD-0001-01, as well as the reference section of this document.

2 PURPOSE

The purpose of this EPP is to establish work practices and assign roles and responsibilities that all Project participants will follow to mitigate negative environmental effects associated with construction and commissioning of the LCP. Specifically, the purpose of this EPP is to:

- a) Document the conditions and requirements of Environmental Assessment (EA) release;
- b) Outline the LCP's commitments to minimize potential environmental effects, including commitments made in the Labrador-Island Transmission Link Environmental Impact Statement (EIS) and the EIS Addendum (Nalcor, 2012);
- c) Provide concise and clear instructions to LCP participants regarding procedures for protecting the environment and minimizing potential impacts to the environment;

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- d) Provide direction to LCP participants regarding issues and concerns of stakeholder groups, including aboriginal peoples, fisheries groups, landowner groups, and the public;
- e) Provide a reference document for LCP participants to use when planning and/or conducting specific construction and commissioning activities;
- f) Provide direction for environmental orientation programs for LCP participants;
- g) Document changes to the EPP originating through the interactive revision process;
- h) Provide a reference to applicable legislative requirements and guidelines; and
- i) Provide a detailed summary of environmental issues and protection measures to be implemented during construction.

3 SCOPE

The scope of this EPP covers the engineering, procurement, construction, and commissioning phases of the LCP for overland HVdc transmission line and HVdc specialties (formally known as Components 3 and 4a). The focus of the EPP is on construction activities associated with the Labrador-Island Transmission Link from Muskrat Falls to Soldiers Pond, as well as Soldiers Pond Switchyard and other HVdc specialties. The “Protection Description” Section of this document describes the Project in more detail. Please note that there are additional components of the Project that are outside the scope of this EPP. The complete component list is as follows:

- a) **Component 1:** Muskrat Falls Generation Facility including the proposed reservoir, associated site access roads, accommodations complex and laydown areas;
- b) **Component 2:** Gull Island Generation Facility;
- c) **Component 3:** HVdc Specialties
- d) **Component 4a:** Overland HVdc transmission line from Muskrat Falls to Soldiers Pond;
- e) **Component 4b:** The 315kV HVac transmission line from Muskrat Falls to Churchill Falls and associated infrastructure; and
- f) The cable crossing at the **Strait of Belle Isle (SOBI)**.

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In addition, this EPP does not cover the Operations phase of the Project. A separate EPP for this will be developed and submitted at a later date.

This EPP is one component of the LCP's [Environmental Management Plan \(Document # LCP-PT-MD-0000-EV-PL-0002-01\)](#). Other documents of the Environmental Management Plan, supplementary to this EPP, includes the following:

- 1) Contract-Specific Environmental Protection Plan (C-SEPP) Template (Document # LCP-PT-MD-0000-EV-FR-0002-01)
- 2) Rehabilitation Plan (RP) (Document # LCP-SN-CD-0000-EV-PL-0004-01);
- 3) LCP Regulatory Compliance Plan (RCP) (Document # LCP-PT-MD-0000-RT-PL-0001-01);
- 4) Reference Material Document for Project Wide Environmental Protection Plan - (Document # LCP-PT-MD-0000-EV-SD-0001-01); and
- 5) LCP's Master Spill Response Plan (Document # MFA-PT-MD-0000-EV-PL-0002-01) will be used by Contractors as a basis for preparing their own spill response plans.

This EPP applies to all Project participants, including Project Personnel, Contractors, Subcontractors, suppliers, service providers, and all Employees of these organizations.

Given the LCP's magnitude, accepted *Contract-Specific Environmental Protection Plans (C-SEPPs)* will be required. C-SEPPs will be prepared by all Contractors for all construction contracts to ensure that effects on the environment are minimized to the extent practical. These C-SEPPs will provide sufficient detail on the Contractor's:

- a) Scope of work;
- b) Methods of construction;
- c) Sequence of activities;
- d) List of resources (i.e., equipment and site workforce);
- e) Temporary and permanent installations;
- f) Environmental protection procedures and alternative procedures, if required; and

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g) Environmental contingency measures.

This EPP will serve as a resource to Contractors as they prepare their own C-SEPPs. Contract packages will include C-SEPP templates with specific instructions on how these templates are to be properly completed. All C-SEPPs will require acceptance by the Project prior to the Contractor's mobilization to Site.

In certain cases, particularly in areas where environmental risks are elevated, specific mitigation measures will be engineered for the Project. These measures, detailed in the form of technical specifications and construction drawings, will form part of the contract packages.

4 DEFINITIONS

Authorized Escort: A Contractor or Subcontractor representative who has completed Site orientation, is fully aware of the Site's emergency response and evacuation procedures, and has the authority to accompany Site Visitors.

Contractor: Any Contractor engaged by Nalcor or any Subcontractor engaged by Nalcor, or engaged on behalf of Nalcor, or any Subcontractor engaged by a Contractor to carry out work at the Sites.

Employee: All Employees employed by Nalcor and consultants engaged by Nalcor to work at any of the Sites, either through third-party agencies or consultants hired or contracted by Nalcor directly. This includes, but is not limited to full time, part time, casual, term, intermittent or occasional Employees, and seconded Employees who are either directly employed by or under assignment to Nalcor.

Personnel: Nalcor Employees, Contractors, Subcontractors and their respective Employees.

Site(s): Muskrat Falls Power Generating Facility, Labrador Island Link, Labrador Transmission Access, Strait of Belle Isle, direct current (dc) Specialties, and other ancillary Sites and staging areas.

Site Access: Obtaining a Site Pass issued as per the Worker Site Access Standard, Nalcor Doc. No. LCP-PT-MD-0000-HS-SD-0003-01 or Nalcor authorization required to access the various Sites.

Visitor: Any person(s) visiting the Sites, including, but not limited to, vendors, couriers, delivery personnel, regulatory personnel, consultants, engineering representatives, stakeholders, and other personnel not assigned to the Site.

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5 ABBREVIATIONS AND ACRONYMS

ACA	Ammoniacal Copper Arsenate
ACZA	Ammonia Copper Zinc Arsenate
ARD	Acid Rock Drainage
ATV	All-Terrain Vehicle
CCA	Chromated Copper Arsenate
CCME	Canadian Council of Ministers of the Environment
CEAA	Canadian Environmental Assessment Act
CEPA	Canadian Environmental Protection Act
C-SEPP	Contract-Specific Environmental Protection Plan
CuN	Copper Naphthenate
DFO	Department of Fisheries and Oceans Canada
DNR	Department of Natural Resources
DOEC	Department of Environment and Conservation
EA	Environmental Assessment
ECWSR	Environmental Control Water and Sewer Regulations
EEM	Environmental Effects Monitoring
EEMP	Environmental Effects Monitoring Plan
EIS	Environmental Impact Statement
EPA	Environmental Protection Act
EPP	Environmental Protection Plan
ERC	Environment and Regulatory Compliance
ERP	Emergency Response Plan
ESA	Endangered Species Act
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
GAP	Storage and Handling of Gasoline and Associated Products Regulations

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H&S	Health and Safety
HVac	High Voltage Alternating Current
HVdc	High Voltage Direct Current
IMO	International Maritime Organization
LCP	Lower Churchill Project
LITL	Labrador-Island Transmission Link
MCTS	Marine Communication and Traffic Services
MSDS	Material Safety Data Sheet
MM	Mealy Mountains (in reference to Caribou herd)
MSRP	Master Spill Response Plan
MW	Megawatt
NLDOEC-WD	NL Department of Environment and Conservation – Wildlife Division
NPAG	Non-Potential Acid Generation
NWPA	Navigable Waters Protection Act
OSEM	On-site Environmental Monitor
PAG	Potential Acid Generation
PAO	Provincial Archeological Office
PAO	Provincial Archeology Office
PCP	Pentachlorophenol
PPWSA	Protected Public Water Supply Area
PDT	Project Delivery Team
RCP	Regulatory Compliance Plan
RECP	Rolled Erosion Control Products
RFP	Request for Proposal
ROW	Right-of-Way
RP	Rehabilitation Plan
RRF	Revision Request form
RRIF	Revision Request Initiation Form

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RWM	Red Wine Mountains (in reference to Caribou herd)
SARA	Species At Risk Act
SOBI	Strait of Bell Island
SOP	Standard Operating Procedure
TC	Transport Canada
TRM	Turf Reinforcement Mats
TSS	Total Suspended Solid
WHMIS	Workplace Hazardous Materials Information System
WMP	Waste Management Plan

6 PROJECT DESCRIPTION

The proposed Project will extend over a distance of approximately 1,100 km, and this EPP includes the following key components:

6.1 HVDC SPECIALTIES

- a) An ac to dc converter station at Muskrat Falls near the lower Churchill River in Central Labrador;
- b) A dc to ac converter station at Soldiers Pond, with some associated Island system upgrades;
- c) Electrodes in the Strait of Belle Isle (L'Anse Au Diable, Labrador) and Conception Bay (Dowden's Point, Newfoundland), connected to their respective converter station by a small overhead electrode line;
- d) Transition compounds at Forteau Point and Shoal Cove to transition overhead lines to underground and submarine cables;
- e) ac switchyard at Soldiers Pond;
- f) Synchronous condensers at Soldiers Pond; and
- g) Permanent access roads to Forteau Point, L'Anse au Diable, Shoal Cove, Dowden's Point and Soldiers Pond.

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6.2 HVDC OVERLAND TRANSMISSION

- a) An overhead HVdc transmission line from Muskrat Falls to Forteau Point (approximately 383 km);
- b) An overhead electrode line from the HVdc transmission line to L'Anse au Diable (approximately 22 km);
- c) An overhead HVdc transmission line from Shoal Cove to Soldiers Pond on the Island's Avalon Peninsula (approximately 695 km);
- d) An overhead electrode line from Soldiers Pond to Dowden's Point (approximately 12 km); and
- e) Permanent telecommunication services, including telecom rooms, internal and external cabling with cooper and fibre optic cables, core switches, servers and other equipment, distribution equipment and accessories and access and terminals equipment. Permanent telecommunication services will be provided at all switchyards, converter stations, transition compounds, electrode Sites, and synchronous condenser Sites.

6.3 CONSTRUCTION RELATED INFRASTRUCTURE

Construction related infrastructure will be established to support construction activity for HVdc Overland Transmission and HVdc Specialties. Some of this infrastructure is temporary and will be decommissioned before the end of the construction phase. It is anticipated that the following infrastructure will be required:

HVdc Specialties

- a) Temporary construction camps at Forteau Point, L'Anse au Diable, and possibly Shoal Cove;
- b) Rock quarries for L'Anse au Diable and Dowden's Point breakwaters;
- c) Borrow pits and crushing facilities for construction fill and surfacing materials at Forteau Point, L'Anse au Diable, Shoal Cove, Dowden's Point, and Soldiers Pond;
- d) Local concrete batch plants at each remote Site (except Soldiers Pond);
- e) Construction power at all Sites;
- f) Communication facilities (telephone, internet) required at all Sites;
- g) Equipment fuel facilities at all Sites;

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- h) Spoil disposal areas at all Sites;
- i) Temporary office and sanitary facilities at all Sites;
- j) Temporary ac transmission line relocations at Soldiers Pond;
- k) Waste disposal at all Sites;
- l) Heavy equipment transport facility to move large transformers to Site (at Soldiers Pond). May require temporary road or bridge reinforcement or repairs and power line raising or outages by Contractor(s);
- m) Insulating oil storage tanks for transformer oil (many thousands of litres) and treatment facilities;
- n) SF6 and welding gas cylinder storage and handling facilities;
- o) Blasting materials storage facilities;
- p) Telecommunication services for the HVac switchyard, converter stations, transition compounds and electrode sites, remote camps at various locations throughout the Project and marshalling yards; and
- q) Telecommunication infrastructure at the Soldiers Pond switchyard, the transition compounds, the electrode Sites, the construction camps and marshalling yards include an office trailer and telecom rooms, core infrastructure and equipment in the telecom rooms and electronic equipment inside the trailer offices.

HVdc Overland Transmission

- a) HVdc Right-Of-Way (ROW) clearing camps and all associated infrastructure;
- b) HVdc transmission line construction camps and all associated infrastructure;
 - i. Temporary access and bypass for both ROW clearing and transmission line construction, as well as use of corduroy roads;
 - ii. Temporary bridges and culverts for both ROW clearing and transmission line construction;
 - iii. Borrow pits and possible quarries;
 - iv. Marshalling yards, material storage and lay-down areas;
 - v. Fuelling and fuel storage facilities; and

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- vi. Possible helipads and associated facilities.

6.4 CONSTRUCTION SCHEDULE

HVdc overland transmission will commence in the spring of 2014 and will span three (3) years. The construction associated with the HVdc specialties will commence in the spring of 2014 and will span over three (3) years.

7 RESPONSIBILITIES

The LCP Environmental and Regulatory Compliance (ERC) Team is comprised of environmental engineering and construction management staff. Figure 7-1 illustrates the team structure. Roles and responsibilities of team members are further defined in the sections that follow.

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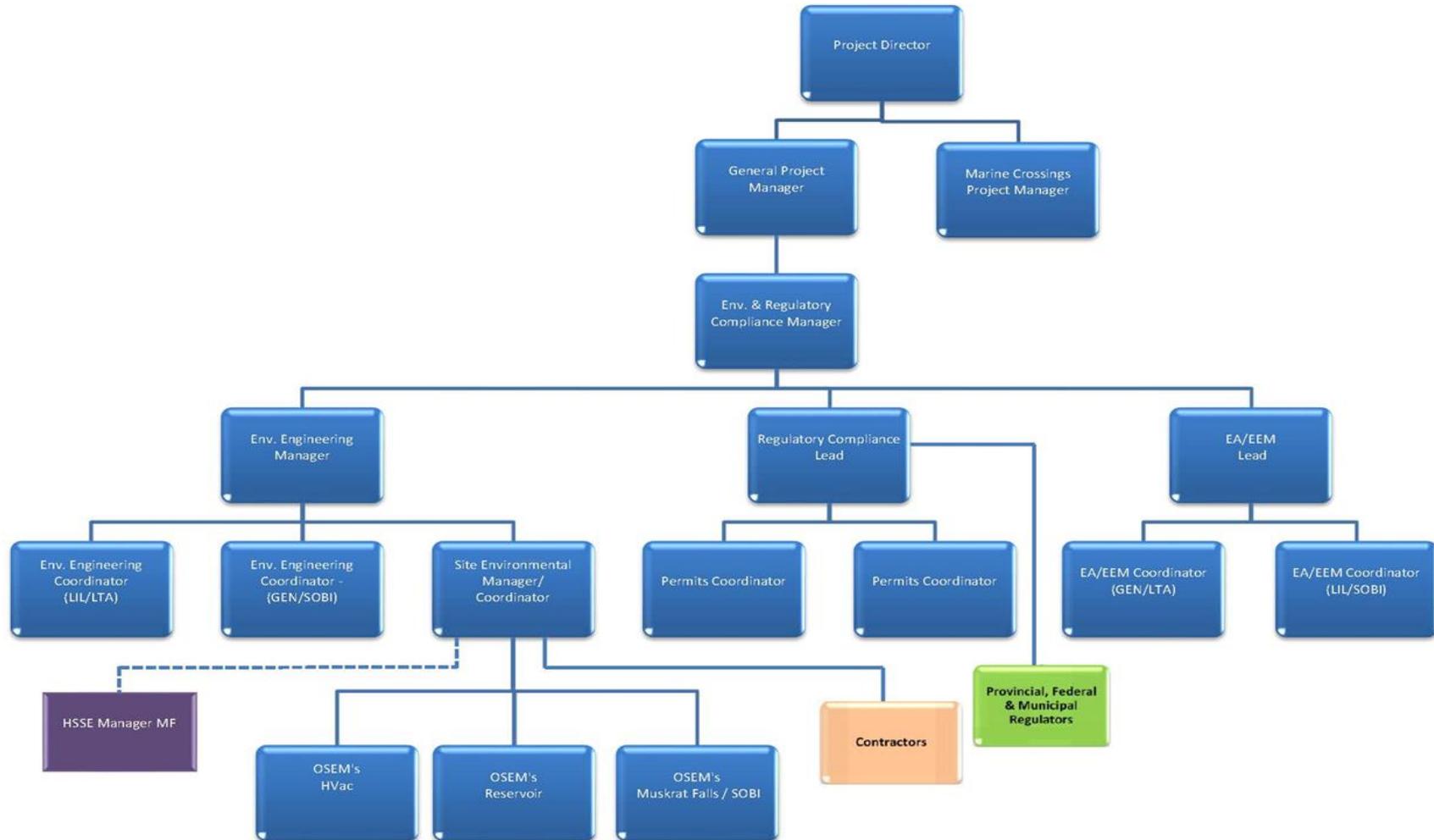


Figure 7-1 - Lower Churchill Project: Environment and Regulatory Compliance Team

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7.1 ENVIRONMENT AND REGULATORY COMPLIANCE TEAM

7.1.1 Auditing Function

The purpose of the auditing function will be to evaluate compliance and effectiveness of the EPP and to identify opportunities for continual improvement. Auditing will consist of daily field reports, risk based and semi-annual environmental compliance audit reports, and annual performance reviews.

The daily field reports will be completed by the On-Site Environmental Monitors (OSEM), who reviews daily activities of the Contractors. The risk based and semi-annual environmental compliance audit reports will be completed by a member of the ERC team. The reports will document all incidents of non-compliance with the EPP and their causes. The ERC team will distribute the environmental compliance audit reports to relevant Project participants.

The annual performance review will be completed by the key members of the Environmental and Construction teams. This audit will include a review of all work activities that relate to environmental concerns, issues and/or mitigations, and will include a review of environmental audits carried out by the ERC team during the year. The review process will give all parties a chance to evaluate overall environmental performance and compliance with government regulations, permits, this EPP, and C-SEPPs.

7.1.2 Individual Responsibilities

General Project Manager

The General Project Manager will be accountable for the acceptance of the EPP. The General Project Manager will be consulted on the various aspects of EPP management. This person will also be consulted on Environmental Compliance Monitoring processes such as daily field reports, environmental audits and annual environmental performance reviews. Environmental Effects Monitoring is the responsibility of the ERC team and the General Project Manager will be accountable. The General Project Manager will be supported in this function by the ERC Manager.

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Environment and Regulatory Compliance (ERC) Manager

The ERC Manager will be accountable for development, acceptance, implementation and management of this EPP. They will be accountable for review and acceptance of the C-SEPP, as well as all environmental compliance monitoring. The ERC Manager is responsible for implementation and management of the C-SEPP, along with the Contractor. The ERC Manager will be informed of all activities that are the responsibility of the ERC team such as acceptance of this EPP, C-SEPP and environmental effects monitoring.

Environmental Engineering Manager

The Environmental Engineering Manager will be responsible for the development, review, implementation and management of this EPP and review, acceptance and implementation of the C-SEPP, as well as all environmental compliance monitoring.

Regulatory Compliance Lead

The Regulatory Compliance Lead is responsible to review and ensure commitments and requirements of EA release are included in this EPP as it relates to their work. This person is responsible to ensure legislative and permit conditions are reflected in this EPP. They are also responsible for communicating results of the EEMP to the ERC group.

Environmental Engineering Coordinator

The Environmental Engineering Coordinator will be responsible for the following:

- i. Implementation of this EPP as it relates to their work fronts;
- ii. Supporting the Environmental Engineering Manager with managing changes to the EPP;
- iii. Reviewing, acceptance and implementation of the C-SEPP;
- iv. Along with Site Environmental Manager/Coordinators, are responsible for Project Environmental Awareness such as orientation of project Employees, Visitors and Contractors.
- v. Responsible for certain aspects of environmental compliance monitoring such as reviewing daily field reports and environmental audits, which they will be informed on environmental affects monitoring details.

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- vi. Manage Opportunity for Improvements, Non-Conformance and Corrective Action registries.

Permits Coordinator

The permits coordinator will be responsibility for the following:

- i. Providing support for the development and implementation of the EPP and will be a consulted on management or revisions of the EPP.
- ii. Providing support for C-SEPP implementation and project environmental awareness through orientation.
- iii. Providing support and consultation for several aspects of environmental compliance monitoring.
- iv. Consulting on the review of the EPP to ensure compliance with condition of permits.
- v. Managing the permit registry (in consultation with the Environmental Engineering Coordinators) and will be informed on environmental effects monitoring details.

Site Environmental Manager/Coordinators

These individuals will be responsible for the following:

- i. Coordinating all activities and monitoring efforts by the On-Site Environmental Monitors to ensure compliance with the EPP, C-SEPP, and permit conditions.
- ii. Reporting directly to the Construction Manager, and interface functionally with the Environmental Engineering Manager and Environmental Engineering Coordinators.
- iii. Communicating directly with the Contractor's on environmental performance and non-conformance issues.
- iv. Participating in the environmental audit reviews.

On-Site Environmental Monitor (OSEM)

The OSEM will be responsible for the following:

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- i. Monitoring on-Site Project activities, evaluate the Contractors' environmental performance with respect to requirements established in the EPP and C-SEPP,
- ii. Evaluating the performance of designed/constructed environmental mitigation systems through sampling and testing programs, and track on-site compliance with regulatory requirements and conditions of all permits and approvals.
- iii. Producing daily field reports as part of environmental compliance monitoring and will provide support for managing the opportunity for improvements, corrective action and non-conformance registries.
- iv. Reporting directly to the Site Environmental Manager and functionally to the Environmental Engineering Coordinators,
- v. Interacting with the Contractors on environmental procedures and requirements, participating in Project team meetings, toolbox meetings, conduct environmental reviews of drawings, and assisting in the revision and update of the EPP and C-SEPP, as necessary.
- vi. Ensuring the Employees, Visitors and Contractors travelling to the Site receive the appropriate orientation and training before going on site.

Component Project Managers

The Component Project Managers will provide support for the development of the EPP and the C-SEPP and will be responsible for implementation of the C-SEPP. They will be informed about all aspects of the EPP, C-SEPP, and compliance tracking.

Area Managers

The Area Managers will be informed on all aspects of the development of the EPP and C-SEPP. They will be informed of environmental compliance monitoring and environmental effects monitoring, and will provide support for managing the compliance tracking.

Construction Managers

The Construction Managers will be responsible for the following:

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- i. Overseeing construction management, including management of on-Site environmental issues through implementation of the EPP.
- ii. Acceptance and implementation of the C-SEPP, and for revisions to this document.
- iii. Reporting directly to the Project Manager and for certain aspects of environmental compliance monitoring and compliance tracking.
- iv. Ensuring Visitors, Contractors and Employees travelling to the Site receive the appropriate orientation and training required, as well as ensuring that this responsibility has been delegated to the HSSEER Manager for the Muskrat Falls Site.

Package Lead

The Package Leads will be responsible for the following:

- i. Ensuring the EPP is included in procurement packages.
- ii. Supporting acceptance and implementation of the C-SEPP, and will be informed about all aspects of the EPP, C-SEPP and compliance tracking.

Contractors

Contractors will build, supply and/or install various components of the Project, or be involved in provision of services to support construction and/or procurement, as defined in the work scopes of their respective contract packages. The Contractors will be accountable and responsible for the following:

- i. Implementing environmental protection procedures as outlined in the EPP and developing, implementing, and maintaining their own C-SEPP, as applicable.
- ii. Holding toolbox meetings at the start of each shift to discuss health, safety and environmental issues,
- iii. Developing their own orientation and training package to deliver to individuals entering the Sites on their behalf in addition to the Project training noted above.
- iv. Ensuring EPP conditions are reflected in their proposals and bids, and will comply with all relevant regulations, guidelines, permits, approvals and authorizations.

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The Contractor may be consulted, as required; on aspects of environmental compliance monitoring and environmental effects monitoring.

7.2 PROJECT ENVIRONMENTAL AWARENESS

7.2.1 Employee Orientation

A Project environmental orientation has been developed and will be presented to all Site Visitors that arrive at the Project Site. The orientation is considered a prerequisite to entering any of the LCP Sites.

Project environmental orientation will include elements of this EPP such as: environmental protection procedures; proper storage and handling of materials; encounters with wildlife, rare/endangered species, historic resources, waste management, and emergency response. Project environmental orientation will be delivered by experienced individuals with an in depth knowledge of the EPP and a knowledge of construction and execution activities.

The project environmental orientation will include a review of the following:

- a) Environmental management;
- b) Environmental considerations;
- c) Non-compliance and corrective actions;
- d) Environmental contingency measures;
- e) Incident reporting requirements;
- f) All permit-required work; and
- g) Construction site rules and regulations.

All Personnel who attend the Project Environmental Orientation session will be required to sign an attendance sheet, and will be provided with access to copies of the EPP, or C-SEPP as appropriate. All documentation must indicate the completed training and expiration dates.

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7.2.2 Visitor Orientation

A temporary orientation will be provided to those Site Visitors who have arrived at the Project, but will not be completing any field construction work (meetings, office work, deliveries, etc.). The Visitor orientation will cover relevant environmental protection measures, Project emergency procedures, environmental incident reporting requirements, and other general project environmental requirements.

Any person, who has not taken the full orientation program, will be supervised by a designated, oriented Project Personnel at all times, and will abide by the EPP.

7.2.3 Contractor Orientation

Contractors may develop and deliver additional environmental orientations to their workforces, Visitors, consultants and inspectors on the details of their C-SEPP, and/or corporate requirements. The Contractor orientations may be reviewed by the LCP.

7.2.4 Toolbox Meetings

Toolbox meetings (short, informal meetings) will be held by the Contractor with its field crews and supervisors at the beginning of each work shift. The tool box meeting will involve discussion of work task assignments for the day and any associated safety hazards. These meetings will also provide the opportunity to discuss environmental concerns and applicable mitigation measures that apply.

8 REFERENCES

Information and documents referenced in this EPP can be found at the LCP Project Office in St. John's. DFO Operational Statements and Factsheets, as well as DOEC Environmental Guidelines and Federal Government Regulations LCP are included in Nalcor document, "Reference Material Document for Project Wide Environmental Protection Plan" - LCP-PT-MD-0000-EV-SD-0001-01). A listing of the key reference material is provided below:

Provincial Government Guidelines (Water Resources Division, DOEC)

- Environmental Guidelines for Watercourse Crossings;
- Environmental Guidelines for Stream Crossings by All-Terrain Vehicles;
- Environmental Guidelines for Bridges;

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- Environmental Guidelines for Culverts;
- Environmental Guidelines for Fording;
- Environmental Guidelines for Diversions, New Channels, Major Alterations;
- Environmental Guidelines for Pipe Crossings; and
- Environmental Guidelines for General Construction Practices.

DFO Operational Statements

- Aquatic Vegetation Removal in Freshwater Systems Operational Statement;
- Beaver Dam Removal Operational Statement;
- Bridge Maintenance Operational Statement;
- Clear Span Bridges Operational Statement;
- Culvert Maintenance Operational Statement;
- Dock and Boathouse Construction Operational Statement;
- High Pressure Directional Drilling Statement;
- Ice Bridges and Snow fills Operational Statement;
- Isolated Pond Construction Operational Statement;
- Maintenance of Riparian Vegetation in Existing Right-of-ways Operational Statement;
- Overhead Line Construction Operational Statement;
- Punch and Bore Crossings Operational Statement;
- Routine Maintenance Dredging Operational Statement; and
- Underwater Cables Operational Statement.

DFO Fact Sheets

- Fact Sheet on Effects of Silt on Fish and Fish Habitat;
- Fact Sheet on Blasting – Fish and Fish Habitat Protection;

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- Fact Sheet on Ditching;
- Fact Sheet on Temporary Fording Sites;
- Fact Sheet on Forwarder Trails;
- Fact Sheet on Filter Fabric;
- Fact Sheet on Rock Check Dam;
- Fact Sheet on Temporary Bridges;
- Fact Sheet on Resource Road Construction;
- Fact Sheet on Instream Work in the Dry – Cofferdams;
- Fact Sheet on Streambank Stabilization;
- Fact Sheet on Instream Work in the Dry – Temporary Diversion;
- Fact Sheet on Instream Work in the Dry – Elevated Pipes;
- Fact Sheet on Culvert Stabilization;
- Fact Sheet on Storm Drain Outlets;
- Fact Sheet on Temporary Settling Basins;
- Fact Sheet on Bridge Construction/Demolition;
- Fact Sheet on Freshwater Salmonid Habitat Requirements;
- Fact Sheet on Highway Construction/Upgrading – Infilling, Stabilization and No-Grub Zones;
- Fact Sheet on Freshwater Intake End-of-Pipe Fish Screen;
- Fact Sheet on Stream Clean-up;
- Fact Sheet on Timber Crib;
- Fact Sheet on Water and Sewer Installation – Stream Crossings;
- Fact Sheet on Culvert Installation; and
- Fact Sheet on AVTs, Fish Habitat and You

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Other Pertinent Federal Documents

- Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, Wright and Hopky, 1998;
- Freshwater Intake End-of-Pipe Fish Screen Guidelines, Fisheries and Oceans Canada, 1995;
- Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador. Fisheries and Oceans Canada, St. John's, NF, Gosse, M.M., et. al. 1998;
- Standard Methods Guide for the Classification/Quantification of Lacustrine Habitat in Newfoundland and Labrador, Bradbury C., et. Al. 2001;
- Forestry Guidelines for the Protection of Fish Habitat in Newfoundland and Labrador, Scruton, D.A., et. al. 1997; and
- Standard Methods Guide for Freshwater Fish and Fish Habitat Surveys in Newfoundland and Labrador Rivers & Streams, Sooley, Darrin R. 1998.

Other Pertinent Provincial Documents

- NL Water Resources Act;
- Accredited Laboratory Policy (PD:PP 2001-01.02)
- Environmental Policy for Infilling Bodies of Water W.R. 91-1(*Water Resources Act*, DOEC);
- Environmental Policy for Land and Water Developments W.R. 95-01 (*Water Resources Act*, DOEC);
- Environmental Policy for Development in Shore Water Zones W.R. 97-1 (*Water Resources Act*, DOEC);
- Environmental Policy for Development in Wetlands W.R. 97-2 (*Water Resources Act*, DOEC);
- Environmental Code of Practice for Concrete Batch Plant & Rock Washing Operations (Department of Environment and Lands);
- Newfoundland and Labrador Species at Risk Data Sheets; and
- Motorized Snow Vehicles and All-Terrain Vehicles Regulations (NL Department of Natural Resources).

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9 RELEVANT LEGISLATION

There are regulatory requirements at the provincial, federal and municipal levels that apply to the design and construction of the Project. Compliance will be evaluated through a program of environmental compliance monitoring, primarily implemented by On-Site Environmental Monitors.

The LCP has adopted Nalcor Energy's Corporate Environmental Policy and Guiding Principles and its Environmental Management System, which meet the requirements of ISO 14001:2009 (Environment). As a result, environmental protection measures and mitigation associated with this Project will meet the same high corporate Standard.

All work undertaken during the design, construction and commissioning phases of this Project will be in accordance with the most recent guidelines. For a detailed discussion of the regulatory requirements for the Project see the Regulatory Compliance Plan (Nalcor Document #. LCP-SN-CD-0000-RT-PL-0001-01).

9.1 FEDERAL

The following federal environmental acts apply to one or more aspects of Project:

- a) Canadian Environmental Assessment Act (CEAA);
- b) Canadian Environmental Protection Act (CEPA);
- c) Species at Risk Act (SARA);
- d) Navigable Waters Protection Act (NWPA);
- e) Transportation of Dangerous Goods Act, 1992;
- f) Oceans Act;
- g) Canada Shipping Act;
- h) Migratory Birds Convention Act; and
- i) Fisheries Act.

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9.2 PROVINCIAL

The following provincial acts and regulations apply to one or more aspects of the Project:

- a) Dangerous Goods Transportation Act;
- b) Endangered Species Act;
- c) Forestry Act;
- d) Historic Resources Act;
- e) Newfoundland and Labrador Lands Act;
- f) Environmental Protection Act (EPA);
- g) Air Pollution Control Regulations, 2004;
- h) Gasoline Volatility Control Regulations, 2003;
- i) Pesticides Control Regulations, 2003;
- j) Storage and Handling of Gasoline and Associated Products Regulations, 2003;
- k) Used Oil Control Regulations, 2002;
- l) Waste Diversion Regulations, 2005;
- m) Waste Management Regulations, 2003;
- n) Waste Material Disposal Areas, 1996;
- o) Wild Life Act;
- p) Water Resources Act;
- q) Well Drilling Regulations, 2003;
- r) Water Power Rental Regulations, 2003;
- s) Environmental Control Water and Sewage Regulations, 2003; and
- t) Lower Churchill Labrador Island Transmission Link Project Act.

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9.3 MUNICIPAL

In some areas, construction activity will take place within municipal boundaries. In these areas, local bylaws will be complied with and permits obtained.

10 PREFACE-MAINTENANCE OF THE ENVIRONMENTAL PROTECTION PLAN (EPP)

This Environmental Protection Plan (EPP) will at times require updating in response to changes in the Project, Contractor work methods, group structure, or technological advancements that provide higher level of environmental protection. The subsections below indicate the process with respect to maintenance and implementation of the EPP.

10.1 INITIATING REVISIONS

This EPP is a controlled document and revisions may only be processed by the Environment and Regulatory Compliance (ERC) Manager. It is anticipated that most of the revisions to this EPP will be initiated by the Environment and Regulatory Compliance Team at the work fronts or at the Lower Churchill Project office in St. John's.

Project Delivery Team (PDT) staff will request revisions through document control. EPP holders and readers/reviewers (within the PDT, government agencies, contracting firms, other stakeholders, etc.) may request revisions by forwarding a completed Revision Request Form (RRF), to the Environment and Regulatory Compliance Manager. These revision requests will be screened and reviewed by the ERC Manager and forwarded to the General Project Manager for approval.

10.2 COMPLIANCE INSTRUCTIONS

Revision requests that have been accepted by the Project Manager will be sent to the Environment and Regulatory Compliance Manager for distribution to key Project participants as "Compliance Instructions". These instructions will be signed off by key holders of the EPP and returned within two (2) days of receipt. A log of compliance instructions will be maintained by the Environmental Engineering Coordinators, and these will be incorporated periodically into a revised edition of the EPP.

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10.3 REVISION PROCEDURES

Revisions to the EPP will be made annually, or as required, in accordance with Project document control procedures. The Environment and Regulatory Compliance Manager will issue the accepted revisions of the EPP to key holders, Contractors, and readers/reviewers. Each revision will be accompanied by a Revision Control Record that:

- Identifies all compliance instructions that have been issued since the last revision; and
- Lists the sections being superseded.

Within two (2) working days of receiving a revised Plan, EPP holders shall:

- Familiarize themselves with revised sections of the EPP;
- Incorporate all revisions into their areas of responsibility, as appropriate;
- Ensure that all personnel are familiar with the revisions; and
- Acknowledge receipt of the revised EPP by forwarding via fax, email, or mail a signed and dated Acknowledgement Form to the Environment and Regulatory Compliance Manager.

11 GENERAL ENVIRONMENTAL PROTECTION PLAN

In general, environmental mitigation will be planned and designed prior to issuing proposal calls for construction contracts. Environmental mitigation plans and specifications will be incorporated into documents provided to prospective contractors for proposal purposes.

Environmental mitigation will be consistent with applicable standards, codes, acts and regulations, and the conditions of Environmental Assessment (EA) release. This section contains a comprehensive suite of environmental protection procedures to be used.

The procedures in this section may need to be modified in the future to address new activities, unforeseen Site conditions, changes in engineering design and/or construction work methods, or new environmental performance standards. These changes will be part of the maintenance of the EPP as outlined in the front of this report.

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11.1 SCHEDULING AND TIMING OF CONSTRUCTION ACTIVITIES

Construction planning is one of the most fundamental activities in the management and execution of construction projects. One of the most important factors in a large scale project is the scheduling and timing of various activities. However, sensitive time periods, outlined in the section below, will be considered in Project planning, where practical. Where activities are to be carried out during sensitive time periods, additional mitigations will be applied, as required.

Environmental Concerns

Construction activities will be organized so that various tasks that must be accomplished have the necessary precedence and resources required to complete the task.

Environmental Protection Procedures

- a) A complete schedule of activities, provided by the Contractor and accepted by OSEMs, will be completed prior to commencement of any construction task and any restrictions on timing will be noted on the schedule;
- b) While the ideal time of year for construction located near a body of water is typically in early June through to late October, which is due to the low flow and low rainfall period, construction will be occurring at other times and specific attention will be paid to ensure environmental mitigations are applied during this period;
- c) Stripping, grading, excavating and/or rehabilitation activities will be scheduled to minimize the amount of time the soil is exposed to elements;
- d) Activities will be conducted in such a way as to reduce the amount of time spent in or around a stream or waterbody;
- e) Construction activities will be scheduled, where possible, to avoid any sensitive areas of fish and wildlife habitat and critical periods in fish and wildlife cycles. The sensitive life stages of wildlife in the Project area are illustrated below. These sensitive life stages as indicated in blue, are used to identify the timing of migration, spawning and calving in the vicinity of the Project area; and
- f) If timing is not ideal, alternative mitigations will be implemented.

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Table 11-1 - Sensitive Life History Stages of Aquatic and Terrestrial Fauna

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Aquatic												
Newfoundland Island												
American Eel												
Arctic Char												
Arctic Char (sea-run)												
Atlantic Salmon												
Brook Trout												
Brown Trout												
Rainbow Smelt												
Rainbow Trout												
Labrador												
Arctic Char (sea-run)												
Atlantic Salmon												
Brook Trout												
Burbot												
Lake Trout												

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Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Aquatic												
Lake Whitefish	Blue											
Northern Pike	Yellow											
Ouananiche	Blue											
Rainbow Smelt	Yellow											
Round Whitefish	Blue											
Suckers	Yellow											
Terrestrial												
Early Nesting Waterfowl												
Late Nesting Waterfowl												
Forest Avifauna	Yellow											
Raptors												
Caribou	Yellow											
Moose	Yellow											
Semi-aquatic Furbearers	Blue											
Terrestrial Furbearers	Yellow											
Black Bear	Blue											

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11.2 CONSTRUCTION ENTRANCE

Environmental Concerns

Construction entrances typically consist of a gated Right-Of-Way (ROW) and a security building, but would also include access to transmission line ROW from public roads/highways. Environmental concerns include the vegetation clearing that may be required for the construction of these features, and tracking of dirt and mud from the Site onto public roads and streets.

Environmental Protection Procedures

Measures to remove mud and dirt from vehicles, heavy equipment and pedestrians will be required. Measures include rumble racks, tire washes and sediment traps.

- a) All cleaning activities should occur on a gravel pad with runoff running through a sediment trapping device prior to discharge;
- b) The gravel pad should be designed for the heaviest vehicle anticipated on Site;
- c) Ensure proper cleaning of machinery/vehicles to prevent potential spread of invasive species;
- d) Ensure all Site traffic use the facility and ensure the sediment trapping device is cleaned and maintained regularly; and
- e) Temporary erosion control measures will be applied as required in the area of vegetation clearing for any gate areas or entrance buildings. See Section "Erosion Prevention and Sediment Control" for applicable control measures.

11.3 LINEAR DEVELOPMENTS

Environmental Concerns

Linear developments encompass a diverse range of standard construction related activities such as ditching, right-of-way clearing, roads and transmission line construction. Environmental concerns associated with linear developments include potential sedimentation/erosion, and the loss of vegetation and fish/wildlife habitat. Linear features can also have a negative impact on caribou beyond habitat loss.

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Environmental Protection Procedures

Road Construction & Ditching

- a) Aggregate (fill) materials for construction purposes will not be removed from any stream;
- b) Sedimentation control measures, as outlined in Section, "Erosion Prevention and Sediment Control", will be followed. Solids that accumulate in a settling pond or behind a sediment trap will be removed on a regular basis to ensure such systems remain effective;
- c) Work will not be undertaken on easily erodible materials during or immediately following heavy rainfalls without accepted protection measures in place;
- d) Buffer zones will be flagged prior to any disturbance activities, as required;
- e) Natural vegetation will be left in place where possible. Rights-of-way, particularly in areas of dense vegetation, will be as narrow as practicable; loss of ground vegetation will be kept to a minimum;
- f) Roads will be adequately ditched so as to allow for good drainage. Where possible, ditches will be kept at the same gradient as the road;
- g) Drainage from areas of exposed fill will be controlled by grade or ditching and directed to vegetated areas away from all watercourses and at least 30 m from stream crossings. These drainage areas will be determined in consultation with the OSEMs;
- h) Surface water will be directed away from work areas by ditching. Runoff from these areas will have sediment removed by filtration or other suitable methods as outlined in Section, "Erosion Prevention and Sediment Control" and will be directed away from wetlands and watercourses;
- i) The sediment control measures will be determined on Site by Contractor Personnel and accepted by the On-Site Environmental Monitor;
- j) Check dams will be used, as required, to reduce runoff from work areas with exposed soil;
- k) In areas where natural vegetation must be removed, the topsoil layer will be separately stored from grubbed material for rehabilitation;
- l) Cut areas through silt and clay materials will have erosion prevention measures in place (Section "Erosion Prevention and Sediment Control");

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- m) Temporary erosion control will be applied on exposed slopes in sensitive areas immediately following exposure of a slope. A permanent control measure will be installed shortly thereafter. Refer to Section “Erosion Prevention and Sediment Control” for applicable erosion control measures;
- n) The cutting and filling phase of road construction, and the development of other work areas, will be conducted as outlined in the following procedures:
 - i. Cutting and filling will be done only upon completion of grubbing. Where engineering requirements do not require grubbing (e.g., within the buffer zone of a stream crossing), filling will occur without any disturbance of the vegetation mat or the upper soil horizons;
 - ii. Filling in the vicinity of stream crossings will be done in a manner which ensures that erosion and sedimentation of watercourses, waterbodies and other ecologically sensitive areas, such as wetlands, is minimized and done in strict compliance with the required watercourse alteration permits from the DOEC. The hydrologic function of wetlands will be maintained;
 - iii. The infilling of watercourses and waterbodies will not be permitted, except as authorized by regulatory agencies and with the approval of the OSEM. The OSEM will inspect the work to ensure it is completed in compliance with the required watercourse alteration permits from the DOEC, and any guidance provided by DFO;
 - iv. Buffer zones will be maintained between the roads and the bank of any watercourse they parallel (refer to Section “Erosion Prevention and Sediment Control”); and
 - v. Road fill will be dry and ice free. On areas of sensitive terrain, excess fill will be end-dumped from the established roadbed.
- o) Culverts will be properly installed to maintain natural cross-drainage and to prevent ponding;
- p) The number of stream crossings will be minimized. Where access must cross a stream, the environmental protection procedures detailed in Section “Erosion Prevention and Sediment Control” will be followed;
- q) Where possible, construction activities will avoid areas of wildlife concentrations to prevent undue disturbance of wildlife during critical periods (refer to Sections: “Scheduling and Timing of Construction Activities”, “Resource Specific Mitigations” & “Site Rehabilitation”). If encounters with wildlife are

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unavoidable, then contingency plans detailed in the Contingency Plan Section of this document will be followed;

- r) Where possible, rights-of-way will avoid known archaeological, historic and/or spiritual sites and required buffers will be respected (See Section "Buffer Zones"). Where they cannot be avoided, the site will be mitigated to the satisfaction of Provincial Archaeology Office (PAO) prior to work proceeding. If any archaeological or historic sites are encountered (known or otherwise), all work will cease in that area until approval to proceed has been granted by the PAO;
- s) Reference will be made to the Guidelines for Protection of Fish Habitat in Newfoundland and Labrador, 1998; and
- t) Boundaries of right-of-way and road easements and all boundaries of the facility, infrastructure and borrow sites that will be developed will be staked.

Right-of-Way Clearing

- a) All salvaged timber will be piled at right angles to rights-of-way so as not to obstruct the access or work of others, damage vegetation or be placed within buffer zones of critical habitat;
- b) Disposal of cleared non-merchantable timber, slashing and cuttings from cleared areas will take place through mulching and/or piling to minimize the amount of slash. No burning of materials is permitted for this Project;
- c) If slash piles are to be used, they will be piled so as not to cause unnecessary damage to vegetation outside the right-of-way. A 6.5 m break in slash piles will be made every 200 m to allow for drainage and animal access. The maximum height of the piles will not exceed 3 m; and
- d) All conditions outlined under Road Construction and Ditching (above), as well as Transmission Line Development (below) that also apply to right-of-way clearing will be adhered to.

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Transmission Line Development

- a) Where feasible and applicable, untreated wood should be used. Where untreated wood is not practical, it will be treated with Pentachlorophenol (PCP), Chromated Copper Arsenate (CCA) Ammonical Copper Arsenate (ACA), Ammoniacal Copper Zinc Arsenate (ACZA), or Copper Naphthenate (CuN) only (refer to Section “Wood Treatment” of this document for information regarding the use of treated wood in and around waterbodies and protected water supply areas);
- b) Access for the transmission line development will follow the protective measures as listed above for roads and ditching; and
- c) Ground travel on the transmission line will follow existing trails and tote roads, where practical. Stream crossings will follow DFO Standard Operating Procedures (SOP), where feasible (one time ford, clear span bridge, etc.).

11.4 WINTER CONSTRUCTION

Environmental Concerns

The principal concerns associated with winter construction are potential effects on freshwater ecosystems and water quality.

Environmental Protection Procedures

- a) Winter vehicles will be confined to properly prepared, groomed and approved trails and to work sites;
- b) Maintenance and refuelling of vehicles will be restricted to designated areas;
- c) Only streams or waterbodies that are frozen will be traversed, unless permits to ford are in place (see the DFO Operational Statement for Ice Bridges and Snow Fills);
- d) Any debris or materials placed upon the ice surface of any waterbody will be removed immediately after job completion; and/or prior to spring melt;
- e) The ground must be frozen or a minimum 0.5 m snow cover for unfrozen ground is required for winter trails to avoid ground disturbance;
- f) All known archaeological sites will be avoided;

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- g) Snow removed for snow clearing operations will be disposed of in areas directed by the OSEM; and
- h) Gaps of at least 2 m are to be left in windrowed snow to allow for animal movements.

11.5 EQUIPMENT OPERATION AND MOVEMENT

A variety of equipment will be used on Site during construction. This is a potential source of noise, air emissions, and potential leaks or spills.

Environmental Concerns

Noises associated with equipment operation and movement may negatively affect humans and wildlife. Air emissions may have air quality implications. Accidental leaks or spills of fuel or other hazardous materials may affect soils, water, fish, vegetation and wildlife. Tracked equipment has the potential to disturb the ground around/at work fronts.

Environmental Protection Procedures

- a) All approvals, authorizations and permits for Project activities will be followed;
- b) Prior to the commencement of construction, equipment will be inspected for the presence of soil that could contain seeds and/or propagules of invasive and non-native species. If equipment is found to have soil attached, it will be cleaned (i.e., pressure washed) to remove the potential seed source. In addition, equipment coming from other regions or provinces will be clean and free of potential seed sources of invasive plants.
- c) Noise control procedures will be followed during all work activities (Section “Noise Control”);
- d) All equipment will have exhaust systems regularly inspected and mufflers will be operating in accordance with manufacturer’s recommendations;
- e) All equipment (e.g., diesel generators) will meet the requirements of the *NL Air Pollution Control Regulations* under the *Environmental Protection Act*, as required. Diesel generators will be registered with DOEC, as required. Refer to the guidance document for Approval of Diesel Generators (GD-PPD-061) for the registration form and guidance on completion;

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- f) All equipment used during construction will follow the environmental protection procedures outlined in this EPP. In the case of an accidental event resulting from the use of equipment (e.g., a fuel spill), refer to Section, "Contingency Plans";
- g) All equipment on the Project site will use only oils/lubricants that classify as "biodegradable", where feasible (refer to Section, "Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials" of this document for additional information on the use of biodegradable oils/lubricants);
- h) ATVs and tracked vehicles will only be used where necessary. ATV use will comply with the Motorized Snow Vehicles and All-Terrain Vehicle Regulations, 1996, the Environmental Guidelines for Stream Crossings by ATV, 1994 and the DFO Fact Sheet ATVs, Fish Habitat and You;
- i) The use of heavy equipment in or near watercourses will be minimized and restricted;
- j) All equipment will be regularly maintained and inspected. If problems are identified the equipment will be taken out-of-service and repaired to prevent release of hydrocarbons into the environment; and
- k) Best Management Practices outlined in "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (May 2005, ChemInfo Services Inc. for Environment Canada) will be implemented to mitigate air quality effects during the site preparation, clearing, and construction phases, where practical.
- l) Equipment coming from other regions or provinces will be clean and free of potential seed sources of invasive plants.

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11.6 VESSEL OPERATIONS (BARGE/BOATS)

Vessel traffic during construction may be required, including barges, tugs and ocean-going barges, and marine vessels to transport equipment and supplies to the construction Sites. Heavier vessels will be used for some of the larger modules particularly if they are being transported on the high seas. All vessels will meet Transport Canada Regulations and Standards, under the *Canada Shipping Act*, as well as international regulations established by the International Maritime Organization (IMO).

Environmental Concerns

Project vessel traffic may, at times, increase vessel traffic in Goose Bay and/or Cartwright. There is a risk due to increase in vessel traffic for vessels to collide, run aground and/or sink. Such events may lead to the accidental release of fuel and other hazardous materials to the marine environment. The release of non-compliant ballast water could also introduce non-indigenous species or deleterious substances into Canadian waters.

Environmental Protection Procedures

- a) All vessel activity will comply with the Pollutant Discharge Reporting Regulations, Regulations for Prevention of Pollution from Ships and Dangerous Chemicals and Vessel Traffic Service Zones Regulations as required under the *Canada Shipping Act*;
- b) All commercial vessels 20 m or more in length entering Goose Bay will report to the Marine Communications and Traffic Service Center (MCTS);
- c) The OSEMs and the local public will be advised of all particulars with regard to incoming/outgoing vessel traffic on a timely basis including updates regarding the estimated time of Arrival/Estimated Time Of Departure (ETA/ETD) as advised by vessel masters;
- d) Project vessel masters will observe the following basic rules:
 - i) Demonstrate that they have a set of safety and emergency procedures on board;
 - ii) Advise the Site office of their time of departure from their port of origin and their estimated time of arrival at Happy Valley-Goose Bay or Cartwright;
 - iii) Notify the site office of their progress at sea or, if stopping at other ports enroute, update their ETA;

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- iv) Relevant Canadian Hydrographic Charts or electronic charting systems will be on board prior to leaving their port of origin; these charts will be kept on board at all times;
 - v) Implement Best Management Practices designed to achieve zero discharge of oily waste while at the Site and along the shipping route;
 - vi) All Project-related vessels will have onboard adequate oil spill response equipment to handle an accidental release of product into the environment; and
 - vii) Refer to the Master Spill Response Plan in the event of a spill or leak.
- e) No Project-related vessels will discharge wastes into surrounding waters. The discharge of garbage from ships into Canadian waters and the waters of the Fishing Zones of Canada is prohibited;
 - f) All crewmembers will be familiar with emergency procedures for both life threatening and potentially polluting situations;
 - g) Vessel traffic will not encroach on the marine or land portion of the Gannet Islands Ecological Reserve;
 - h) All stationary hazards, such as moored platforms, vessels and electrode site breakwaters will be clearly marked according to the *Navigable Waters Protection Act* and/or *Collision Regulations* under the *Canada Shipping Act*; and
 - i) All vessels will comply with the Ballast Water Control and Management Regulations SOR/2006-129, under the *Canada Shipping Act*.

11.7 HELICOPTER TRAFFIC

Helicopter use at the Project site during construction will be required.

Environmental Concerns

Noise from the aircraft may disturb wildlife. Collisions with wildlife could result in mortality for both wildlife and humans. Fuelling of helicopters may result in spills.

Environmental Protection Procedures

- a) All aircraft will maintain an altitude of no less than 500 m from concentrations of birds or other wildlife;

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- b) Flights for wildlife viewing or photography are not permitted, except when conducting wildlife surveys. Permits from the Wildlife Division are required for wildlife surveys;
- c) The OSEM will inform all charter pilots of the EPP requirements;
- d) All aircrafts will inform the Contractor of their expected arrival and departure times;
- e) Aviation fuel caches will have approval from Service NL;
- f) The Contractor will ensure that helicopter landing areas are kept clear of equipment, materials/supplies at all times throughout the construction phase to avoid accidents or damage to the helicopter;
- g) All aircraft operators will review marine and aviation weather forecasts prior to departure;
- h) Raptors (e.g., Bald Eagle, Osprey, and Red Tailed Hawk) are known to nest within in the Project area. Under no circumstances will nesting raptors be approached. The disturbance effects that helicopters have on nesting raptors can be detrimental for both the birds and the safety of the aircraft. All aircrafts will maintain a 300 m vertical and horizontal buffer from known active raptor nests (refer to Table 11-13);
- i) Locations along the Churchill River are known as spring and fall staging areas for waterfowl. Helicopters moving through these areas during this time (typically May or September) will maintain a minimum altitude of 500 m from concentrations of waterfowl; and
- j) The number of helicopter trips should be minimized to the extent feasible by combining trips or using other appropriate means of travel.

11.8 CLEARING OF VEGETATION

Environmental Concerns

Vegetation clearing (e.g., trees, shrubs) will be required during site preparation for work areas, laydown areas, roads, and ROWs. Environmental concerns include loss of habitat, sedimentation of watercourses, and disturbance or destruction of historic resources.

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Environmental Protection Procedures

The following measures will be implemented to reduce the potential effects of vegetation clearing:

General

- a) Cutting activities will be limited to those areas that are required for construction of infrastructure and ROW clearing;
- b) Mulching of non-merchantable wood within the HVdc ROW is allowed as an option for disposal, except where piling is required for habitat enhancement, primarily in the Pine Marten critical habitat areas, or otherwise directed by the Company. Clearing within waterbody buffer zones along the HVdc ROW will be reduced to a 3 m wide travel route, or as required for equipment.
- c) All clearing will comply with the requirements of all applicable permits, including a Commercial Cutting Permit and an Operating Permit;
- d) A cutting permit will be obtained prior to the start of any site clearing. Clearing and tree removal will be restricted to the minimum areas needed for the site and stockpiles;
- e) Clearing will consist of cutting to within 15 cm or less of the ground and stockpiling of all merchantable timber; as well as the removal, piling and mulching of shrubs, debris and other non-merchantable timber in the area, as appropriate;
- f) Disposal of cleared non-merchantable timber, slash and cuttings from cleared areas will take place through mulching and/or piling to minimize the amount of slash. No burning of materials is permitted for this Project;
- g) If slash piles are to be used, they will be piled so as not to cause unnecessary damage to vegetation outside the right-of-way. A 6.5 m break in slash piles will be made every 200 m to allow for drainage and animal access. The maximum height of the piles will not exceed 3 m;
- h) Limits of clearing will be shown on all drawings issued for construction. Only those areas designated on drawings will be cleared. Trees will be blazed/flagged at intervals in advance of clearing to demarcate the limits of the work. Blazed trees will not be felled. Clearing activities will not remove any trees outside the authorized clearing limits;

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- i) Slash, mulched debris and any timber will not be permitted to enter any watercourse. All timber and slash/debris will be piled/disposed of above spring flood levels;
- j) Mechanical clearing by mechanical harvesters will likely take place within the main construction areas and ROWs. For other clearing required, chain saws or other hand-held equipment may be used except where alternative methods or equipment are accepted by the OSEM;
- k) Mechanical clearing by means other than mechanical harvesting equipment (i.e., bull dozer or excavators) will not occur;
- l) Firefighting tools and water delivery systems must be available, as required, by the Operating Permit for the activity;
- m) A buffer zone of undisturbed vegetation will be maintained between construction areas and all waterbodies, watercourses, and ecologically sensitive areas (refer to Section, "Buffer Zones" within this document), unless otherwise authorized. Buffer zone features will be key elements of the environmental review of drawings prior to construction;
- n) Where possible, timber will be felled inward toward the work area to avoid damaging any standing trees within the immediate work area;
- o) Workers will not destroy or disturb any features that are indicative of a historic or archaeological site. Any such findings will be reported immediately to the OSEM (refer to Section "Historic or Archaeological Resources");
- p) Clearing activities will be in compliance with the Avifauna Management Plan;
- q) No clearing will take place within 800 m of an active raptor nest (refer to Table 11-13). If a nest is encountered during clearing activities, all work will stop until the site is cleared by the OSEM, in consultation with the appropriate regulatory agencies;
- r) If a tree containing an inactive eagle or osprey nest is encountered during clearing of construction sites (other than transmission lines), the nest will be assessed for viability and if the nest is deemed viable a platform will be established as approved by the provincial Wildlife Division. For other raptors such as hawks and owls, active nests will be identified as per the Avifauna Management Plan and appropriate buffers applied;

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- s) If a tree containing an inactive raptor nest is encountered during transmission line clearing, a platform will not be required as the tower will provide an alternative nesting site;
- t) Merchantable timber is defined as being 2.5 m or more in length with a top diameter not less than 9.1 cm and being of generally sound condition. Non-merchantable timber consists of all other vegetation with no merchantable value, such as small trees, shrubs, limbs and/or branches;
- u) All merchantable timber will be salvaged. It will be cut into standard harvesting lengths (i.e., 2.5 - 3.5 m lengths), trimmed, and stored in identified stockpile areas. See Figure 11-3 for poorly cut and piled wood and Figure 11-4 shows properly cut and piled wood; and
- v) All merchantable timber within the specific clearing limits will be stockpiled so as not to obstruct the access of work of others.

Transmission Line/Road Rights-of Way

- 1) All salvaged timber will be piled at right angles to rights-of-way so as not to obstruct the access or work of others, damage vegetation or be placed within buffer zones of critical habitat; and
- 2) Slash and debris is to be disposed of as per items g) and i) of the general conditions outlined above.



Figure 11-2 - Poorly Cut and Piled Wood

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Figure 11-3 - Properly Cut and Piled Wood

11.9 PUMPS AND GENERATORS

Environmental Concerns

A variety of water pumps, hoses and generators will be in frequent use in many construction sites and at remote work camps. Environmental concerns are associated with any accidental spills or chronic leaks contaminating waterbodies and soil. There may also be concerns with noise, as well as air emissions from generators at the Sites.

Environmental Protection Procedures

The following measures will be implemented to reduce the potential effects of the storage, handling, use and disposal of the fuel and other hazardous materials.

- a) Refer to Section, “Buffer Zones” for required buffer zones for fuel and other hazardous materials storage and handling;
- b) Noise control procedures will be followed during use (refer to Section “Noise Control”);
- c) Drip pans will be placed underneath pumps and generators. The drip pans will be lined with absorbent material. Absorbent material will be kept at all sites where pumps and generators are in use;
- d) Spill kits will accompany all pumps and generators at the site (refer to Section “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” with this document);
- e) Pumps and generators will be located as far as practical from all waterbodies;

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- f) Pumps and generators will be located on a level, stable surface. All pumps used for freshwater supply will have a fine mesh screen on the intake hose (Please refer to DFO's "Freshwater Intake End of Pipe Fish Screen" guidelines);
- g) Hoses and connections on equipment will be inspected routinely for leaks and drips;
- h) A Water Use License from the Water Resources Management Division will be required for withdrawal of water from a waterbody;
- i) All diesel generators at the Sites will meet the requirements of the *Air Pollution Control Regulations, 2004* under the *Environmental Protection Act* as required, Generators built to Tier 4 Final emission standard may be exempt from NLDOEC Certificate of Approval; and
- j) All leaks will be reported immediately to the OSEMs. Upon detection of a leak, the equipment (i.e. pump, generator, etc.) will be shut down immediately and corrective action taken to repair the leak and clean-up any contaminated soil and/or water (Refer to the Master Spill Response Plan).

11.10 SURVEYING

Surveying activities may include: vegetation removal, traversing, establishing targets, permanent benchmarks and transponder stations.

Environmental Concerns

Surveying activities may disturb vegetation, wildlife, and historic resources.

Environmental Protection Procedures

Vegetation Removal

- a) Vegetation removal will be scheduled to minimize disturbance to animals in sensitive areas or during sensitive time periods, where possible;
- b) Width of survey lines will be limited to that which is absolutely necessary for line of sight and unobstructed passage;
- c) Whenever possible, cutting lines to the edge of open areas will be avoided;
- d) Trees and shrubs will be cut flush with the ground wherever possible with stumps not to exceed 15 cm;

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- e) Cutting of survey lines will be kept to a minimum;
- f) All trees not exactly on transit lines will be left standing and trees partly on line should be notched (notch not to exceed 1/3 tree's diameter) instead of removed, to allow sighting;
- g) Discretion will be used when large trees are encountered. For example, trees 30 cm at Diameter Breast Height (DBH) or larger should, whenever possible, not be cut. On grid lines, trees of 30 cm diameter or larger will be left intact and will be traversed to continue the line;
- h) Wildlife will not be harassed or disturbed;
- i) Vehicles will yield the right-of-way to wildlife;
- j) There will be no cutting in areas designated as sensitive without notification to the OSEMs;
- k) Archaeological sites and features will not be disturbed during survey work. Any historic resource discoveries will be reported as per Section, "Historic or Archaeological Resources";
- l) Survey crews will have a briefing on the recognition of historic resources prior to commencing work.

Traversing

- a) ATVs will not be allowed off the right-of-way, except where acceptable to the OSEM. ATV use will comply with the *Motorized Snow Vehicles and All-Terrain Vehicle Regulations, 1996*, the *Environmental Guidelines for Stream Crossings by ATV, 1994* and the DFO Fact Sheet *ATVs, Fish Habitat and You*;
- b) No motorized vehicles will enter the areas designated as sensitive without notification of the OSEMs;
- c) Activity within sensitive areas will be minimized; and
- d) Walking in sensitive areas will be restricted to established walking paths, where available.

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Establishing Targets, Permanent Benchmarks and Transponder Locations

- a) A driven T-bar, embedded to readily identify each benchmark location, will be used;
- b) Access to sensitive areas will be accepted by the OSEMs;
- c) Standard iron bars and sledgehammers will be used to establish benchmarks; and
- d) Heavy HV equipment will not be used to access sensitive areas.

11.11 DRILLING

11.11.1 Geotechnical

Drilling will be required as part of geotechnical investigations to recover soil samples, characterize the subsurface of proposed foundations, excavate areas and probe the bedrock surface. Seismic geophysical methods may also require drilling of shot holes in which small sources of energy (explosives, weight drop, air gun, etc.) are to be placed.

Environmental Concerns

The environmental concerns associated with drilling are surface disturbances, disposal of drilling fluids and cuttings, generation of dust, noise, and the potential effects on terrestrial habitats, historic resources, air quality and aquatic ecosystems.

Environmental Protection Procedures

The following mitigation measures must be followed when drilling at the Site:

- a) A Water Use License from the Water Resources Management Division is required;
- b) Shot holes for seismic activities will not be within 100 m of any water well, structure or buried service line;
- c) Drilling mud, together with drilling cuttings and return water, will be treated using a polydrill filter box or suitable alternative (See Figure 11-5). Solids collected will be disposed of at an approved waste disposal site. All treated water will be discharged on land to the environment in a manner that will promote permeation into overburden soils and will not enter or impair waterbodies. If drilling mud is

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required, biodegradable products such as clear-bore or an approved equivalent will be used. The type will be documented and the up-to-date MSDS provided and kept on file;



Figure 11-4 - Polydrill Filter Box used for Solids Removal in Drilling Applications

- d) All discharges will meet the Environmental Control Water and Sewer Regulations (ECWSR).
- e) Drilling of boreholes will be conducted in compliance with all conditions of the Exploration Approval for the work required under the *Mineral Regulations* issued under the *Mineral Act*;
- f) All drilling equipment on the Project Site will use only oils/lubricants that classify as “biodegradable” (refer to Section, “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” within this document for additional information on the use of biodegradable oils/lubricants);
- g) Due to the nature of drilling activities (quicksnaps, couplings) oil drops and leaks may occur. The area will be cleaned up at every opportunity and all rigs will be equipped with spill kits (as outlined in Section “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” within this document);
- h) In the event of a hose rupture or loss of hydraulic fluid, the Master Spill Response Plan will be followed;
- i) Abandoned drill holes will be sealed with a cement grout bentonite mixture;
- j) If explosives are used in seismic shot holes, a blasting plan will be reviewed with the OSEM to ensure any unexploded charges are removed from the holes prior to sealing;

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- k) If blasting occurs near water, DFO's "Guidelines for the use of Explosions in or near Canadian Fisheries Waters" will be consulted;
- l) Drilling sites will be cleared of vegetation following the procedures detailed in Section, "Clearing of Vegetation" of this document;
- m) Disposal of all drilling materials and associated solid wastes will be undertaken in accordance with the procedures in Section, "Solid Waste Disposal" of this document;
- n) Fuel will be stored, handled and transported according to Sections "Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials" and "Buffer Zones within this document;
- o) Water applications will be used to control dust. Water-based drilling dust suppression systems may require anti-freeze in winter months, which will be approved by the DOEC. The use of water for dust control or coring/wash boring will be undertaken in a manner that ensures return water does not enter watercourses;
- p) Drilling equipment will have muffled exhaust to minimize noise;
- q) No person will deposit or permit deposition of oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds; and
- r) If possible, drilling will be scheduled to minimize disturbance to animals in sensitive areas during sensitive time periods.

11.11.2 Water Well

Water well drilling may be required on land during hydrogeological investigations to evaluate groundwater quality and quantity of bedrock aquifers.

Environmental Concerns

The environmental concerns associated with drilling water wells are surface disturbances, disposal of drilling fluids and cuttings, generation of dust, noise, and the potential effects on terrestrial habitats, historic resources, air quality and aquatic ecosystems.

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Environmental Protection Procedures

- r) Drilling sites will be cleared of vegetation following the procedures detailed in Section, “Clearing of Vegetation” of this document;
- s) Disposal of all drilling materials and associated solid wastes will be undertaken in accordance with the procedures in Section, “Solid Waste Disposal” within this document;
- t) Fuel will be stored, handled and transported according to Section, “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” within this document;
- u) Drilling equipment will have muffled exhaust to minimize generated noise;
- v) Drilling of water wells will be conducted in compliance with the *Water Resources Act* and the *Well Drilling Regulations*; and
- w) Potential drilling sites in sensitive areas will be confirmed by the OSEMs.

11.11.3 Marine and Riverine Environment

Marine drilling may be required during geotechnical investigations to determine foundation conditions - assess stability, and underlying seabed or riverbed for Project infrastructure. Drilling will be conducted from a barge of suitable size.

Environmental Concerns

The environmental concerns associated with this type of geotechnical drilling in a marine environment include pollution from the release of drill cuttings and other drilling related debris, fuel or other hazardous material, noise generated by drill operations, and disturbance of aquatic ecosystems (marine communities and/or individual species) caused by increased turbidity in the area proximal to the drill collar location.

Environmental Protection Procedures

- a) All drilling equipment on the Project site will use only oils/lubricants that classify as “biodegradable” (refer to Section “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” within this document for additional information on the use of biodegradable oils/lubricants);
- b) Potential drilling sites will be inspected and cleared by the OSEM prior to drilling proceeding;

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- c) The drill rig will be inspected for mechanical soundness prior to mobilization to the drill site. Barges used to support drilling will be inspected and approved prior to drill mounting onto barge. The drill crew will also keep a daily log of inspections and mechanical soundness of barge and drill. Daily logs will note the general stability of the drill rig and overall assessment of the surrounding sea/river state;
- d) Following the initial inspection and prior to each drill mobilization, the drill rig and barge will be inspected by the OSEM for potential environmental risks;
- e) All fuel, lubricants and other hydrocarbons will be stored, handled and transported according to Section “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials” within this document. Only necessary quantities will be stored at the drill rig at any time;
- f) A spill containment boom will be deployed around the barge until it is removed from the drill site;
- g) Disposal of drilling materials and all solid wastes will be undertaken according to Section, “Solid Waste Disposal” within this document;
- h) Drilling equipment will have muffled exhaust to minimize noise;
- i) Turbidity from the release of drill water will be localized to the area of the drill site and will cease after drilling is complete. Release of suspended solids will be frequently monitored by the OSEM;
- j) All discharges will meet the Environmental Control Water and Sewer Regulations (ECWSR).
- k) Operations will be suspended when weather and flow conditions exceed the capabilities of the drill and moorings to operate in a safe and effective manner. Guidelines relating to drill and moorings performance capabilities will be established by H&S Coordinators and/or OSEMs in consultation with the drilling foreman;
- l) All drill workers will be familiar with oil spill response procedures (Traffic Services Centre, Oil Spill Report – at sea or on land: 1-800-563-9089). Spill response equipment will be on the barge at all times. All fuel spills will be handled in accordance with the Master Spill Response Plan; and
- m) In the event of a spill, all drilling activity will cease until clean-up is performed. Priority in the event of a spill will be the safety of all crewmembers.

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11.12 SURFACE WATER AND GROUNDWATER USE

Groundwater and/or surface water may be extracted from wells or intake structures at different Project areas and various construction camps.

Environmental Concerns

Environmental concerns associated with water wells include potential for saltwater intrusion, proximity to sources of contamination, and excessive drawdown at the aquifer. Environmental concerns associated with surface water use at the site include excessive removal of water and the potential effect on fish habitat.

Environmental Protection Procedures

- a) Wells will be developed in consultation with the DOEC Water Resources Management Division to avoid areas of groundwater constraint such as potential sources of contamination (septic fields, landfills, etc.), proximity of other wells, and seawater;
- b) Water extraction rates will be established, under approval of the Water Resources Management Division, to address concerns for drawdown or potential effects on the water table, and to ensure withdrawal from surface waterbodies does not affect the natural flow regime and fish/fish habitat;
- c) Water withdrawal will be documented in the Water Withdrawal Form as per applicable Water Use License;
- d) Applicable reference documents include Freshwater Intake End-of-Pipe Fish Screen Guidelines, 1995, Freshwater Intake End-of-Pipe Fish Screen Fact Sheet, Guidelines for the Protection of Freshwater Fish Habitat in Newfoundland and Labrador, 1998 and the Policy for Allocation of Water Use W.R. 88-1 (rev1995); and
- e) A Water Use License is required from the Water Resources Management Division.

11.13 STORAGE, HANDLING, USE AND DISPOSAL OF FUEL & OTHER HAZARDOUS MATERIALS

A variety of fuels and potentially hazardous materials will be used during Project construction activities. Gasoline, diesel fuel, grease, motor oil and hydraulic fluids are all needed for equipment. Other potentially hazardous materials, which may be routinely used, include but are not limited to:

- Propane;

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- Explosives;
- Acetylene (i.e., welding);
- Oxygen;
- Paints;
- Epoxies;
- Concrete additives;
- Wood Treatments;
- Antifreeze; and
- Cleaners and solvents.

Environmental Concerns

The primary concern regarding the use of fuel and hazardous materials is their uncontrolled release to the environment through spillage, and the subsequent adverse effects on human health and safety, terrestrial, aquatic and marine habitat and species, soil, and groundwater quality.

Environmental Protection Procedures

General Practices

- a) All fuel, hazardous and controlled product storage areas, including temporary and permanent fuelling and fuel storage facilities will be designed in accordance with applicable codes and regulations.
- b) The *Storage and Handling of Gasoline and Associated Products Regulations, 2003* (referred to as the “GAP Regulations”) under the *Environmental Protection Act* controls the construction, operation, and registration of “storage tank systems”¹ in the province of Newfoundland and Labrador.
- c) Information on storage tanks, storage tank systems, and equipment storage tanks proposed for use on the Project will be provided for review. Tanks that are not already registered under GAP will be evaluated on a case-by-case basis to determine if GAP Regulations apply. Tank registration will be accompanied by any necessary regulatory variances.

¹ The GAP Regulations defines “storage tank system” as an “... atmospheric or low pressure closed tank container and all vents, fill and withdrawal piping associated with it installed in a fixed location and includes temporary arrangement on cradles and skids”.

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- d) In general, the GAP Regulations apply to all stationary storage tanks and storage tank systems except in the following cases:
- i. Tanks with capacities of 2,500 litres or less that are connected to a heating appliance;
 - ii. Tanks that are designed, constructed, and utilized in the inherent operation of a piece of equipment. In this case, the tanks must be physically secured and dedicated to the equipment requiring the fuel for its operation; and
 - iii. "Mobile" tanks (e.g., tank trucks and tank truck trailers) used for temporary, stationary storage. In this case storage period must not exceed fourteen (14) days and no additional fuel can be added to the tank. There must also be a minimum of fourteen (14) days of downtime between separate storage periods and there can be no more than two, fourteen (14) day storage periods within a twelve (12) month timeframe.

Note: that all provisions of the GAP Regulations, including registration, apply for all tanks associated with mobile generators.

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Consideration for the design and construction of storage facilities will include:

- a) Contracted fuel suppliers will comply with this EPP. A C-SEPP will be developed by the Contractor, including contingency plans which will require acceptance by the Project. Before transporting or positioning fuel at the site the contractor will read and accept the Master Spill Response Plan;
- b) All fuel storage and handling will be in compliance with *GAP Regulations*. Necessary registrations and variances will be obtained from Service NL for storage facilities, as required;
- c) The Master Spill Response Plan that contains information regarding spills of fuel and hazardous materials will be kept on Site near all fuel storage facilities (In addition, refer to Section, “Contingency Plans” regarding fuel suppliers contingency plans);
- d) Any soil contaminated by small leaks of fuel, oil or grease from equipment (including hydraulic hose ruptures and loss of fluid) will be disposed as per policies and guidelines. For larger leaks and spills a disposal plan will be developed and submitted to regulators for approval;
- e) The *Used Oil Control Regulations* will be used to determine requirements for the storage and disposal of used oil;
- f) All equipment on the Project Site will use only oils/lubricants² that classify as “biodegradable”³; unless demonstrated by the Contractor and accepted that it is not feasible because of:
 - i) Technical or performance constraints;
 - ii) Negative impacts on equipment warranties;
 - iii) Cost constraints; and/or
 - iv) Unavailability of biodegradable oils and lubricants.
- g) Empty drums will be stored and backhauled to nearest receiving community, as per the Waste Management Plan (WMP). Bungs will be inspected and tightened prior to shipping;

² For example: hydraulic oil; multipurpose lubricant; chain oil; form oil; gear oil; transmission fluid; differential fluid; rust proofing; heat transfer fluids; compressor fluid; saw guide oil; electrical insulating fluid; and grease.

³ i.e. the product must be either “readily biodegradable”; or have inherent, primary biodegradability; or inherent, ultimate biodegradability, as defined by the *OECD 301 B: Ready Biodegradability Test* procedure.

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- h) Contractors will at all times maintain in good condition at least one spill kit dedicated to each piece of fuel-powered equipment. Each spill kit will be located on the equipment and stored in a weather-proof container. Each spill kit will have an absorption capacity of no less than 23 litres. Examples of acceptable spill kits with various absorption capacities are as follows:

23 Litre Absorption Capacity

- One (1) 10-liter bag Oclansorb®, or equivalent;
- Two (2) 4-mil heavy duty disposal plastic bag 30" * 48";
- One (1) steel hand spade;
- Two (2) 100mm * 1200mm Sorb Sox®, or equivalent;
- Five (5) sorbent pads 3/8" * 17" * 19".

64 Litre Absorption Capacity

- One (1) 13-liter bag Oclansorb®, or equivalent;
- Ten (10) sorbent pads 3/8" * 17" * 19", or equivalent;
- Two (2) 4-mil yellow heavy duty disposal bag 30" * 48";
- One (1) steel hand spade;
- Two (2) 4" * 4' Sorb Sox®, or equivalent;
- Two (2) 4" * 8' Sorb Sox®, or equivalent;

121 Litre Absorption Capacity

- Twenty five (25) sorbent pads 3/8" * 17" * 19";
- Ten (10) 4-mil yellow heavy duty disposal bag, 30" * 48";
- One (1) 44-liter bag Oclansorb®, or equivalent;
- Eight (8) Sorb Sox® 4" * 4', or equivalent;
- Five (5) Sorb Sox® 4" * 8', or equivalent;
- Two (2) Spillows® 2" * 17" * 19", or equivalent;
- One (1) spark resistant poly-shovel;
- One (1) Sorb Sox® Boom 7" * 10', or equivalent; and
- One (1) Pair of chemical resistant gloves.

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- i) To mitigate environmental effects of fuel and hazardous material spills and leaks, Contractors will at all times maintain in good condition at least one spill kit dedicated to each piece of fuel-powered equipment. Each spill kit will be located on the equipment and stored in a weather-proof container. Each spill kit will have an absorption capacity of no less than 23 litres;
- j) The Contractor will ensure adequate and appropriate spill response materials and equipment are available for use relative to the scope of work and environmental sensitivities - i.e., spill kit containing aquatic booms for working near water and spill kits capable of capturing 110% of reasonable potential spill volumes should be present at the camp site(s) and with mobile field crews;
- k) Only trained, qualified persons will handle fuels and other hazardous materials. The Workplace Hazardous Materials Information System (WHMIS) will be implemented to ensure proper handling and storage is achieved. Operators will be in attendance for the duration of all fuelling operations;
- l) The Canadian Transport Emergency Centre (CANUTEC – 613-996-6666) operated by Transport Canada can assist emergency response personnel in handling dangerous goods emergencies;
- m) Waste oils, lubricants, and other used oil will be reused, recycled or disposed of at an approved, licensed waste management facility in accordance with the WMP (as per the *Used Oil Control Regulations, 2002* and the *Air Pollution Control Regulations, 2004*);
- n) Fuel storage areas will be equipped with firefighting equipment, in accordance with approvals;
- o) Smoking will be prohibited within 50 m of a fuel storage area; and
- p) Refer to Section, “Buffer Zones” within this document for specific information related to buffer zones required for fuel storage, equipment fuelling and fuel transfer activities.

Fuel Storage Requirements

- a) Fuel storage tanks will comply with *GAP Regulations* and will be equipped with vacuum gauges and vent pipes, as applicable;
- b) Waste oil storage tanks will comply with the *Used Oil Control Regulations, 2002* (see Figure 11-6 for a typical waste oil tank equipped with vacuum gauges, vent pipe, etc.);
- c) All bulk fuel and waste oil storage (> 2000 L) will be in tanks with suitable secondary containment (i.e., double walled, self dyked, lined, earthen dyke);

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Figure 11-5 – Typical Waste Oil Tank

- d) A letter of consent will be obtained from designated officials of the Service NL for fuel caches of ten (10) or more 205 L drums (including helicopter fuel caches). A letter of consent is not required for fuel caches under 10 drums;
- e) A marker stake or flag will be required for a petroleum products storage site of less than 10 x 205 L drums;
- f) Boundary poles or posts with colourful flags or a painted marker will be required for temporary petroleum product sites of 10 to 100 x 205 L drums;
- g) Fuels stored inside dykes or self-dyked units will be clearly marked to ensure they are not damaged by moving vehicles and are visible under all weather conditions. Dykes and barriers will be designed and constructed in accordance with the *GAP Regulations* (see Figures 11-7 and 11-8 below for typical dyked and concrete pad methods for tank installation);
- h) Used oil will be stored in an appropriate storage tank meeting the requirement of Section 18 and 21 of the *Used Oil Control Regulations*;
- i) Used oil can be stored in a 205 L drum as long as the drum is:
 - i) clearly marked "used oil";
 - ii) made of 18 gauge steel;
 - iii) stored in an area providing secondary containment;
 - iv) equipped with sufficient size openings to prevent spillage during filling or emptying;

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- v) equipped with venting if they are intended to be vacuumed out; and
- vi) in compliance with CAN/GSSB-43.150-95 if they are to be transported by road.

All used oil tanks will be inspected on a regular basis as per Section 24 of the *Used Oil Control Regulation*. All fuel storage tank systems will be inspected on a regular basis as per Sections 20 and 21 of the *GAP Regulations*. This involves, but is not limited to, gauging or dipping and the keeping of reconciliation records for the duration of the program.



Figure 11-6 - Acceptable Fuel Storage with Dykes



Figure 11-7 - Fuel Storage on Concrete Pad

11.13.1 Fuel Transfer

The following procedures will apply to the transfer of fuel or hazardous material:

- a) In all cases, a qualified person will attend the transfer to storage tanks for the duration of the operation. This person will be trained in proper fuel handling procedures to minimize the risk of a spill. The attendant will be trained in the requirements of the fuel suppliers approved Spill Contingency Plan, Master Spill Response Plan (MSRP) and WHMIS;
- b) Hoses or pipes used for fuel transfer will be equipped with properly functioning and approved check valves, spaced to prevent backflow of fuel in the case of failures;
- c) All tanks will be dipped before and after filling;

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- d) Fuel transfers between ship and shore or between ships will be conducted in accordance with the *Canada Shipping Act, Oil Pollution Prevention Regulations*;
- e) Exposed pipelines will be protected from vehicular collision damage by the installation of guardrails; and
- f) Exposed “ship to shore” fuel transfer lines will be clearly flagged from the shoreline to the receiving fuel tank to prevent traffic collision during transfer operations.

11.13.2 Equipment Fuelling and Lubrication

The following procedures will apply to the fuelling of heavy construction equipment:

- a) Fuelling and lubrication of equipment will occur in such a manner as to minimize the possibility of contamination to soil or water;
- b) When refuelling equipment, operators will:
 - i. Use leak-free containers and reinforced rip and puncture-proof hoses and nozzles;
 - ii. Be in attendance for the duration of the operation; and
 - iii. Seal all storage container outlets except the outlet currently in use.
- c) Regular inspections will be performed on the hydraulic and fuel systems of machinery. Leaks will be repaired immediately;
- d) Fuelling or servicing of mobile equipment on land will not be allowed within 30 m of watercourses or waterbodies, except in designated areas with dewatering pumps; and
- e) Fuelling attendants will be trained in the requirements under the contractors Spill Contingency Plan in the C-SEPP and the MSRP.

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11.13.3 Hazardous Materials

The following procedures will apply to the use of hazardous materials:

- a) Hazardous materials will be used only by personnel who are trained and qualified in the handling of these materials and only in accordance with manufacturers' instructions and government regulations. WHMIS and the provisions of the *Transportation of Dangerous Goods Act* will be implemented throughout the job site. All Employees involved with hazardous materials will be appropriately trained;
- b) All hazardous wastes will be stored, removed and disposed of in accordance with the WMP (as per government regulations and applicable permits);
- c) Up-to-date Material Safety Data Sheets (MSDS) must be available on-Site prior to receipt of any hazardous materials;
- d) A hazardous waste storage area will be constructed and properly marked. A permit may be required for construction of this area; and
- e) Hazardous waste will not be permitted to be poured down drains, oil/water separators, septic systems or discharged into the environment in any form.

11.13.3.1 Wood Treatment

The following standards will apply to the use of wood preservatives on the Site:

- a) Creosote will not be used on the site.
- b) In Protected Water Supply Areas:
 - i. Treated wood products will not be used in Protected Water Supply Areas;
 - ii. Where written justification for treated wood is presented, for the use in protected water supply areas, for acceptance, the treatment options will be restricted to Chromated Copper Arsenate (CCA), Ammonical Copper Arsenate (ACA), Ammoniacal Copper Zinc Arsenate (ACZA), pentachlorophenol (PCP), or Copper Naphthenate (CuN);
 - iii. The below Table, Buffer Zones for Replacement of Treated Wood within a Water Supply Area" specifies the required buffer zones separating waterbodies (within protected water supply areas) from locations where treated wood products, including poles, are to

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be used. If structures are required within these specified buffer zones, then only untreated wood, steel or concrete will be used; and

- iv. If wood poles are required within the buffer zones outlined in the below Table, but untreated wood poles are not practical or feasible, alternative protective measures may be used. However, regulatory approval for such alternative measures will be required. Specific techniques used to eliminate or minimize environmental disturbance will be applied as appropriate.

Table 11-2 - Buffer Zones for Placement of Treated Wood within a Water Supply Area

Body of Water	Width of Buffer Zone
Pond/Lake	150 m (for pond/lake intake structures)
River	150 m for a distance of 1 km upstream and 100 m downstream of river intake structures
Main River Channel	75 m
Major Tributaries/Lakes/Ponds	50 m
Other bodies of water	30 m

- b) Saltwater and Freshwater Areas (other than Protected Water Supply Areas):
 - i. In areas of low water hardness (i.e., 15-25 mg/L-1 CaCO₃), pH 5.5 or less, and elevated background metals levels, or areas where metals-sensitive biota exist, ACA, ACZA and CCA will not be used;
 - ii. Pentachlorophenol will not be used in salt water environments;
 - iii. For temporary installation of wood structures (i.e., bridge abutments or wood poles) within 15 metres of a waterbody, only untreated timber will be used;

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- iv. For permanent installations, non-invasive materials such as concrete or steel will be used;
- v. If use of untreated wood or alternative materials is not feasible or practical, approval by regulators is required prior to use of CCA, ACA, PCP and CuN; and
- vi. Protective measures outlined above under Protected Water Supply Areas will be considered; however, using these alternatives requires preapproval by regulatory agencies.

Spills and Leaks of Fuel and Hazardous Materials

The following procedures will apply to the Spills of Fuel and Hazardous Materials:

- a) All necessary precautions will be implemented to prevent the spillage and leakage of fuels and other hazardous materials used during the construction phase;
- b) All spills of fuel and hazardous materials will be reported immediately to the OSEM. In the event of a spill refer to the Master Spill Response Plan; and
- c) A copy of the Master Spill Response Plan will be present on site. In the event of a spill the outlined procedures will be followed.

11.14 SEWAGE DISPOSAL

All sewage disposal activities will comply with Newfoundland and Labrador's Health and Community Services Act, 1997 and the Environmental Control Water and Sewage Regulations, 2003 under the *Water Resources Act*, 2003.

Environmental Concerns

The accidental release of untreated sewage is a concern to human health, drinking water quality, and freshwater and marine ecosystems. This applies to effluent from a sewage treatment system that does not meet the limit set in Schedule A of the *Environmental Control Water and Sewage Regulations, 2003*.

Environmental Protection Procedures

- a) Development of sewage treatment facilities will be undertaken in consultation with the relevant regulatory agencies for a temporary or permanent sewage collection system, and a Certificate of Approval will be obtained from the Service NL and/or the DOEC;

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- b) The health inspector with the Service NL is the approval authority for sewage flows under 1000 gallons. The general sanitization of the site is under the jurisdiction of the health inspector who will perform periodic inspections;
- c) All sewage disposal activities will comply with Section 36(3) of the Fisheries Act;
- d) Wastewater, septage, sludge, bio-solids, or other types of hazardous or deleterious liquids from the Project Site will not be allowed to be discharged to public wastewater collection systems or treatment facilities;
- e) For septic systems, the location of a tile field will be clearly marked and vehicular traffic will not be permitted to operate within this defined boundary; and
- f) Portable washrooms and toilets used at any LCP Site will be routinely inspected and properly maintained by their owners. Sewage sludge removed from the facilities will be transported off Site for approved treatment and disposal. Companies engaged to perform this work must have approval from the Service NL and/or DOEC. Copies of government approvals must be provided to the OSEM before work can proceed. All human sanitary waste must be contained and disposed in a manner that meets all environmental and health requirements. Any concerns must be brought to the immediate attention of the OSEMs and H&S Coordinator.

11.15 SOLID WASTE DISPOSAL

Environmental Concerns

Solid waste (e.g. construction waste, domestic waste, paper, cardboard, and wood), if not properly controlled and disposed of, can be unsightly, may cause human safety and health concerns, and could negatively affect wildlife.

Environmental Protection Procedures

- a) A Waste Management Plan (WMP) is in place to address waste generation, handling, storage and disposal during construction. The WMP includes methods for waste stream separation, collection, storage, transport, disposal, and associated schedules. Any procedures or strategies for management of solid waste will also be in accordance with the Provincial Waste Management Strategy;

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- b) Waste management at all sites will comply with all provisions of the WMP;
- c) Waste material will not be deposited in a body of water; and
- d) Waste material will not be deposited anywhere except at a facility or site approved to accept that specific type of waste.

11.16 WORKING WITHIN 15 METRES OF A BODY OF WATER

Environmental Concerns

Working close to waterbodies poses a risk of introducing contaminants into the aquatic ecosystem, affecting fish, fish habitat, and other receptors, and affecting the natural flow regime of the waterbody. Contaminants such as sediment, petroleum hydrocarbons, and other deleterious substances may impact fish, wildlife, plants, and human receptors. Proper protection plans are required to minimize or eliminate sedimentation and water pollution and maintain riparian habitat near waterbodies.

Environmental Protection Procedures

Mitigation measures provided in various sections (refer to Sections, "Erosion Prevention and Sediment Control", "Storage, Handling and Disposal of Fuel and Other Hazardous Material", and "Buffer Zones") will be consulted to ensure that appropriate measures are understood and implemented during the course of construction.

In addition, the following steps will be taken to ensure protection of waterbodies:

- a) A joint engineering and environmental reconnaissance of the Site will be completed in the early planning stages to identify all nearby bodies of water and mitigation and protective measures will be identified;
- b) The majority of construction works will take place during low flow and low rainfall period, where possible;
- c) Any vehicles or equipment working near a body of water will be clean and in good condition;
- d) Heavy equipment will be kept outside the high water mark of all bodies of water, where possible; and
- e) All equipment on the Project Site will use only oils/lubricants¹ that classify as "biodegradable"² where feasible (refer to Section "Storage, Handling and Disposal of Fuel and Other Hazardous Material" within the document for additional information on the use of biodegradable oils/lubricants).

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11.17 WATERCOURSE CROSSINGS – FORDING, CULVERTS AND BRIDGES

Environmental Concerns

The environmental concerns associated with fording, culvert installations, bridge construction and maintenance include direct disturbance to, or mortality of, fish, disturbance to waterfowl, and loss of fish habitat caused by sedimentation and removal of substrate, and disturbances to stream bank vegetation.

Environmental Protection Procedures

Erosion stabilization methods and effective sedimentation control practices will be implemented when required (refer to Section, “Erosion Prevention and Sediment Control” within this document), and these will conform to requirements, guidelines, and principles contained in DFO Factsheets, Operational Statements, DOEC Environmental Guidelines, and specific requirements of regulatory permits and approvals.

All watercourse crossings (fording, culvert installation and bridge crossings) will comply with permits issued by DOEC. Additionally, Notifications and Requests for Project Reviews to DFO must be approved in order for work to occur. If a guidance letter is issued for Works and Undertakings Affecting Fish and Fish Habitat from DFO, all conditions will be followed.

The following measures will be implemented to minimize negative effects of watercourse crossings:

- a) Attention will be given to scheduling in order to minimize the time the watercourse is disturbed and therefore minimize the sediment entering the watercourse. The ideal time for construction is during low flow and low rainfall period;
- b) Any alterations to a body of water, which may impact navigation, will require a Navigable Waters Permit Application under *Navigable Waters Protection Act (NWPA)* request for project review under NWPA from Transport Canada (TC). If a NWPA authorization is issued, the conditions will be adhered to;
- c) Any alterations to a body of water which may impact water quality will require a DOEC permit(s) under the *Water Resources Act*;
- d) Watercourse crossing construction activities, in areas of fish habitat, will be undertaken in accordance with DFO requirements and under the direct guidance of the OSEM;

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- e) To the extent practical, construction activities in waterbodies or watercourses will be scheduled to occur during low flow or frozen conditions, to avoid sensitive periods / habitat for fish, and will be shut down during heavy precipitation events;
- f) Where possible, all in-water works will be completed inside the appropriate fisheries timing windows (June 1 – September 30 on the Island; June 15 – September 15 in Labrador). Work outside the fisheries timing windows will be done in consultation with DFO;
- g) All watercourses and bodies of water will be examined by the OSEM or Contractor/Subcontractor environmental Personnel on a site-specific basis in order to evaluate each watercourse crossing (including upstream and downstream);
- h) Work will be performed in such a way as to ensure that materials such as sediment, fuel and oil do not enter watercourses and waterbodies;
- i) The banks and flood plains of watercourses must be adequately protected from erosion using an applicable erosion prevention method as outlined in Section, “Erosion Prevention and Sediment Control”;
- j) A suitable buffer (refer to Section, “Buffer Zones” within this document) of undisturbed natural vegetation will be left between the access road and the bank of any adjacent watercourse, unless otherwise specified. The typical buffer width will be determined in consultation with the OSEM according to the following formula:

Buffer width (m) = 20 m + 1.5 x slope (%) (where slope >30%);

Refer to Section, “Buffer Zones” within this document for buffer widths related to temporary fuelling services or washing of equipment near watercourses or waterbodies.

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11.17.1 Fording

When fording any watercourse, the DOEC Environmental Guidelines for Fording and the DFO fact sheet for Temporary Fording Sites will be followed in conjunction with the following:

- a) Areas of known or suspected spawning habitat will be avoided;
- b) Where feasible, crossings will be restricted to a single location and made at right angles to the watercourse;
- c) Equipment activity within the watercourse will be minimized by limiting the number of crossings. Equipment will only be in the watercourse during fording;
- d) All equipment will be clean and mechanically sound to avoid the introduction of oil, gasoline, and hydraulic fluids to waterbodies;
- e) No servicing or washing of heavy equipment will occur adjacent to a watercourse, waterbody, or ecologically sensitive area. These areas will be identified on constraint mapping and will be identified in the field by the OSEM;
- f) In the case that the ford area is not natural bedrock or is easily disturbed by fording, the entire fording area will be stabilized using vegetation mats, corduroy or coarse material (125 mm diameter or greater) when such material is available from a reasonably close location within the right-of-way, when the substrate of the ford area is not subject to easy disturbance by fording, or coarse material is not easily available within the right-of-way. Fording under existing substrate conditions may occur under the guidance of the OSEM;
- g) Fording activities will not decrease the depth of the watercourses to less than 20 cm. Where the existing depth is less than 20 cm, that depth will be maintained;
- h) Photographs of all ford sites will be taken prior to and after the fording has been completed (as per applicable DOEC temporary water crossing permit conditions). The OSEM will be responsible for collecting these photographs. However, the Contractor can collect these photographs in order to proceed with schedule if the OSEM is not available. The Contractor would then be responsible to provide these crossing site photographs to the OSEM within twenty-four (24) hours;
- i) Waterbodies will not be forded during high flow periods;

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- j) All bank sections, which contain erodible materials, will be stabilized or avoided if possible. If banks must be sloped for stabilization, no material will be deposited within the watercourse; sloping will be accomplished by back-blading and the material will be deposited above the high water mark of the watercourse; and
- k) Proposed fording activities on waterbodies or watercourses visible on 1:50,000 scale maps will require a permit from DOEC.

11.17.2 Culverts

In those locations where installations or upgrading of existing culverts are required, permits are required from DOEC.

The culverts used will be sized to handle the 1-in-100 year return period flood (however design criteria may vary depending on Site-specific conditions and the length of time a culvert will be used (i.e. temporary vs. permanent) and will be constructed in accordance with the DOEC Environmental Guidelines for Watercourse Crossings and Culverts and the DFO operational statement for Culvert Maintenance, DFO fact sheets for Culvert Installations, as well as any applicable permits in place and their conditions. The following measures will also be implemented:

Installation of Culverts

- a) Install culvert(s) shall be in accordance with good engineering and environmental practices. Photographs of culvert installation are shown as Figures 11-9 and 11-10;
- b) Proposed culvert installations on watercourses visible on a 1:50,000 scale map will require a permit from DOEC;
- c) Unless otherwise indicated, all work will take place in dry conditions, either by the use of cofferdams or by diverting the stream with pumps and hoses. All work involving major alterations to stream channels will be carried out at a time of low flow and in a manner that prevents downstream sedimentation;
- d) Cylindrical culverts will be counter sunk when installed in fish habitat (as recommended by DFO) as such that the culvert bottom is one-third the diameter below the stream bed, in the case that culverts less than 750 mm outside diameter. For culverts greater than 750 mm outside diameter, the culvert bottom will be installed a minimum of 300 mm below the streambed;

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- e) If two (2) culverts are to be installed at one (1) location, one culvert will be installed at an elevation lower than the other one. A maximum of two (2) culverts are allowed at one (1) location;
- f) The natural low flow regime of the watercourse will not be altered; culverts will not disrupt flow of water or cause ponding at the upstream side of the installation;
- g) A culvert will not be installed before site-specific information such as localized stream gradient, fish habitat type and species present have been evaluated, as required;
- h) Photographs of all culvert installations will be taken prior to and after the installation has been completed (as per applicable DOEC temporary water crossing permit conditions). The OSEM will be responsible for collecting these photographs. However, the Contractor can collect these photographs in order to proceed with schedule if the OSEM is not available. The Contractor would then be responsible to provide these crossing site photographs to the OSEM within twenty-four (24) hours;
- i) Inlet and outlet areas will be adequately protected from erosion by installing erosion prevention structures as outlined in Section, "Erosion Prevention and Sediment Control";
- j) When rock energy dissipaters are utilized at culvert outlets, proper fish passage must be ensured. Both upstream and downstream fish passage will be provided and maintained post-construction;
- k) Culverts will be of sufficient length to extend a short distance beyond the toe of the fill material;
- l) Backfill material will be of texture that will support the culvert and limit seepage and subsequent washing out;
- m) Culverts will be aligned such that the original direction of streamflow is not significantly altered and the gradient at the culvert follows the stream channel gradient to the extent possible. Infilling or reduction of the natural cross-sectional area of the watercourse will not be permitted;
- n) Fill, construction debris, and mulched debris will be removed from the culvert area to a location above the peak flow level to prevent its entry into the watercourse;
- o) Construction activity will be confined to the immediate area of the culvert;
- p) Fill material will not be removed from streambeds or banks, except when removal of material is necessary to ensure a flat foundation for installing a culvert;
- q) The use of heavy equipment in watercourses or bodies of water will not be permitted;

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- r) Culverts will be marked to indicate their position under the snow;
- s) As required, cofferdams of non-erodible material will be installed above and below work areas to separate them from the watercourse when excavating for culverts and footings. All sandbags used in construction must be accounted for and removed after work is completed. Where pumping is used to bypass flow, pumps will have sufficient capacity to prevent washout of the cofferdams. Refer to DFOs fact sheet for Instream Work in the Dry – Cofferdams;
- t) Cofferdams will be removed upon completion of construction and the streambed returned as closely as possible to its original condition;
- u) Water pumped from work areas or other runoff must have sediment and turbidity removed by settling ponds, filtration, or other suitable means before discharging to a waterbody;
- v) The release of sediment laden water into a waterbody, watercourse or ecologically sensitive area, due to construction activities, will comply with applicable discharge guidelines as presented in the *Newfoundland and Labrador Environmental Control Water and Sewage Regulations, 2003* under the *Water Resources Act*;
- w) With respect to maintenance of water quality within receiving waterbodies on and around the Site, the *CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life* will be used; and
- x) Culvert installations will not require a DFO review when the following conditions are met (unless the culvert installations are within fish habitat):
 - i) The work does not include realigning the watercourse, installing a culvert liner or support struts, replacing damaged or destroyed bevels ends, or extending/replacing the existing culvert;
 - ii) Explosives are not used to remove debris; and
 - iii) The work does not include any dredging, infilling (e.g., filling scour pools) or excavation of the channel upstream or downstream of the culvert.

Culvert Upgrading/Maintenance

Culvert maintenance includes the removal of accumulated debris (e.g., logs, boulders, garbage, and ice build-up) that prevents the efficient passage of water and fish through the structure, as well as reinforcement of eroding inlets and outlets. The following measures will be implemented when upgrading/maintaining culverts:

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- a) In locations where upgrading and/or alterations are required for an existing culvert at the Site, the mitigation measures listed above for installation of a culvert will be reviewed and followed, as applicable;
- b) Culverts will be inspected regularly so that immediate action can be taken to clear blockages caused by ice or debris and to identify any apparent problems, such as erosion, which may require remedial action;
- c) An inspection of culverts will be made during and after major floods to observe the culvert operation and record high water marks. Conditions which require corrective maintenance will be noted, including debris accumulations, sedimentation, erosion, piping, scour, and structural damage and reported if applicable;
- d) Culverts which have been damaged by ice or debris by improper installation or construction procedures, or are in a condition, which could impair their proper functioning, will be replaced immediately to prevent overtopping, erosion, or flooding; and
- e) Access for maintenance will be provided, especially where debris control structures are installed. Such access will not disrupt the Site rehabilitation efforts.



Figure 11-8 - Example of Well Installed Culvert



Figure 11-9 - Example of Culvert Installation

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11.17.3 Bridges

- a) Environmental protection measures outlined above, which are applicable to bridge construction and maintenance, will be adhered to;
- b) Any proposed bridge installations require a permit from DOEC;
- c) Photographs of all bridge installations will be taken prior to and after the installation has been completed (as per applicable DOEC temporary water crossing permit conditions). The OSEM will be responsible for collecting these photographs. However, the Contractor can collect these photographs in order to proceed with schedule if the OSEM is not available. The Contractor would then be responsible to provide these crossing site photographs to the OSEM within twenty-four (24) hours;
- d) During bridge construction all applicable guidelines will be adhered to, including, but not limited to: DOEC Environmental Guidelines for Bridges and Watercourse Crossings, DFO Clear Span Bridges Operational Statement, DFO Fact Sheet for Temporary Bridges, and DFO Fact Sheet for Bridge Construction/Demolition;
- e) To safely convey peak flows, permanent bridges will be designed for a hundred (100) year return period streamflow;
- f) Temporary bridges will consider the following basic design criteria:
 - i) Hydraulic design will be based on the 1:2 year storm event, or as applicable in DOEC permit conditions;
 - ii) Abutment logs will be placed a minimum of 1 meter from the top of the bank;
 - iii) Deck height will be a minimum of 250 cm above the bank height; and
 - iv) Deck height will be a minimum of 450 cm above the water surface at the time of installation.
- f) Each installation will take into consideration site-specific conditions and appropriate criteria will be accepted by the OSEM;
- g) The upstream and downstream sides of abutments must be protected with erosion prevention structures as outlined in Section, "Erosion Prevention and Sediment Control" within this document, to prevent erosion and scouring;

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- h) Roadside embankments near the watercourse will be adequately protected from erosion by installing applicable erosion prevention structures as outlined in Section, “Erosion Prevention and Sediment Control”;
- i) Adequate erosion protection as per Section, “Erosion Prevention and Sediment Control”, will be provided where roadside ditches discharge into the watercourse near the bridge;
- j) Abutments and piers will be constructed in the dry and where possible during times of low flow;
- k) During construction of concrete components, formwork will be constructed to prevent any fresh concrete from entering bodies of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited;
- l) Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, will be carried out without causing any physical disruption of the watercourse. Care will be taken to prevent spillage of pollutants into the water;
- m) All waste materials will be disposed of in accordance with the WMP;
- n) All areas affected will be returned to a state that resembles local natural conditions; and
- o) During rehabilitation activities following the end of construction, all temporary bridges will be removed. All crossing sites will be inspected by the OSEM for satisfactory site rehabilitation with respect to bank slopes and in-stream conditions.

11.18 BUFFER ZONES

Environmental Concerns

The potential for erosion/sedimentation, spills, and resulting effects on water quality, fish and fish habitat are key environmental concerns associated with construction activities. In addition, sensitive and rare environmental receptors (e.g., Osprey nesting sites, archaeological/historic resources) require protection from activities associated with construction.

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Buffer zones of natural vegetation or undisturbed areas that separate these environmental receptors from construction activities are needed to mitigate adverse environmental effects. These undisturbed areas may also provide wildlife habitat and/or travel corridors near work areas and Project features.

Due to the many buffer zones referenced in various government documents and others that may be stated in regulatory permits yet to be obtained, the appropriate buffer zone to use in a specific area may vary over time. Therefore, the OSEM will be the only Site Personnel to determine which buffer is applicable, and Contractors will be required to consult with these individuals prior to establishing buffers. The policy for Land and Water Related Developments in Protected Public Water Supply Areas will be adhered to.

For general guidance, the following procedures will define the minimum requirements during construction.

Environmental Protection Procedures

- a) DFO recommends buffer zones to separate areas of land disturbance/roadways from waterbodies will be calculated by the following formula:

$$\text{Buffer Width (m)} = 20 \text{ m} + 1.5 \times \text{slope (\%)} \text{ (where slope } > 30\% \text{);}$$

- b) In the vicinity of a Public Protected Water Supply Area (PPWSA), the following activities will not be conducted by the LCP, unless otherwise approved by the Engineer and NLDOEC Water Resources Management Division:
- i) Placing, depositing or discharging or permitting the placing, depositing or discharging into a body of water, any sewage, refuse, chemicals, and industrial wastes or any other material which impairs or has potential to impair water quality;
 - ii) Using an intake pond, lake or specified buffer zones for any activity detrimental to water quality;
 - iii) Using ice covered waterbody for transporting logs, riding skidoos/motor vehicles/all-terrain vehicles, or any other activity, which impairs or has potential to impair water quality;
 - iv) Using or operating existing facilities in such a manner which impairs or has potential to impair water quality;
 - v) vehicle maintenance facilities, warehouses, and chemicals storage areas;
 - vi) Storage and disposal of pesticides, and application of chemicals in specified buffer zones;

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- vii) Mechanical clearing of forest in sensitive areas (manual clearing will be conducted in the PPWSA), establishment of camps and camp facilities, and storage of chemicals;
 - viii) Activities, operations or facilities associated with aggregate extraction, maintenance facilities, washing of aggregates, asphalt plants, discharge or deposit of waste material into a body of water;
 - ix) Application of herbicides in the right-of-way, and use of chemically treated utility poles and other related structures; and
 - x) Creation and operation of waste disposal facilities.
- c) A minimum buffer zone of natural vegetation 20 m from the high water mark of waterbodies, watercourses and ecologically sensitive areas will be maintained around work areas, where available space poses a constraint, except where specified otherwise. If space available, then wider buffer zones of 100 m will be maintained between construction areas and watercourses, waterbodies and ecologically sensitive areas (Figure 11-11 shows a typical buffer zone being protected by tarp fencing);



Figure 11-10 - Tarp Fence Outlining a Vegetation Buffer Zone

- d) Sediment control devices will be constructed outside buffer zones, as required. These devices are required to control runoff from areas of exposed soils and prevent transport of sediments towards waterbodies. Section, “Erosion Prevention and Sediment Control” outlines all acceptable sediment control measures;

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- e) All aircraft must maintain a 300 m vertical and horizontal buffer from known active raptor nests (refer to Table 11-13);
- f) No clearing will take place within 800 m of an active raptor nest (refer to Table 11-13);
- g) For all work activities other than clearing, a 200 m buffer will be respected for active raptor nests (refer to Table 11-13). Within this 200 m buffer zone the following applies, after consultation with the Provincial government:
 - i) Only essential vehicular activity will be permitted;
 - ii) Work will only be permitted in the presence of the OSEM; and
 - iii) Crews will cease work if there is a disturbance at a nest until activity at the nest has returned to normal; work will not commence again until approval from the OSEM.
- h) Crews will not establish a permanent or temporary camp within 800 m of a known raptor nest;
- i) Locations along the Churchill River are known as spring and fall staging areas for waterfowl and harlequin ducks. Helicopters moving through these areas during this time (typically May through September) will maintain a minimum altitude of 500 m from concentrations of waterfowl and harlequin ducks;
- j) For known harlequin duck nesting areas, a 100 m buffer of natural vegetation will be maintained along the river's edge during their breeding, nesting and staging times (May through September). A 30 m buffer will be maintained outside the sensitive nesting season. Clearing and construction within these buffers during the specified times will not occur unless otherwise authorized;
- a) Buffer zones for other bird species not indicated in this document are outlined in the Avifauna Management Plan (refer to Nalcor document LCP-SC-CD-0000-EV-RP-0002-01) and will be respected;
- b) A minimum buffer zone of 100 m will be maintained from the high water mark of waterbodies, watercourses and ecologically sensitive areas around any bulk fuel storage activities;
- c) The typical buffer zone for quarries and borrow pits in relation to a waterbody is 100 m. In some instances, the development of quarries and borrow pits will be allowed within this 100 m buffer zone, however applicable permits from regulators will be required, as well as consultation with the Site Environmental Manager;

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- d) A minimum buffer zone of 50 m will be maintained around any archaeological site. The size of buffer zones may increase or decrease depending on the type of site and the buffer zone will be determined by the Provincial Archaeology Office (PAO). Where the site has been designated for recovery and/or recording, the buffer zone will be maintained until it has been cleared with the OSEM. Where available space poses constraints, this width may be reduced and supplemented by other protective measures. Site-specific mitigative measures for known historic resources in the Project area are addressed within Section, "Historic or Archaeological Resources";
- e) Buffers for working around caribou are outlined in Section, "Wildlife Protection"; and
- f) Table 11-3 provides a summary of recommended buffer zones.

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Table 11-3 - Recommended Buffer Strips for Various Activities

Activity	Environmental Receptor	Recommended Width (m) of Buffer Strip
Handling, use and storage of bulk fuels (> 2000L)	Waterbody	100 m
Storage and handling of small quantities (<2000L) of fuel in appropriately contained areas and with adequate spill response	Waterbody	30 m
Handling and use of fuels (including transfer and fuelling of equipment). Storage of fuel in containers ≤25L	Waterbody	15 m
Clearing of Vegetation	Waterbody	20 m (+1.5 x slope (%) where >30%)
	Active Raptor Nests	800 m (Labrador: between May 15 to August 15, and Island: between May 1 to August 15)
Other Work Activities	Active Raptor Nests	200 m (Labrador: between May 15 to August 15, and Island: between May 1 to August 15)
Aircrafts	Active Raptor Nests	300 m (vertical and horizontal)
	Waterfowl and Harlequin Duck Concentrations	500 m vertical distance
Quarrying and Aggregate Removal from Borrow Areas	Waterbody	100 m

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Activity	Environmental Receptor	Recommended Width (m) of Buffer Strip
All Activities	Archaeological sites	50 m
Cutting	Scheduled Salmon Rivers	30 m
Cutting	Black Bear Denning Sites (Late October – Late April)	50 m
Cutting/Construction	Harlequin Duck	100 m during nesting, breeding and molting seasons (Early May through September) 30 m outside the sensitive time
Cutting/Construction	Active waterfowl/waterbird nests (species not of management concern)	100 m
Cutting/Construction	Active passerine nests (species not of management concern)	30 m
Cutting	Waterbody occupied by a beaver	30 m

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11.19 ALTERATIONS TO A BODY OF WATER/INSTRAM WORKS

Environmental Concerns

The environmental concerns associated with alterations to a body of water include direct disturbance to, or mortality of, fish, disturbance to waterfowl, and loss of fish habitat caused by sedimentation and removal of substrate, and disturbance to stream bank vegetation. Typical alterations to a body of water include fording, bridges and culverts. However other less common alterations include cofferdams, pumping and stream diversions. Fording, bridges and culverts have been discussed in Section, watercourse Crossing – Fording, Culverts and Bridges”, therefore this section will concentrate on cofferdams, pumping and stream diversions.

Environmental Protection Procedures

- a) Any work within 15 m of a waterbody visible on a 1:50,000 scale map will require a permit from DOEC;
- b) Erosion stabilization methods and effective sedimentation control practices will be implemented when required, and these will conform to requirements, guidelines, and principles contained in DFO Factsheets, Operational Statements, DOEC Environmental Guidelines and specific requirements of regulatory permits and approvals;
- c) Two (2) cofferdams or a square type structure will be used for best results. The first cofferdam will be upstream of the construction area and will keep the construction area dry and provide a basin for water to be pumped. The second cofferdam will be downstream of the construction area and will prevent any sediment laden water that may have accumulated in the construction area from discharging directly into the watercourse;
- d) Pumping the water will commence prior to starting intrusive work to prevent the river from being silted as water passes the work area. When a watercourse is too large to divert by other measures, part of the river may be blocked off to allow work to take place in dry conditions. One third the width of the watercourse or less will be blocked at any time in order to ensure efficient remaining capacity in the channel to safely accommodate flow without causing excessive high velocity, erosion or overtopping of banks. A dewatering plan will be developed prior to dewatering activities;
- e) An alternative means of isolating the work area will be to construct a temporary diversion channel lined with plastic sheeting or an impermeable material. The channel will be designed to handle the predicted

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flows of the watercourse. Figure 11-12 shows the typical use of a cofferdam in a river and Figure 11-13 shows an illustration of a stream diversion coupled with the upstream and downstream cofferdams;

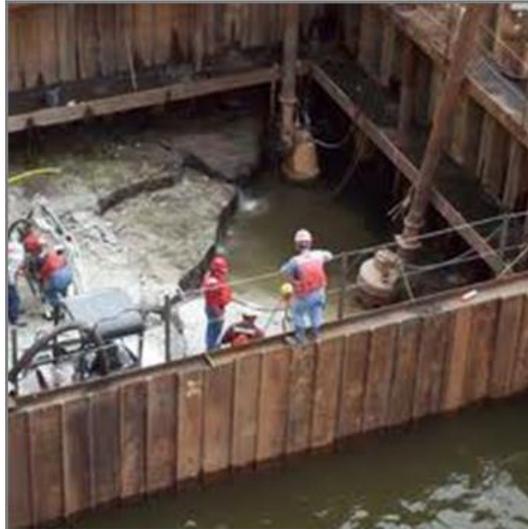


Figure 11-11 - Cofferdams Surrounding Work Area

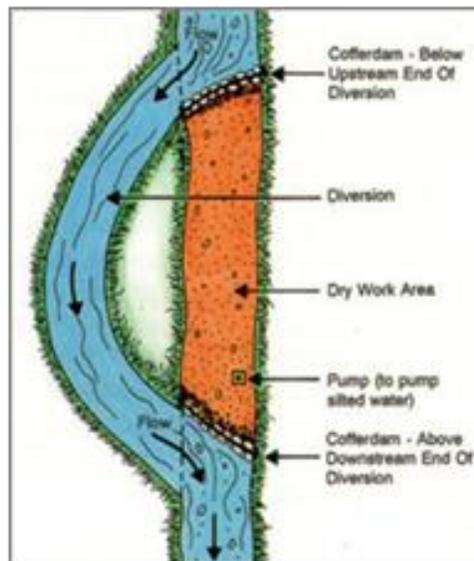


Figure 11-12 - Illustration of Stream Diversion and Cofferdams

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- f) Floating silt curtains or suitable alternative will be used to contain and control the dispersion of turbidity and sediment when working in or near a waterbody;
- g) The curtain will be located beyond the lateral limits of the construction site; the alignment will be as close as possible to the activities but not so close as to be disturbed by the construction equipment;
- h) The curtain will be firmly anchored in place by posts; and
- i) The Contractor will remove built up sediment and debris as required; if the fabric becomes clogged it will be replaced.
- j) The following applies for fish habitat and relocation:
 - i. A license to conduct fish sampling/collection permits will be obtained from DFO prior to any sampling, collection or relocation activities;
 - ii. The waterbody will be de-watered using a screened pump, which will be deployed on a floating structure near the deepest portion of the pond/river. The pump will be monitored during all de-watering. Water will be directed to a vegetated area so that any sediment carried by the pump will be further filtered through vegetation before reaching another waterbody. The pumped water and the screen will be monitored for fish during all pumping. Optimally, the pond will be reduced to a small containment area capable of being electrofished/ seined by boat;
 - iii. If soft sediment moves toward the deeper part of the area during draw-down, this will effectively reduce the size of the area and will require careful monitoring of water levels so that too much water is not removed hence trapping all fish in a thick layer of sediment;
 - iv. Electrofishing inside the small containment area left after de-watering will be conducted by a small boat so as to reduce the amount of sediment disturbance. Other techniques will be available should electrofishing become inefficient due to increased sediment disturbance (e.g. seining and/or casting net). The boat will be of a non-conducting material so that the electrofisher will not short out (e.g. zodiac, fibreglass/plastic canoe). A second small boat will be used to transport any captured fish to shore so that disturbance of bottom sediment is minimized. This boat will be moved between the shore and collection boat by ropes. This may be modified in the field as necessary;

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- v. Water temperature will be another critical factor in successful relocation of all fish, as the reduced pond will warm relatively quickly. Optimally, it would be desirable to begin collection of fish in the early morning hours. Coordination of the draw-down will be conducted to ensure this can occur. Water temperature will be monitored continually and any exceedance of the Experimental License requirement will mean a stop in collection, is required. However, this may be a field-call as pausing once the pond is reduced may cause more harm than completing the relocation. This situation will be avoided;
- vi. Monitoring will include recording water temperatures, dissolved oxygen levels, pH, and visual observations of stress and/or overcrowding. If signs of stress and/or overcrowding are observed, additional measures may be required;
- vii. Once the pond has been de-watered, the small containment area will be electrofished, seined, and/or netted to remove any remaining fish;
- viii. All fish will be contained in 20 litre buckets for transport to the release point. Each bucket will be relocated once five fish are exceeded or thirty minutes have passed so that stress is avoided;
- ix. All fish will be acclimatized prior to release. Each bucket will be laid into the receiving water so that water temperatures between both are equal (measured using thermometers). Once acclimated, fish will be released;
- x. An estimate of the length of each fish will be obtained in order to calculate the total weight of the fish;
- xi. Experienced personnel will be responsible for capture and release of the fish. The person responsible for capture will be familiar with all equipment and will be able to adjust the voltage on the electrofisher as water levels and conductivities change. They will also be able to detect signs of fish stress. The person responsible for fish release will be experienced in acclimating fish and monitoring their health. They will also be able to estimate fish species and lengths;
- xii. If dewatering is required as part of the execution of work, a dewatering plan will be developed as part of the C-SEPP; and
- xiii. Stream diversion (pumps/diversion channels) will be provided for fish passage for projects of longer duration – DFO regulations for instream works will be adhered to.

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11.20 WORK IN/AROUND MARINE ENVIRONMENT

Environmental Concern

The principal environmental concerns from marine construction include the release of fines, hazardous liquids, and toxic substances to the water and substrate, and disturbance to fish and fish habitat. Marine construction activities can also disturb near shore terrestrial habitat and cause seabirds, waterfowl and marine mammals to avoid the area.

Environmental Protection Procedures

- a) Work in and around the marine environment will require a permit for the Alteration of a Waterbody under the *Newfoundland and Labrador Water Resources Act*, and the *Federal Navigable Waters Protection Act*;
- b) The LCP will complete a survey of the electrode sites to determine whether fish are trapped in the electrode ponds, and, based on the results of the survey, implement an appropriate fish capture and relocation plan. The LCP will consult with DFO regarding the development and implementation of the plan;
- c) Clean blasted rock will be used for infilling. Armour stone protection will be placed progressively to minimize erosion and to prevent the loss of infill material. All blasted material will be taken from an approved quarry site;
- d) The operation of heavy equipment will be confined to dry, stable areas or approved barges;
- e) Infilling will be done in compliance with the *Navigable Waters Protection Act* authorization;
- f) Any timber cribbing used for construction of temporary or permanent structures will consist of untreated wood (or preservatives safe for the marine environment);
- g) Sedimentation prevention methods as outlined in Section, "Erosion Prevention and Sediment Control" will be used where appropriate to control sedimentation into the marine environment during infilling;
- h) Refer to Section, "Alteration to a Body of Water/Instream Works" for silt control procedures in water works;
- i) All equipment will have muffled exhausts to minimize noise;

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- j) Fuelling of equipment will follow the buffers outlined in the “Buffer Zone” section;
- k) All vehicles will be clean and in good repair. Regular mechanical inspections for leaks on all equipment will be made and repairs undertaken immediately; and
- l) The Master Spill Response Plan (refer to document LCP-SN-CD-0000-EV-PL-0007-01) and appropriate spill kits will be on all fuel-powered vehicles/equipment and as needed elsewhere on-site (refer to Section “Storage, Handling, Use and Disposal of Fuel & Other Hazardous Materials”).

11.21 GRUBBING AND DISPOSAL OF RELATED DEBRIS

Environmental Concerns

The principal concerns associated with grubbing and disposal of related debris are the potential effects of erosion and sedimentation on marine and freshwater ecosystems and water quality.

Environmental Protection Procedures

All grubbing and disposal of related debris near watercourses will adhere to relevant regulatory requirements, including the permits from DOEC and the formal “Letters of Advice”, “Operational Statements”, and/or Authorizations for Works or Undertakings Affecting Fish Habitat from the Fisheries and Oceans Canada.

Other specific measures to be undertaken to minimize potential effects on aquatic habitat and resources are as follows:

- a) Grubbing of the organic vegetation mat and/or the upper soil horizons will be minimized (will not occur within 2 m of standing timber). These will be left in place where possible. Limits of stripping and/or grubbing will be shown on all drawings issued for construction;
- b) The organic vegetation mat and upper soil horizon material, which has been grubbed, will be spread in a manner that attempts to cover exposed areas. Any surplus material will be stored or stockpiled for site rehabilitation and re-vegetation purposes elsewhere in the Project area. Topsoil and peat will be stockpiled separately from the overburden and separated by a buffer zone (refer to Section, “Buffer Zone”) from any waterbodies, watercourse or ecologically sensitive areas. The location of the stockpiles will be shown on drawings issued for construction and accessible for future rehabilitation purposes;
- c) A minimum of 5 metres should separate stockpiles of grubbed material from standing timber;

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- d) Grubbed material and/or topsoil will be stored in low piles to decrease the effect of compaction on structure. Stockpiles of topsoil should be seeded or otherwise protected using erosion control methods as outlined in Section, "Erosion Prevention and Sediment Control" to prevent erosion and loss of nutrients. This is especially important if stockpiles are to remain in place for periods of a year or more;
- e) Erosion prevention and sediment control measures will be installed to minimize and control runoff soil erosion and transport of sediment laden water during grubbing and the re-spreading and stockpiling of grubbed materials. Section, "Erosion Prevention and Sediment Control" outlines all acceptable prevention and control methods (i.e. use of sediment ponds);
- f) Where grubbed materials are re-spread or stockpiled, as many stumps and roots as possible will be left in place to maintain soil cohesion to dissipate the energy of runoff and promote natural re-vegetation;
- g) The length of time that grubbed areas are left exposed to the natural elements will be minimized to prevent unnecessary erosion. These areas will be monitored for erosion and such findings will be reported to the OSEM;
- h) During grubbing, care will be taken to ensure that grubbed material will not be pushed into areas that are to be left undisturbed (Figures 11-14 and 11-15 show examples of grubbing activities and a grubbed right-of-way);
- i) Grubbing will be avoided on steep slopes near watercourses. A buffer zone will be maintained between grubbed areas and watercourses, waterbodies and ecologically sensitive areas (refer to Section, "Buffer Zones"). Grubbing limits adjacent to watercourses will be flagged in the field prior to undertaking grubbing/stripping activities;
- j) Grubbing and other debris will not be permitted to enter any watercourse;
- k) Bog and other wet material that is excavated from the site will be piled and graded on well drained ground in low piles. The piles will be seeded or otherwise protected using erosion control methods as outlined in Section, "Erosion Prevention and Sediment Control"; and
- l) Where the piles are in the transmission line right-of-way they will not impede access to the line for future maintenance or access.

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Figure 11-13 - Example of Grubbing Activities



Figure 11-14 - Example of Grubbed and Cleared Path

11.22 QUARRYING AND AGGREGATE REMOVAL FROM BORROW AREAS

Environmental Concerns

The principle concerns for quarry development and associated aggregate removal include the potential for impacts on aquatic systems, noise, dust, loss of terrestrial habitat and historic resources, potential quarry development/rehabilitation plans.

Environmental Protection Procedures

The following measures will be implemented to minimize these effects:

- a) Permits to quarry will be obtained from the NL Department of Natural Resources before quarries are established. Quarry activity will be undertaken in compliance with these quarry permits and will comply with all other relevant regulations;
- b) Noise control procedures will be followed (refer to Section, "Noise Control");
- c) Quarries will not be located 100 m from a waterbody unless otherwise approved by the Department of Natural Resources. If approved, additional mitigative measures may be required;
- d) The development of quarry sites and rock excavations will require monitoring to determine the absence or presence of sulphide bearing rock. For environmental protection against Acid Rock Drainage (ARD), the OSEM will visually inspect bedrock before, during, and after excavation work on a periodic basis.

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Visible evidence of ARD is typically a yellowish colour of water or sediment called yellow boy or evidence of sulphides in rock. In the event that visible evidence of ARD is noted, the OSEM will be notified immediately. Photographs of yellow boy and sulphides (Figures 11-16 – 11-19) are shown below;



Figure 11-15 - Photograph of Yellow Boy Water Runoff



Figure 11-16 - Photograph of Yellow Boy Water Runoff



Figure 11-17 - Typical Sulphides in Rock



Figure 11-18 - Typical Sulphides in Rock

- e) Quarry areas will be developed in a controlled manner so as to minimize potential environmental effects and locations will consider sensitive wildlife areas. The following protection procedures will be implemented to minimize disturbance and facilitate rehabilitation:
- i) A buffer zone of undisturbed vegetation will be maintained between borrow areas/quarries and watercourses, waterbodies and ecologically sensitive areas (refer to Section, "Buffer Zones");

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- ii) The quarry area, stockpile area and limits of clearing will be staked and/or flagged to prevent over-extension of the development, (corner posts at least 1 metre high above ground will be installed to mark the quarry area);
 - iii) The area to be excavated will be clear cut of all vegetation prior to grubbing, excavation or removal of any material. Only the area necessary for one (1) year production will be cleared;
 - iv) All stumps, organic matter and topsoil will be stripped from the area to be excavated and stockpiled at least 5 m from uncleared areas; stockpiles will be kept at least 10 m from the area of excavation; separate overburden piles will be developed where this material is present; topsoil and the underlying overburden will not be mixed (refer to Section “Grubbing and Disposal of Related Debris”);
 - v) Stockpile areas are to be confirmed by the OSEM, prior to stripping;
 - vi) Upon completion of excavation of a quarry, no cliff faces or benches will be left at a height of greater than 5 m. Available material left over from quarrying and stockpiled overburden will be used to minimize slopes and face heights and to rehabilitate the area;
 - vii) Each quarry will be evaluated by the OSEM on a site-specific basis to determine whether the cliff faces will be converted to rubble slopes; and
 - viii) Following sloping, the topsoil and any organic materials will be re-spread over the disturbed area to promote natural re-vegetation by adjacent seed sources.
- f) In order to prevent sedimentation of waterbodies, watercourses and ecologically sensitive areas, sediment control measures (basins and traps) will be established, if required, and cleaned on a regular basis, as required, to ensure that the designed retention capacity is maintained at all times. Section, “Erosion Prevention and Sediment Control” outlines all acceptable sediment control measures;

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- g) The Total Suspended Solid (TSS) content of construction-altered water that is released into a natural waterbody will not exceed 30 milligrams per litre⁴ and be in compliance with *Environmental Control Water and Sewage Regulations, 2003*;
- h) With respect to maintenance of water quality within receiving waterbodies on and around the site, the *CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life* will be used;
- i) The pH level of construction-altered water that is released into a natural waterbody will be between 5.5 and 9 pH units and be in compliance with *Environmental Control Water and Sewage Regulations, 2003*;
- j) Dust from aggregate processing, storage and handling will be controlled with water as required during times when temperatures are above freezing. A Water Use License must be obtained from the Water Resources Management Division;
- k) If crushing activities in the quarry require a water source, a license from the DOEC, Water Resources Management Division, will be obtained prior to any water use; and
- l) Quarry operations will consider sensitive wildlife periods as outlined in Section, "Scheduling and Timing of Construction Activities".

11.23 TRENCHING

Environmental Concerns

Where linear excavations for the construction of water lines or any other infrastructure is undertaken, potential runoff of sediment-laden water could result in effects on marine or freshwater fish and fish habitat, water quality and historic resources.

⁴ If water is being abstracted from a watercourse, used, treated and subsequently returned to the same watercourse, these solids data mean that the effluent should not contain more than 30 milligrams per litre more than was in the water originally abstracted.

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Environmental Protection Procedures

The following measures will be implemented to minimize the potential effects of trenching:

- a) Topsoil and excavated overburden and bedrock will be stored in separate stockpiles for later use during rehabilitation;
- b) Any unsuitable material will be disposed of in a disposal area to be confirmed by the OSEM;
- c) Dewatering of trenches, as outlined in Section, "Dewatering Work Areas" will make use of measures to minimize and control the release of sediment laden water through the use of acceptable sediment control measures as outlined in Section, "Erosion Prevention and Sediment Control"; and
- d) Backfilling of linear trenches will allow for settlement to ensure that the finished grade of the trench is level with the surrounding surface.

11.24 EXCAVATION, BACKFILLING AND GRADING

Excavation, backfilling and grading of common rock and other materials may be required at various locations within the Project Site.

Environmental Concerns

The principal environmental concerns associated with excavation, backfilling and grading are potential effects on water quality and fish and fish habitat due to runoff of sediment laden water. Potential disturbance to rare species and habitat and archaeological resources must also be taken into account.

Environmental Protection Procedures

All work will be conducted in a manner that ensures the minimum amount of disturbance necessary and controls potential sedimentation of watercourses and waterbodies in or adjacent to the work areas as outlined in the following procedures:

- a) Excavation, backfilling and grading will be done only after grubbing and stripping is completed. Where engineering requirements do not require grubbing and stripping (e.g., within the buffer zone of a stream crossing), filling will occur without any disturbance of the vegetation mat or the upper soil horizons;

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- b) Excavation, backfilling and grading in the vicinity of stream crossings will be done in a manner that minimizes erosion and sedimentation of watercourses and waterbodies; and
- c) A buffer zone of undisturbed vegetation will be maintained between construction areas and all watercourses, waterbodies and ecologically sensitive areas (refer to Section, “Buffer Zones”).

11.25 EROSION PREVENTION AND SEDIMENT CONTROL

Environmental Concerns

The potential for erosion and resulting effects to water quality and fish and fish habitat is a key environmental concern associated with construction activities. The following (Figures 11-20 and 11-21) show sediment runoff situations that can be avoided by following the environmental protective measures herein.



Figure 11-19 - Sediment Plume in Water



Figure 11-20 - Sedimentation on Land

Environmental Protection Procedures

Erosion prevention and sedimentation control will be a main objective in all work areas where soil may be transported by water, wind, or ice. An Erosion and Sedimentation Control Plan will be prepared and submitted by the Contractor as part of the C-SEPP, prior to the start of Site activities. Storm water discharge into any waterbody showing on 1:50,000 mapping will require a DOEC permit under the Water Resources Act.

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11.25.1 Site-Specific Erosion and Sedimentation Control Plan

The following outlines the requirements of the Erosion and Sedimentation Control Plan:

- a) A brief description of the proposed land disturbing activities, existing site conditions and adjacent areas;
- b) A description of the critical areas on the site (i.e. areas that have a potential for serious erosion problems);
- c) Construction schedule that includes the date stripping and grading will begin and the expected date of stabilization;
- d) A brief description of the measures that will be used to minimize erosion and control sedimentation on the site, including types, options, when they will be installed and where they will be located;
- e) An inspection and maintenance program, including frequency of inspection and repair, clean out and disposal of trapped sediment, duration and final rehabilitation when site work is complete;
- f) Shut down plans where construction plans are delayed for an extended period of time;
- g) An emergency response plan that identified available short term resources in terms of personnel, equipment and erosion and sedimentation control measures and reporting steps;
- h) Name of person preparing plan and professional stamp/designation;
- i) Site plan including the following features:
 - i) Existing and final site contours at an interval and scale sufficient to identify runoff patterns before and after disturbance;
 - ii) Existing vegetation and buffers;
 - iii) Limits of clearing and grading;
 - iv) Critical areas; and
 - v) Location and type of erosion and sedimentation control measures with dimensions.
- j) Detailed drawings of all erosion and sedimentation control structures and measures showing dimensions, material and other important details;
- k) The following calculations are to be provided:

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- i) Design calculations for erosion and sedimentation control measures (culverts, channels, sediment traps, etc.) such as particle size, flow rates and peak discharge;
 - ii) Calculations to demonstrate the design of sediment removal efficiency; and
 - iii) Any other calculations, as required.
- l) Contingency measures will be implemented to deal with storm events and high runoff in order to minimize adverse environmental effects from these events. Erosion prevention and sediment containment measures and required equipment will be available to address contingency/emergency situations.

11.25.2 Erosion Prevention

The primary way to control erosion is to prevent activities that can contribute to it. However, specific erosion control measures may be required to be designed for the site to minimize the effects of construction activities on the environment. Options for erosion prevention are discussed in the following sections.

11.25.2.1 Discussion of Erosion Control Options

Slope Treatments

Several slope treatments can be used to reduce erosion. Slope treatments are used prior to seeding for vegetation growth. Roughening a slope with horizontal depressions helps control erosion by creating safe seeding sites, therefore increasing vegetation, reducing runoff velocity, and increasing infiltration. The depressions also trap sediment on the face of the slope. The amount of roughening required depends on the steepness of the slope and the type of soil. Stable, sloping rocky faces may not require roughening or stabilization, while erodible slopes require special surface roughening. Roughening methods include stair-step grading, grooving, and tracking. All three (3) methods are shown in Figures 11-22 to 11-24.

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Figure 11-21 - Photograph of Grooving Slope Treatment Method

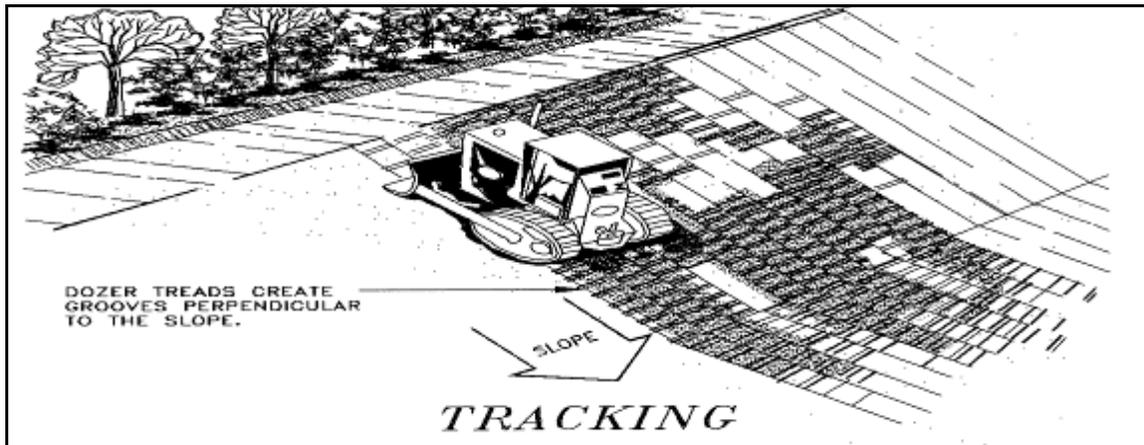


Figure 11-22 - Illustration of Tracking Slope Treatment Method

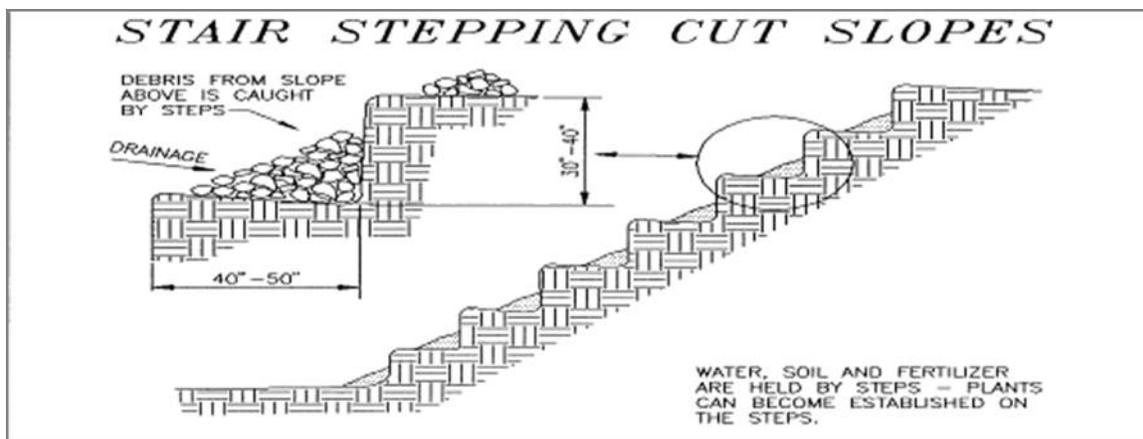


Figure 11-23 - Illustration of Stair Stepping Slope Treatment Method

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Erosion Control Nets/Mats/Blankets/Fibrous Rolls

Erosion control blankets are temporary protective barriers laid on top of bare soil vulnerable to erosion, commonly made of mulch, wood fibre, straw or synthetics. They are typically used on short steep slopes where there is a high erosion potential and slow vegetation establishment. Rolled erosion control products (recps) are manufactured mulch blankets (see Figure 11-25) that protect soil from erosion and turf reinforcement mats (trms) are used to help establish vegetation in channels.



Figure 11-24 - Photograph of Erosion Control Blanket used on a Slope

Erosion control nets are typically synthetic textiles or nets that degrade over time. The nets are woven to permit plants to take root through the holes in them. They also act as a medium to retain water for longer period of time. Different grade of nets are used based on the topography of the ground. The more closely knit nets can be used to curtail erosion in steep areas, while the more loosely knit nets can be used in flatter terrain. Installation of erosion control mats and blankets will take into consideration the criteria listed in Section, “Design criteria and installation procedures for Erosion Control Measures”.

Fibre rolls serve as barriers between up-gradient construction and down-gradient waterbodies. Fibre rolls are installed on slopes in line with one another with one at the base of the slope. The space between each row of

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fibres roll is dependent on the steepness of the slope. The steeper the slope, the more rows of evenly spaced horizontal rolls is required. Fibres rolls are fastened to the ground with wooden stakes. Figures 11-26 and 11-27 show some of the methods of erosion control.



Figure 11-25 - Photograph of Fibre Rolls used to Stabilize



Figure 11-26 - Photograph Shows Erosion Control Blanket on Slope And Erosion Control Mat in Channel

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Rip Rap

Rip rap can be used as an erosion-resistant ground cover and when installed properly it reduces runoff velocity and increases infiltration. Rip rap typically works well on river banks and/or bottoms, roadside ditches and tops of slopes. A non-woven geo-textile liner should be used at the top of the channel to prevent migration of fines. Rip rap placement will follow criteria listed in Section, “Design criteria and installation procedures for Erosion Control Measures” and applicable construction specifications and drawings. Figure 11-28 shows properly placed rip rap while Figure 11-29 shows poorly placed rip rap with geotextile exposed.



Figure 11-27 - Photograph of Rip Rap Placed Along a Slope



Figure 11-28 - Photograph of failed Rip Rap Protection a Slope

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Check Dams and Dikes

Check dams and dikes are temporary barriers that are typically constructed of rocks, gravel bags, sandbags or fibre rolls that are installed across a constructed swale or drainage ditch to reduce water velocity. They are placed in areas where runoff erosion has occurred or where runoff needs to be diverted or channelled. They are not designed to stop the water, but to slow it down. Check dam and dyke installation will follow the criteria listed in Section, “Design criteria and installation procedures for Erosion Control Measures” and applicable construction specifications and drawings.

Check dams will be maintained and inspected periodically, as well as unscheduled inspections prior to, and after, a significant rainfall event, anticipated heavy precipitation or runoff event (e.g. snowmelt). Removal of sediment from check dams will be conducted as required, in order to ensure that the dam continues to perform its design function of reducing the amount of sediment present in the runoff. Photographs of rock constructed check dams are shown below in Figures 11-30 and 11-31.



Figure 11-29 - Photograph of Rock Constructed Check Dam



Figure 11-30 - Photograph of a Rock Constructed Dike

Energy Dissipaters

Energy dissipaters (or outlet protection devices) are devices that are installed on the downstream end of a culvert or outlet and are used to reduce the velocity of the water flow. Energy dissipaters are typically made of rocks (rip rap apron); however they can be man-made devices such as concrete blocks or metal prongs. Energy dissipaters required for fish bearing waters will be of natural means (not man-made). Energy dissipaters require engineering design to accommodate the velocity and volume of flow and will follow the criteria listed in Section,

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“Design criteria and installation procedures for Erosion Control Measures” and applicable construction specifications and drawings. Figure 11-32 shows properly constructed or placed energy dissipaters while Figure 11-33 shows improperly placed rocks as energy dissipaters.



Figure 11-31 - Correct Construction of Rock Energy Dissipaters



Figure 11-32 - Incorrect Construction of Rock Energy Dissipaters

11.25.2.2 Design Criteria and Installation Procedures for Erosion Control Measures

Design criteria and installation procedures for applicable options discussed above are listed below. Reference will be made to these criteria if either of these options is deemed suitable for site-specific conditions.

Straw Mats

Design criteria and installation procedures for applicable options discussed above are listed below. Reference will be made to these criteria if either of these options is deemed suitable for site-specific conditions.

Straw Mats

- Straw mats will be applied at a rate of 3000 to 8000 lb/acre;
- Soil will be visible through the straw mat (not too heavily applied);
- Straw will be applied by blower or by hand; and
- Straw will be anchored to prevent it from blowing away.

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Wood Fibre Mulch

- e) Preferable on steep cut slopes of 2H:1V or steeper; and
- f) Wood fibre mulch will be applied at a rate of at least 1000 lb/acre (increasing the rate of application will increase effectiveness).

Rolled Erosion Control Products (RECPs)

- a) May be used for gradients of 2.5H:1V or steeper;
- b) Will be installed on unfrozen ground;
- c) Slopes will be top soiled and seeded prior to placing RECP;
- d) Blankets will be in full contact with the soil by properly grading soil, removing rocks or deleterious materials, prior to placing blanket;
- e) In channels, blankets will extend above the anticipated flow height, with a minimum 0.5 m of freeboard;
- f) For Turf Reinforcement Mat (TRM), blanket will be placed immediately after top soiling;
- g) Blanket will be anchored by using wire staples, metal geotextile stake pins, or triangular wooden stakes; and
- h) Blankets will be placed parallel to direction of flow, with fabric not stretched but maintaining contact with underlying soil.

Rolled Erosion Control Products (RECPs) on Slopes

General installation methods for RECPs on slopes are listed below however all installation will be designed on a site-specific basis and products will be installed according to manufacturer's procedures.

- a) Prepare surface and place topsoil and seed (surface should be smooth and free of rocks, debris, or other deleterious materials);
- b) Blanket will be anchored at top of slope in a minimum 0.15 m by 0.15 m trench for the entire width of the blanket;
- c) The blanket will be rolled out downslope;

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- d) Where the blanket roll is not long enough to cover the entire length of the slope, a minimum 0.15 m by 0.15 m check slot will be excavated at the location of the lap, and the downslope segment of blanket anchored in the check slot, similar to the method used for the top of the slope, or when blankets, must be spliced down the slope, place blanket end over end (shingle style) with approximately 0.10 m overlap. Staple through overlapped area at 0.3 m intervals;
- e) The upslope portion of blanket will overlap the downslope portion of blanket, shingle style, at least 0.15 m with staple anchors placed a maximum 0.3 m apart;
- f) Adjacent rolls of blanket will overlap a minimum 0.1 m;
- g) Anchors will be placed along central portion of blanket spaced at $4/m^2$ minimum (0.5 m spacing) for slopes steeper than 2H:1V and $1/m^2$ (1 m spacing) for slopes flatter than 2H:1V; and
- h) Anchors along splices between adjacent rolls will be placed 0.9 m apart.

Rolled Erosion Control Products (RECPs) in Channels

General Installation Methods for RECPs in channels are listed below however all installation will be designed on a site-specific basis and products will be installed according to manufacturer's procedures.

- a) Prepare surface and place topsoil and seed (surface should be smooth and free of large rocks, debris, or other deleterious materials);
- b) Excavate a minimum 0.15 m deep and 0.15 m wide trench at the upstream end of channel and place end of RECP into trench;
- c) Use a double row of staggered anchors approximately 0.1 m apart (i.e. 0.2 m linear spacing) to secure RECP to soil in base of trench;
- d) Backfill and compact soil over RECP in trench;
- e) Roll centre RECP in direction of water flow on base of channel;
- f) Place RECP end over end (shingle style) with a minimum 0.15 m overlap downgrade;
- g) Use a double row of staggered anchors approximately 0.1 m apart to secure RECP to soil;
- h) Full length edge of RECP at top of side slopes will be anchored in a minimum 0.15 m deep and 0.15 m wide trench;

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- i) Use a double row of staggered staple anchors a maximum of 0.1 m apart (i.e. 0.2 m linear spacing) to secure RECP to soil in base of trench;
- j) Backfill and compact soil over RECP in trench;
- k) Overlap RECP on side slopes (shingle style down channel) a minimum of 0.1 m over the centre RECP and secure RECP to soil with anchors spaced a maximum of 0.2 m apart;
- l) In high flow channels, a check slot across the width of the channel is recommended at a maximum spacing of 10 m to anchor the ends of the RECP to the underlying soil;
- m) Use a double row of staggered staple anchors a maximum of 0.1 m apart (0.2 m linear spacing) to secure RECP to soil in base of check slot; and
- n) Backfill and compact soil over RECP in check slot.

Rip Rap

The following criteria will be considered when installing rip rap:

- a) Used for grades 5-15%;
- b) It will be constructed of durable, large, loose stone;
- c) A non-woven geo-textile liner will be used at the top of the channel to prevent migration of fines;
- d) Side slopes of rip rap must be a slope of 3H:IV or less;
- e) Rip rap will be of angular stone;
- f) Rip rap depth will be at least 300 mm and 1.5x the maximum stone diameter; and
- g) Rip rap should be clean and free of substances deleterious to fish and fish habitat.

Check Dams and Dikes

The following criteria are to be considered when installing a check dam:

- a) Check dams will not be used in live streams or in channels with extended base flows, as this may have a detrimental effect on fish or fish habitats;

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- b) The check dam sediment trap will consist of rockfill with filter fabric on the upstream face held in place with small shot rock;
- c) Accumulated sediment will be cleaned out of the filter fabric at regular intervals as required and the material will be disposed of so that it cannot subsequently run into any waterbodies containing fish;
- d) Any damaged section(s) of filter fabric as well as any undercut or end flow areas where water flows freely around the filter fabrics will be repaired or replaced, as soon as practical;
- e) Drainage area will be less than 4 ha;
- f) The filter fabric will be of a weight of at least 200 g/m²;
- g) The rockfill will be clean rock, with rock fragments sized between 100 and 150 mm;
- h) The small shot rock will be clean rock, with fragments no larger than 120 mm;
- i) When used in series, the top of the downstream check dam will be level with the bottom of the next dam upstream;
- j) The check dam will extend beyond the top of the ditch banks and the centerline elevation will be low enough that flow does not go around the structure; and
- k) Check dams will be maintained and inspected periodically as well as unscheduled inspections prior to, and after, a significant rainfall event, anticipated heavy precipitation or runoff event (e.g. snowmelt).
The following maintenance will be completed, as required:
 - Remove any accumulations of sediment; and
 - Add or remove rock as necessary to maintain design height, cross-section and flow through characteristics.

Energy Dissipaters

The following criteria are to be considered when installing energy dissipaters:

- a) Energy dissipaters are preferably constructed on level grade for a distance which is related to the outlet flow rate and the tailwater level;

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- b) The sill or transition to the natural channel will be level with and at the same slope as the receiving channel;
- c) Energy dissipaters are applicable for small and medium size culverts of any cross-section where the depth of flow at the outlet is less than the culvert height;
- d) For rip rap aprons, the apron width at the pipe end will be 3x the pipe diameter;
- e) Energy dissipaters will drain by gravity when not in operation; and
- f) Energy dissipaters will be self cleaning and require minimum maintenance.

11.25.2.3 Silt Fences/Sediment Barriers

Sedimentation Prevention

Sediment barriers are temporary sediment control devices that are used to protect water quality of down gradient rivers, streams and other waterbodies from sediment in water runoff. The most common barriers are silt fences; however other options include straw or hay bales or a berm of erosion control mix. Silt fences are typically used in combination with other site water control measures, including sediment traps and basins. Engineering requirements may vary depending on the locations of the silt fence and will take such factors into consideration as drainage/surface area of exposed soils and time of year the silt fence is employed.

Silt fences typically consist of a piece of synthetic filter fabric stretched between a series of wooden stakes. The stakes are installed on the downhill side of the fence, and the bottom edge of the fabric is trenched into the soil and backfilled on the uphill side. The storm water passes through the fence and sediment is deposited on the uphill side of the fence.

Silt fences are suitable for sheet runoff from exposed areas of soil with grades less than 5% as a result of construction activities. Figures 11-34 to 11-36 show proper construction of silt fences and Figures 11-37 and 11-38 show poorly constructed silt fences that have failed and allowed silt or silty water to pass through. The following criteria will be taken into consideration when installing silt fences:

- a) The silt fence will consist of a filter fabric fence held in place by posts;
- b) The woven filter fabric will be of a weight of at least 200 g/m²;
- c) No single run of silt fence will exceed 100 m in length;

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- d) The drainage area behind the silt fence will not exceed 0.1 ha per 30 meters of fence;
- e) Silt fences will not be installed on a slope, and be located no nearer than 1 m from the toe of slope;
- f) Silt fences will not be used when the overland flow exceeds 0.03 m³/sec;
- g) The fabric will be at least 900 mm wide/high;
- h) The fence posts will be of sufficient length to support the fabric, be sturdy and be of dimensions of at least 50 mm square;
- i) The staples will be sufficiently sturdy to support the fabric for the required life of the fence;
- j) The posts will be secured at 3 m intervals on the immediate down slope side of the trench;
- k) The filter fabric will be taken from a continuous roll, and cut to the required length. The maximum length of the filter fabric will be stapled to the upstream side of the stakes, with 200 mm of fabric extending into the trench and spread over the trench bottom;
- l) When installing a silt fence in frozen earth or rock, metals posts will be used and wire ties will be used to attach the filter fabric (Figure 11-36);
- m) When a fence is installed in frozen earth it will be checked and potentially replaced during spring melt as the posts may have shifted with the melting earth;
- n) Silt fences will be removed when the site has been stabilized, or re-vegetated;
- o) Silt fences will be inspected and maintained on a regular basis as well as before any anticipated heavy precipitation or runoff event (e.g. snowmelt). Accumulation of sediment will be periodically removed and disposed of in an area where it will not re-enter any waterbody; and
- p) Also, repairs and replacement of damaged silt fences will be addressed immediately.

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Figure 11-33 - A Well Constructed Silt Fence

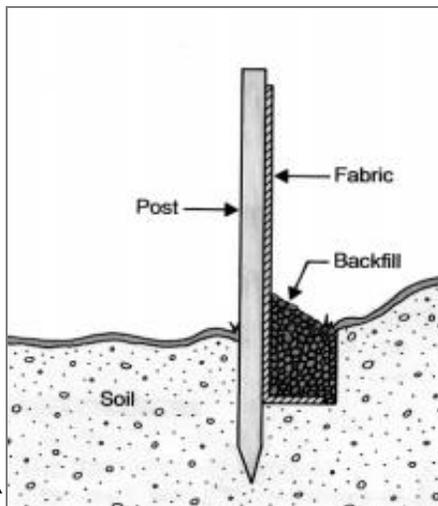


Figure 11-34 - Properly Constructed Silt Fence (Downhill Side on Left, Uphill Side on Right)

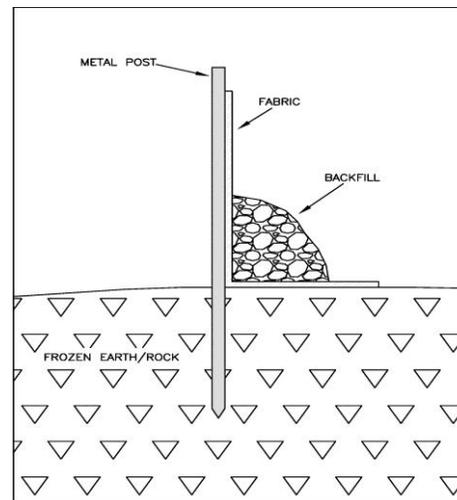


Figure 11-35 - Properly Constructed Silt Fence for Frozen Earth or Rock

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Figure 11-36 - Examples of Poorly Installed Silt Fences



Figure 11-37 - Examples of Poorly Installed Silt Fences

11.26 SITE WATER MANAGEMENT

Environmental Concerns

For a large-scale, earth-moving construction projects such as the LCP, a major consideration in the protection of water quality and aquatic resources is the management of site water run-off and associated suspended solids. The protection of water quality and aquatic resources will focus on prevention, containment and treatment of water and wastewater associated with the site. Wastewater, septage, sludge, biosolids, or other types of hazardous or deleterious liquids from the project site will not be allowed to be discharged to public wastewater collection systems or treatment facilities. Any work camps connecting to public drinking water or wastewater systems will be required to obtain a Permit to Construct from the Water Resources Management Division. Site water management can be divided into three (3) main categories: Surface Water Interception, Containment and Treatment.

Environmental Protection Procedures

The main focus of measures to protect water quality and aquatic resources is prevention. Preventative measures will include measures to reduce the volume of water entering the Sites (thereby reducing the volume of water that requires subsequent containment and treatment). Site water management systems will be installed as per

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technical specifications and/or the C-SEPPs. See references such as DFO's Fact Sheets on Ditching, Filter Fabric, Rock Check Dams and Temporary Settling Basins for more information related to erosion prevention and sedimentation control.

Storm water discharge into any waterbody showing on 1:50,000 mapping will require a DOEC permit under the *Section 48 of the Water Resources Act*. Effluent monitoring locations, frequency, sampling and reporting will comply with the conditions of the permit.

11.26.1 Description of Site Water Management Methods

Surface Water Interception

Reducing the amount of water entering the work sites through surface water runoff, infiltration through the cofferdams and groundwater seepage may be required. At the main work sites ditches will be incorporated into the site layout to intercept surface water and divert it around the work areas. Infiltration through the cofferdams and groundwater seepage will be reduced by the installation of a properly designed sump and pump well systems that will draw down the water table.

Containment

Once in the work areas, water will be contained until the water can be treated and released. A system of ditches and drains, incorporated with sump and pump systems, may be required to handle water that enters all excavations. Where required, ditches, drains and sumps will be located along the lower boundaries of the construction sites to intercept and contain silty or sediment laden water. Measures to contain water from excavations and other construction works will include but not be limited to:

- a) The containment of water from concrete production and placement, including the cutting of concrete, washing of forms or water otherwise contaminated by concrete components or admixtures;
- b) The containment of wash water from the cleaning of mixers and mixer trucks;
- c) The control of sediment and runoff from aggregate washing areas. This may include, but will not be limited to, use of a closed system washing operation or a multiple tiered settling basin system; and
- d) Testing and treatment for elevated levels of Total Suspended Solids (TSS) or other contaminants related to blasting (such as Ammonium Nitrate and fuel oil).

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Treatment (Sediment Ponds/Traps)

Once contained, water will undergo testing and if necessary treatment prior to release. The goal of Site water management is to release water within regulatory limits for all parameters. Water will be tested for oil and grease, TSS, ammonium nitrates and/or any other parameters outlined by the monitoring plan in the C-SEPP based on usage of equipment and Site chemicals, as required, to meet the *Environmental Control Water and Sewage Regulations, 2003*.

For open excavations, a system of properly designed and constructed settling basins is the preferred method of sediment removal. A sediment basin (also called a sediment pond – See Figure 11-39) is a temporary pond built on a construction site to capture eroded or disturbed soil that is transported due to water runoff. The sediment basin protects the water quality of down gradient waterbodies. The sediment suspended in the water settles in the pond before the runoff is discharged. Sediment basins are typically used on larger construction sites (>5 acres). Use of sediment basins is usually in conjunction with other sediment and erosion controls. Reference the DFO Fact Sheet for Temporary Settling (Detention) Basins for more information.



Figure 11-38 - Sediment Basin

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A sediment trap is similar to a sediment basin and is basically an embankment built along a waterway or low-lying area on the Site. Sediment traps should be installed prior to construction and earth moving activities and are commonly used on smaller construction sites, where a sediment basin is not practical. Use of sediment traps is usually in conjunction with other sediment and erosion controls. The size of sediment traps and basins will depend on the size of the site, location and rainfall runoff for the area. See Figure 11-40 for a photograph of a sediment trap.

Both sediment ponds and sediment traps require periodic inspection and maintenance. Inspections will occur following each significant rainfall to ensure proper drainage and to determine if structure repairs are required. Maintenance will include removal and disposal of accumulated sediment from the settling basins in order to maintain their operating capacity. Sediment will be disposed of in area that would preclude the sediment from entering waterbodies downstream.



Figure 11-39 - Sediment Trap

Water leaving sediment traps and basins will be tested for applicable parameters (Schedule A of the *Environmental Control Water and Sewage Regulations, 2003* under the *Water Resources Act*). Following testing, the addition of chemicals or the use of mechanical processes may be required to treat the water in conjunction with settling and filtration.

Contaminated or silted water pumped from excavations or work areas, or any runoff or effluent directed out of the Project site will have sediment removed by applicable sediment control measures, as outlined in Section,

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“Erosion Prevention and Sediment Control”, before discharging to a watercourse, waterbody or other ecological sensitive area. In addition, any effluent will be tested for TSS and hydrocarbons (if there are any indications of hydrocarbon contamination, such as a sheen or odour) before being discharged to any watercourse, waterbody or other ecological sensitive area. Effluent discharge will comply with the provincial *Environmental Control Water and Sewage Regulations, 2003* under the provincial *Water Resources Act*.

With respect to maintenance of water quality within receiving waterbodies on and around the site, the *CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life* will be used.

11.26.2 Design Criteria and Construction Considerations

The design of the structures will consider the following:

- a) The loading of suspended solids in the water;
- b) Particle size and gradation;
- c) The volume of water to be treated;
- d) The rate of inflow;
- e) Rate of outflow; and
- f) The contributing surface area.

Specific design criteria are provided below:

- a) Design storm will be the precipitation of the twenty-four (24) hour rainfall intensity from a 1:20 year storm;
- b) Drainage area for each sediment retention structure will not exceed 2 ha;
- c) Ponds will be located in low lying areas where they will not contribute to high groundwater conditions and where the system can return the water to a body of water or recharge the water table;
- d) Pond designs will include an overflow discharge in case of flooding. The overflow section will have a minimum width of 1.5 m for every 250 m² of pond area;
- e) Provide 1 to 2 % elevation drop between inlet and outlet grades; and

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- f) Maintain a minimum pond depth of 1 m. A minimum length to bottom width ratio of 4:1. The size will be determined to ensure discharge water meets the *Environmental Control Water and Sewage Regulations, 2003*.

11.27 DEWATERING WORK AREAS

Environmental Concerns

The major concerns associated with dewatering are sedimentation, direct fish mortality, and/or habitat destruction for freshwater and marine fish species.

Environmental Protection Procedures

- a) Filtration or other suitable measures, such as settling ponds, silt fences and dikes, will be implemented for sediment removal and turbidity reduction in water pumped from work areas before discharging;
- b) Where possible, clean water meeting the *Environmental Control Water and Sewage Regulations, 2003* will be discharged to vegetated areas to further reduce any potential effects on watercourses. Additionally, mechanisms to prevent scouring and erosion of the discharge location will be installed as outlined in Section, "Erosion Protection and Sediment Control";
- c) The size of sedimentation ponds will be designed to accommodate the anticipated volume of collected water and meet discharge criteria for water quality as outlined in Section, "Site Water Management";
- d) Discharged water will be encouraged to follow natural surface drainage patterns;
- e) Serious harm to fish and fish habitat will not be permitted unless an authorization under the Fisheries Act has been issued; see Fish Habitat and Relocation in Section, "Alterations to a Body of Water/Instream Works".

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11.28 BLASTING AND WASTE ROCK DISPOSAL

Environmental Concerns

The general environmental concerns associated with on-land blasting include:

- a) Destruction of vegetation outside excavation limits;
- b) Noise disturbances to humans and wildlife;
- c) Disturbance of archaeological resources;
- d) Release of chemicals (i.e. ammonia) to the environment (explosive mixtures and products); and
- e) Dust generation.

Blasting in or near waterbodies can affect organisms with swim bladders (fish) but may also affect a variety of aquatic animals including shellfish, marine mammals, otters, seabirds and waterfowl. The introduction of sediment into the water column is also a concern for marine/freshwater water quality and related effects on aquatic life.

Environmental Protection Procedures

The handling, transportation, storage and use of explosives and all other hazardous materials will be conducted in compliance with all applicable laws, regulations, orders of the DOEC and the Service NL, the *Explosives Act*, and the *Transportation of Dangerous Goods Act*. The following measures will be implemented to minimize the effect of the use of explosives and blasting:

- a) Explosives will be used in a manner that will minimize damage or defacement of landscape features, trees, ecologically sensitive areas such as wetlands, and other surrounding objects by controlling through standard best practice (including precisely calculated explosive loads and adequate stemming), the scatter of blasted material beyond the limits of activity. Outside of cleared areas, inadvertently damaged trees will be cut, removed, and salvaged if merchantable (refer to Section, "Clearing of Vegetation"). Fly rock, which inadvertently enters a waterbody, watercourse, or any ecologically sensitive area and that can be recovered without further damage to the environment, will be removed. Instances where larger fly rocks (boulders) enter these areas or deep waterbodies, recovery of this will be discussed with the OSEM;

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- b) Blasting patterns and procedures will be used, which minimize shock or instantaneous peak noise levels. Incident of fish kills should also be reported to DFO. Refer to “Response Procedures for Natural and Pollution-Related Fish Kill Incidents in the Atlantic Region”;
- c) Time delay blasting cycles or blasting mats will be used, if necessary, to control the scatter of blasted material;
- d) Blasting will not occur in the vicinity of fuel storage facilities;
- e) All blasters will have a Blasters’ Safety Certificate from the NL Department of Labour. This certificate and a Temporary Magazine License will be obtained prior to drilling and blasting;
- f) Use of explosives will be restricted to authorized Personnel who have been trained in their use;
- g) There will be separate magazines on Site for explosives and for dynamite blasting caps. All temporary magazines for explosive storage will have appropriate approvals;
- h) The immediate area of the blast site will be surveyed within one (1) hour prior to a blast, and operations will be curtailed if wildlife (e.g. black bears, water fowl, raptors, etc.) is observed within 500 m. Environmental Personnel and OSEMs will conduct pre-blast monitoring to see and identify species of concern. Additionally, any individual animal sightings by other Personnel will be reported to the OSEM. Blasting may be delayed in such circumstances until wildlife have been allowed to leave the area of their own accord;
- i) All blasting associated debris, such as explosive boxes and used blasting wire, must be collected for proper disposal as soon as possible following blasting activity;
- j) If blasting is necessary within the vicinity of an archaeological site, precautions will be taken to ensure that blasted material and shock waves do not disturb any part of the site. If necessary, protective covering will be applied to the site under the supervision of an approved archaeologist. Blasting will not be undertaken in these areas without first notifying the OSEM;
- k) Waste rock that is suitable for usage at the site will be set aside for subsequent use. Waste rock not suitable for site use will be deposited in the designated stockpile area;

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- l) Previous testing on selected samples of bedrock has shown the samples to be Non-Potentially Acid Generating (NPAG). As a precautionary measure the OSEM will inspect all areas of blasted rock and rock stockpiles to ensure no evidence of PAG material exists; and
- m) If possible, blasting will be done outside of sensitive time periods for important wildlife areas (See Table 11-1).

11.28.1 Blasting in Close Proximity to or In a Body of Water

Seismic geophysical methods may require in-water blasting. This may include the use of small sources of energy (explosives, air gun, weight drop, etc.) in the water column.

The following measures will be implemented to minimize the effect of the use of explosives and blasting in or near water:

- a) When blasting operations are within 200 m of a waterbody occupied by fish, the operations will be carried out in accordance with DFO guidelines;
- b) Downstream areas will be monitored after each blast for evidence of fish kills and if any are evident, blasting operations will cease and the incident will be reported to the OSEM;
- c) Three (3) hours prior to any blasting activities near waterbodies, a visual reconnaissance of the area will be undertaken to establish the presence of water fowl or aquatic mammals;
- d) If blasting is necessary within 15 m of a waterbody, it will be undertaken in compliance with the required Water Resources permits from the DOEC, and DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998. A copy of this reference will be kept at the Project site and made available to all Contractors;
- e) Underwater blasting activities will require review and authorization from DFO, the OSEM will confirm that the DFO Area Habitat Biologist has been notified twenty-four (24) hours before the start of blasting operations;
- f) Drilling and blasting activities will be undertaken in a manner that ensures the magnitude of explosions is limited to that which is absolutely necessary. A blasting plan will be reviewed with the OSEM in advance of work in close proximity to waterbodies;

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- g) For multiple charges, time delay detonators will be used to reduce the overall detonation to a series of single explosions separated by minimum delay;
- h) Large charges will be subdivided into a series of smaller charges with minimum delay detonation;
- i) The on land set-back distance from the blast site to the waterbody or the set-back distance around the blast site in the waterbody will be based on the maximum weight of charge to be detonated at one instant in time, the substrate, and the type of fish or fish habitat in the area of the blast. These set-back distances are outlined in the Guidelines for Use of Explosives In or Near Canadian Fisheries Waters, 1998 and the DFO Fact Sheet for Blasting – Fish and Fish Habitat Protection; and
- j) Blast holes will be stemmed with sand or gravel to grade or to streambed/water interface to confine the blast.

11.28.2 Waste Rock Disposal

For environmental protection against ARD and other leaching of heavy metals the OSEM will visually inspect rock before, during, and after blasting work and on a periodic basis. Visible evidence of ARD is typically a yellowish colour of water or sediment called yellow boy or evidence of sulphides in rock. In the event that visible evidence of ARD is noted, the OSEM will be notified immediately. Photographs of yellow boy and sulphides are shown in Section, “Quarrying and Aggregate Removal from Borrow Areas” (also refer to Figures 9-16 to 9-19).

Stockpiling will be completed in a manner that will reduce the potential for acid rock drainage and metal leaching. All stockpiles will be placed in an area where drainage can be collected, tested and treated, if required. Consideration will be given to installing a settling pond for runoff to deal with suspended solids. Stockpile areas and limits of clearing will be staked and/or flagged to prevent overextension of the development, thereby minimizing the extent of the operation.

Treatment will be site-specific based on analytical results. However, typical treatment will include settling ponds, and the addition of chemicals or the use of mechanical processes to aid in settling or filtration. Treatment options will be confirmed by the OSEM and approved by DOEC.

The release of water from blasting activities and waste rock drainage will meet Schedule A of the *Environmental Control Water and Sewage Regulations, 2003* before it will be permitted to be discharged directly or indirectly into a storm sewer, body of water or onto the ground.

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11.29 CONCRETE PRODUCTION

Environmental Concerns

The major concern relating to concrete production is the effects of effluent released to the environment. Liquid wastes may contain hazardous materials such as cement, concrete additives, and form oil.

Cement is very alkaline and washwater from spoiled concrete or from the cleaning of the batch plant mixers and mixer trucks, conveyors and pipe delivery systems can have pH levels outside the acceptable range. Similarly, spoiled concrete or washwater would contain concrete additives and agents, some of which are toxic to aquatic species. Aggregates, particularly the finer sand fractions may be washed from spoiled concrete or discharged in washwater. Uncontrolled release of such washwater, chemicals and sediments could adversely affect aquatic life and aquatic habitat.

Environmental Protection Procedures

- a) Approval from DOEC will be obtained to establish the required concrete batch plants at each Site. Plant operations will comply with the conditions outlined in the approvals and requirements under air pollution control regulations;
- b) Prior to the release of effluent to the environment it will be tested for appropriate parameters (as outlined in Schedule A of the *Environmental Control Water and Sewage Regulations, 2003*) to ensure effluent quality standards are met. The specific criteria for concrete production are a pH level between 5.5 and 9 and TSS less than 30 mg/L. Release will be in accordance with runoff control procedures;
- c) With respect to maintenance of water quality in receiving waterbodies in and around the site the *CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life* will be used;
- d) If water to be released does not meet discharge criteria, it will be further treated until these discharge criteria have been met;
- e) Treatment will be site-specific as it depends on analytical results, however typical treatment may include the addition of chemicals or the use of mechanical processes to aid in filtration or settling. Treatment options will be confirmed by the OSEM and approved by DOEC;
- f) The Environmental Code of Practice for Concrete Batch Plant and Rock Washing Operations, 1992 will be adhered to during concrete production activities;

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- g) When concrete is to be placed within 15 m of a waterbody, provisions of all required permits will be followed. Under no circumstances will fresh concrete come into contact with a waterbody, before the concrete has cured;
- h) Washwater from the cleaning of mixers, mixer trucks and concrete delivery systems will be handled using the procedures outlined in Section 3.0 of the *Environmental Code of Practice for Concrete Batch Plant and Rock Washing Operations*. The following outlines important steps to take; however the code of practice will be reviewed thoroughly:
 - i) All rinsing activities will be carried out at the site of the concrete batch plant, except rinsing of the chute;
 - j) The rinsing of the chute may be carried out at the delivery site, unless concrete is being rinsed from the chute; in this case, rinsing must occur prior to site delivery. It is permissible to rinse onto the ground or soil, but under no circumstances into a pond or stream or onto a surface that leads directly to a waterbody, such as a storm sewer;
 - k) All rinsing activities at the site of the batch plant will be done over a containment pond (approximately 12.2 m x 4.57 m and less than 0.91 m deep). The material used to form the bottom and sides of the pond can be compacted clay or a synthetic liner, however the DOEC will approve any installation of a synthetic liner. The pond will be self-contained with no water inlets or outlets and no possibility of surface drainage into or out of the pond;
 - l) Any trucks returning with unused concrete will dispose of this concrete into an approved area able to contain it while still in liquid form before the trucks can be washed. Once the concrete has hardened it may be used as fill material. Liquid concrete will not be permitted to run freely over the ground;
 - m) Once all concrete has been removed from the truck, the truck may be brought over to the containment pond where washing can take place. Any water that is used to wash the truck will be directed into the pond;
 - n) When the water level in the pond reaches a height that necessitates discharge, water can be discharged following the procedure outlined in b) and c) above otherwise it will be removed by pumper truck or undergo additional treatment; and
 - o) Water will not be discharged in an area where it would cause erosion or be able to pick up solids from the surface.

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11.30 DUST CONTROL

Environmental Concerns

The environmental concerns associated with dust include effects on human health and aquatic ecosystems, waterfowl and vegetation.

Environmental Protection Procedures

The following measures will be taken to mitigate potential effects of dust:

- a) Dust from construction activities will be controlled where possible by using frequent applications of water. Waste oil will not be used for dust control, but other agents, such as wood chips, calcium chloride, matting and re-vegetation, will be considered on a site-specific or as needed basis and will require the approval of appropriate regulators;
- b) Environment Canada's Best Practices for the Use and Storage of Chloride-Based Dust Suppressants, (February, 2007) will be followed for the application of chloride-based dust suppressants. This includes, but is not limited to, the following:
 - i. Chloride based dust suppressants will not be applied prior to a heavy rainfall or if rain is threatening for at least thirty-six (36) hours;
 - ii. Dust suppressants will be applied after a rainfall event to aid in mixing.
 - iii. Suppressants will be applied during early morning or evening times to reduce evaporation; and
 - iv. Chloride suppressants will not be applied to a bridge deck or paved surface.
- c) Dust control agents (e.g., wood chips, calcium chloride, matting) will be stored at suitable distances from all watercourse, waterbody, or ecologically sensitive areas using proper buffer zones (refer to Section, "Buffer Zones").

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11.31 NOISE CONTROL

Environmental Concerns

A variety of noises associated with construction and operation activity can negatively affect wildlife and fish and can affect human safety and health. Noises associated with blasting are temporary in nature and noises associated with drilling are considered long-term, but localized.

Environmental Protection Procedures

Measures will be implemented wherever possible to minimize potential effects arising from a variety of noise sources, including:

- a) Wildlife surveillance will be conducted prior to and post noisy activities. Activities may be delayed until wildlife have been allowed to leave the area as directed by the OSEM;
- b) Adherence to all applicable regulations;
- c) Mitigation such as enclosing noisy equipment and constructing temporary noise-reducing berms;
- d) All equipment will have exhaust systems regularly inspected and mufflers will be operating properly in accordance with the manufacturers recommendations; and
- e) Low level flying of aircraft will be avoided in areas where sensitive wildlife is present (i.e. caribou, osprey, harlequin duck and other waterfowl).

11.32 RESOURCE SPECIFIC MITIGATIONS

Environmental Concerns

Construction activities have the potential to impact a number of specific resources in the work areas of the LCP. The resources include historic and archaeological resources, species at risk, forestry resources, and land use.

11.32.1 Historic and Archaeological Resources

Sites of historic or archaeological significance have been identified at the dc specialties and the HVdc overland transmission line project areas. When working in areas of high potential for historic or archaeological sites, Site-specific work measures will be developed.

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To date, 124 archaeological sites have been identified as Historic Resources Impact Assessments for the proposed transmission corridor from Muskrat Falls to Soldiers Pond and the DC Specialties Sites. Of the 124 sites that have been identified, 87 of these sites are considered to be outside the proposed boundaries and footprints of the DC transmission line and DC Specialties sites. However, awareness of the locations of these sites will be maintained during construction activities.

Historic Resources activities/reviews are ongoing at Forteau Point and Churchill Falls and the results will be incorporated when available. See Table 11-3 for information about the known sites within the project boundaries. Detailed maps showing the segments of the HVdc transmission line and the Labrador shoreline will be provided to the contractor to aid in the development of their *C-SEPP*.

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Table 11-4 - Historical and Archaeological Resources in the Lower Churchill Region

Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-20	HVdc Transmission line	Disturbance/ Loss	Transition Compound
EiBf-45**	HVdc Transmission line	Disturbance	Converter Station/ electrode/Transmission Line
EiBf-46**	HVdc Transmission line	Disturbance	Converter Station/ electrode/Transmission Line
EiBf-47**	HVdc Transmission line	Disturbance	Converter Station/ electrode/Transmission Line
EhBe-07**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EhBe-08**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EdBg-01	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EbBi-01**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
DhBf-01	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
DhBe-04	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
DfBa-13	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-04**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-08**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-25**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-35**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-36**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-37**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-38**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-39**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-40**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-43**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EiBf-44**	HVdc Transmission line	Disturbance	Clearing of vegetation for TL
EjBe-15	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-16	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-18**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-19	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-20	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-01**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-02**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-03**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-04**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-05**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBe-06**	Labrador Shoreline	Disturbance/ Loss	Converter Station/ electrode/Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-01**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-02	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-03**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-05**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-06**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-09**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-10**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-11**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-12**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-13**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-14**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-15**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-16**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-17**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-18**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-22**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-23**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-24**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-26**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-27**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-01**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-02**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-03	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-06**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-27**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-28**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-30**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-31**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-33	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-34	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-35	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-36	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-41**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-42**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EjBe-55**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-56**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-57**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-58**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-59**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-60**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-61**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-63	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-64**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-65**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-01**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-02**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-03**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-04**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-05**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-06	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-08**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EjBf-09**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-10**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-11**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-12**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-13**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBf-14**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-66**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-67	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-68	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-69	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-70	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-71	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-28**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-31**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-33**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-32**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-72	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-34**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-41**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-75	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-29**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-42**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-83	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-84	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EjBe-85	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EiBf-30**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EhBe-02**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
EhBe-04**	Labrador Shoreline	Disturbance/ Loss	Converter Station/electrode/Transmission Line
DfBa-02	Central/Eastern NL	Disturbance/ Loss	Converter Station/electrode/Transmission Line
DfBa-04	Central/Eastern NL	Disturbance/ Loss	Converter Station/electrode/Transmission Line
CIAI-04**	Avalon Peninsula	Disturbance/ Loss	Converter Station/electrode/Transmission Line
CiAf-02	HVdc Transmission line Avalon Peninsula	Disturbance/ Loss	Converter Station/electrode/Transmission Line
FfCa-01	HVdc Transmission line Southern Labrador	Disturbance/ Loss	Transmission Line

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Archaeological Borden Number/Name	Location	Environmental Effect	Contributing Project Activity
EiBf-49**	Forteau Point	Disturbance/ Loss	Transition Compound
EiBf-50	Forteau Point	Disturbance/ Loss	Transition Compound
EiBf-51	Forteau Point	Disturbance/ Loss	Transition Compound
EiBf-52	Forteau Point	Disturbance/ Loss	Transition Compound
EiBf-87	L'Anse Au Diable	Disturbance/ Loss	Electrode Site
EiBf-87	L'Anse Au Diable	Disturbance/ Loss	Electrode Site
EiBd-03	Shoal Cove	Disturbance/ Loss	Transition Compound

** These sites are outside the proposed boundaries of the dc overland transmission line and dc specialties Sites. However, awareness of the locations of these sites will be maintained during construction activities.

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As per the requirements of the PAO, a historic and archaeological resources impact assessment will be conducted at Sites where there is potential for historic and archaeological resources to be located. For low potential sites a desktop review may be adequate. For higher potential sites, field assessment may be required.

Existing information will be provided where available, and where activity will take place in an area that has not been previously reviewed a historic resources overview assessment may be required.

The following mitigations will be implemented with respect to historic and archaeological resources:

- a) All persons on Site will be informed of the historic resources potential of the area, of their responsibility to report any unusual findings, and to leave such findings undisturbed;
- b) An environmental awareness session to be attended by all staff and contractors to identify areas of high historic resources potential;
- c) The OSEM will report to the PAO if any potential archaeological resources are uncovered during excavation (Martha Drake, Provincial Archaeologist, 709-729-2462);
- d) Where possible, known sites will be avoided by modifying design (i.e. road and transmission line alignment adjustment) to ensure a 50 m minimum buffer (actual size to be determined by the PAO). Where the site cannot be avoided, the site will be recorded/recovered to the satisfaction of the PAO before work can proceed as per Historic Resources Management Plan developed by the ERC Team;
- e) The On-Site Environmental Monitor will be contacted immediately if any historic resources are discovered during the course of the work. All work within 50 m of the discovery location will stop and contingency plan procedures implemented; and
- f) Regular monitoring will be conducted by the OSEM to ensure that site protection measures are adequate and that the terms and intent of the EPP requirements are being met. Sites registered with the PAO outside the immediate Project area will be visited annually by the OSEM during periods when the sites are not snow covered to ensure they have been left undisturbed.

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11.32.2 Species at Risk

Many wildlife species (including plants, animals and birds) and their habitat are protected under provincial and federal regulations such as the national *Species at Risk Act*, *Migratory Birds Convention Act* and the *NL Endangered Species Act*. Of primary concern are disturbances, destruction or degradation of critical habitat, recovery habitat and disturbance during critical life periods (i.e. nesting and spawning). Displacement of species due to construction activities (i.e. blasting) or encounters with construction equipment and Personnel are also concerns.

Several species have been identified through the Environmental Assessment process as being of concern in the HVdc transmission line right-of-way and the dc specialties Sites. They include vegetation, furbearers, mammals, avifauna and waterfowl and are as follows:

- a) Fernald's Braya (SARA threatened; NL ESA threatened);
- b) Long's Braya (SARA endangered; NL ESA endangered);
- c) Fernald's milk-vetch (SARA special concern; NL ESA vulnerable);
- d) Boreal Felt Lichen (SARA special concern; NL ESA vulnerable);
- e) American Marten, Newfoundland Population (SARA threatened; NL ESA endangered);
- f) Woodland Caribou - Red Wine Mountains (RWM) Herd and Mealy Mountains (MM) Herd (SARA threatened; NL ESA threatened)
- g) Harlequin Duck (SARA special concern; NL ESA threatened);
- h) Olive Sided Flycatcher (SARA threatened; NL ESA threatened);
- i) Grey-cheeked Thrush (SARA none; NLESA vulnerable);
- j) Rusty Blackbird (SARA special concern; NL ESA vulnerable);
- k) Red Crossbill (SARA endangered; NL ESA endangered);
- l) Short-eared Owl (SARA special concern; NL ESA vulnerable);
- m) Common Nighthawk (SARA threatened; NL ESA threatened);
- n) Barrows Goldeneye (SARA special concern; NL ESA vulnerable);
- o) Piping Plover (SARA endangered; NL ESA endangered);

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- p) Ivory Gull (SARA endangered; NL ESA endangered);
- q) Blue Whale (SARA endangered; NL ESA none);
- r) Fin Whale (SARA special concern; NL ESA none);
- s) Leatherback Sea Turtle (SARA endangered; NL ESA none);
- t) Atlantic Wolffish (SARA special concern; NL ESA none);
- u) Northern Wolffish (SARA threatened; NL ESA none);
- v) Spotted Wolffish (SARA threatened; NL ESA none);
- w) White Shark (SARA endangered; NL ESA none).

Reference should be made to the fact sheets for species listed on the SARA list and the Endangered Species Act to find further information about these species.

A "Section 19" permit is required from the Wildlife Division, Department of Environment and Conservation, Governmental of Newfoundland and Labrador. The following mitigations will be implemented with respect to endangered, threatened or vulnerable wildlife at the Site:

- 1) RWM and MM herd caribou:
 - Known occupation of areas by season for these herds has been prepared using geo-referenced telemetry data from 2007-2012;
 - LCP is committed to the collaring of up to 10 satellite collard for the RWM and MM herds; and
 - An aerial survey will be conducted each winter during the construction period to provide a general understanding of the location of caribou relative to Project components and planned Project construction areas.
- 2) If RWM and/or MM herd caribou are present during late winter and late pregnancy periods, Project activities may be restricted, delayed or minimized, specifically:
 - A cautionary period (late winter) – February 3 to April 15 If Project activities are to occur within 1 km of the known 90% kernels for the wintering period and caribou are known to be present in these areas based on satellite telemetry or other reports, LCP and NLDEC-WD will develop appropriate mitigation which may include restricting, delaying or minimizing an activity.

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- A critical period (calving/immediately post-calving) – May 30 to June 30. If Project activities are to occur within 1 km of the known 90% kernels for the calving/immediately post calving period and caribou are known to be present in these areas based on satellite telemetry or other reports, LCP and NLDOEC-WD will develop appropriate mitigation such as restricting, delaying or minimizing an activity.
- 3) Critical habitats will be identified on site plans or plan profiles for roads and transmission lines for C-SEPP;
 - 4) Clearing within identified critical habitat for Newfoundland Marten will be restricted during the marten denning period (more details are available in the Species at Risk Impacts Mitigation and Monitoring Plan);
 - 5) Risk of harm to martens will be mitigated through avoidance during the denning period within the range of their critical habitat. Should any tree clearing be planned for the marten denning period from April 1 to June 30, LCP will consult with NLDOEC Wildlife Division to identify a specific plan for identifying and avoiding denning locations. Given the relatively small area to be cleared along an existing ROW, and the low likelihood of interaction with the species, mitigative measures are expected to reduce or avoid effects to the point where there are no measurable effects on the marten population.
 - 6) All Site Personnel will receive training to recognize any endangered, threatened or vulnerable species of plant or animal and its habitat prior to the start of clearing and any other site activities;
 - 7) Through site surveys, existing potential rare plants habitat will be identified and mapped prior to the commencement of any Site work. Based on this mapping, travel routes and “no-go” zones will be established to avoid sensitive areas. Animals and animal habitats such as active nesting sites and beaver dams, will also be identified and mapped;
 - 8) Work plans will be submitted in advance and will be reviewed for potential conflicts, including rare plants, endangered species, critical habitat and other areas of concern (i.e. beaver dams and nesting sites);
 - 9) Where required (i.e., as per the Avifauna Management Plan or associated EEM Plans), prior to commencement of work, an on-site wildlife biologist will be on-site to survey for areas of concern (e.g., critical breeding habitat, rare plants, nest sites) and to provide input on work methods, lay out approved travel routes and work areas and associated buffer zones;

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- 10) In areas where concerns have been identified, the OSEM will ensure work crews are aware of concerns identified and work methods to be used;
- 11) There will be no intrusion into “no-go” zones without prior permission of the OSEM;
- 12) Crews will not travel outside of marked work areas and trails. If markers are not clear or are missing, the OSEM will be consulted prior to commencing or continuing with the work;
- 13) The OSEM will monitor work activity in sensitive sites at all times and provide advice on access and travel requirements;
- 14) The Environmental Engineering Coordinator will be informed of activities near sensitive areas so that they may notify any regulators;
- 15) Notice of potential impacts to rare or protected species and their habitat at the job site will be given to the OSEM for evaluation;
- 16) Prior to construction during nesting season (refer to Table 11-13) the area will be surveyed for active nests, including raptor and other NL ESA or SARA listed species listed in Section, “Species at Risk” within this document;
- 17) No clearing will take place within 800 m of an active raptor (refer to Table 11-13). If a nest is encountered during clearing activities, all work will stop until the Site is cleared by the OSEM, in consultation with the appropriate regulatory agencies;
- 18) For all work activities, other than clearing, a 200 m buffer will be respected for active raptor nests (refer to Table 11-13). Within this 200 m buffer zone the following applies, after consultation with the provincial government:
 - i. Only essential vehicular activity will be permitted;
 - ii. Work will only be permitted in the presence of the OSEM; and
 - iii. Crews will cease work if there is a disturbance at a nest until activity at the nest has returned to normal; work will not commence again until approval from the OSEM.
- 19) Crews will not establish a permanent or temporary camp within 800 m of a known raptor nest;
- 20) If a tree containing an inactive nest is encountered during site clearing, the nest will be assessed for viability and if the nest is deemed viable a platform will be established as approved by the provincial government; and

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- 21) If a tree containing an inactive nest is encountered during the transmission line right-of-way clearing a platform may not be required as the transmission line tower will provide an alternative nesting site.

11.32.3 Wildlife Protection

The following mitigative measure will be implemented for the protection of wildlife at the Site:

- a) Construction activities will be scheduled considering any sensitive areas of fish and wildlife habitat and critical periods in fish and wildlife cycles, and considering additional mitigation measures that may be required (Table 11-1). Annual timing of migration, spawning and calving in the vicinity of the Site will be considered at all times;
- b) Personal pets will not be brought to the construction site;
- c) Buffer zones will be implemented to protect wildlife at the site. Refer to Section, "Helicopter Traffic" for the buffer zones for helicopter traffic at the site;
- d) Fishing and hunting are prohibited at or near the Project area. All project participants will be prohibited from fishing and hunting at or near the construction site while working on the Project;
- e) Mitigation measures provided in various sections (refer to Sections "Erosion Prevention and Sediment Control", "Storage, Handling and Disposal of Fuel and Other Hazardous Material", "Buffer Zones", etc.) will be consulted while working close to water to ensure that appropriate measures are understood and implemented to protect freshwater fish and fish habitat;
- f) Under no circumstances are wildlife to be fed and all measures will be taken to avoid inadvertent feeding;
- g) Wildlife will not be chased, caught, diverted, followed or otherwise harassed by project participants;
- h) All wildlife sightings and nuisance wildlife will be reported to the OSEM;
- i) The forestry branch will be contacted and updated with regards to nuisance wildlife and wildlife encounters;
- j) Equipment and vehicles will yield the right-of-way to wildlife and adhere to construction site speed limits;
- k) Environmental awareness training, with regular briefings, will be implemented for all Personnel by the Contractor;

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- l) All persons on Site will be made aware of the potential for encounters with black bears and instructed to report all sightings to the OSEM;
- m) Persons on Site will take part in the Bear Awareness program (refer to Black Bear EEMP);
- n) Black bear deterrent measures such as bear bangers and bear spray may be used, and translocation of bears will be undertaken before any lethal means are considered. A research permit for relocation of bears may be required from the Wildlife Division, Department of Environment and Conservation, Government of Newfoundland and Labrador;
- o) Fire arms will not be permitted on site, with exception of approved bear monitors;
- p) Black bear protection permits will be obtained for each black bear monitor. Permits will be signed by the individual that the permit is issued to;
- q) An Avifauna Management Plan has been developed by the ERC Team. The Plan includes:
 - i) Surveying for migratory bird nests prior to cutting during the nesting season;
 - ii) Surveying for sensitive habitat that typically supports nest;
 - iii) Information regarding avoiding identified nests until fledged;
 - iv) Information regarding cutting in sensitive habitats during nesting season; and
 - v) Employing on-site support of qualified biologists during construction, as required.
- r) As part of the environmental assessment process, the Project has committed to not interfering with traplines. Prior to construction, a public notification will be made about activity in the area and will include a request that traps in the area be removed. Prior to clearing, the area will be surveyed for traps in conjunction with the avifauna survey. These traps will be moved outside of the construction right-of-way and flagged. Once construction begins, should a trap be encountered in the work area, it will be moved outside of the active right-of-way and flagged.
- s) Clearing activities between (refer to Table 11-13) will be in compliance with the Avifauna Management Plan; and
- t) No one will disturb, move or destroy migratory bird nests. If a nest or young birds are encountered, work will cease in the immediate area of the nest. Work will not continue in the area until the nest is no

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longer occupied, otherwise the work plan will be modified to avoid nest sites by a minimum of 30 m (100 m for Rusty Blackbird).

Caribou

Several sensitive caribou areas are crossed by the HVdc line. These areas are identified on constraint mapping and in these areas the following mitigation measures apply:

- a) Caribou will be permitted to cross work areas, and access roads with traffic yielding to the animals when crossing a road;
- b) If human-mediated caribou mortality occurs, LCP will contact NLDOEC-WD immediately;
- c) Garbage control measures will be used to prevent bears, wolves, and other animals from accessing garbage and prevent attraction of animals to garbage storage areas; and
- d) The Project footprint will be minimized to the extent possible, including access and other disturbances on the landscape being kept within existing areas of disturbance where possible. Where it was possible the Project was designed to minimize the creation of new access (for example, the ac and dc transmission lines for the Project follow existing linear features such as the Trans-Labrador Highway and Trans-Canada Highway).

The following describes specific potential interaction scenarios and the associated mitigation:

Scenario 1 – Caribou within 20 km of Project activities (based on satellite telemetry or other reports)

- OSEM will conduct weekly visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat).

If present, wildlife observations will be included in the weekly environmental report to be sent to NLDEC-WD in Corner Brook (whenever Project activities are ongoing), and such information will be presented during environmental awareness training and regular briefings for all Personnel.

Scenario 2 – Caribou **within 5 km** of Project activities (based on satellite telemetry or other reports)

- OSEM to issue advisory to all Project Personnel that all sightings of caribou to be reported immediately to the OSEM. The OSEM will then immediately notify all vehicle operators.

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- OSEM will conduct daily visual surveys of 10 km radius around each activity from road-accessible vantage points for caribou or signs of caribou (i.e., winter craters, tracks or scat).
- If present, wildlife observations will be included in the weekly environmental report to be sent to NLDEC-WD in Corner Brook.

Scenario 3 – Caribou present during sensitive time periods:

- During the calving (May 28 – July 1) and post calving seasons (July 2 – September 20) if caribou approach the worksite, it is proposed there be a progressive level of heightened awareness by Project Personnel. For all Project-caribou interactions, an LCP representative will contact the NLDOEC-WD to confirm an appropriate response given the proximity and sensitivity of the caribou.

Scenario 4 – Other Project activities (e.g., grubbing, grading and leveling, laydown and storage of equipment and material in existing areas, generators to support the activity, vehicle and heavy equipment use, handling and transfer of fuel and other hazardous material, waste disposal, sewage disposal and hazardous waste disposal, localized and low intensity blasting, tower erection and conductor stringing).

- As these activities would not be audible beyond a short distance, if caribou are observed within 500 m of such an activity, the OSEM will determine if the activity will be delayed or curtailed.
- Wildlife interactions will be included in the weekly environmental report to be sent to NLDOEC-WD in Corner Brook.

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11.33 COMMISSIONING

Environmental Concerns

Commissioning occurs after installation and prior to release for commercial operation; it is a means of verifying and documenting that each component, system and assembly of a facility is built, installed and tested as planned and designed to meet Project requirements.

Commissioning the proposed HVdc overland transmission line is related to mechanical acceptance so that all hardware is in place and properly installed.

After mechanical completion of the HVdc and synchronous condenser facilities final commissioning is completed in two (2) stages. The first stage is static commissioning which consists of systematically testing individual components or sections of a completed system using test equipment voltages and currents. This process will take about six (6) months at each converter station and at the synchronous condenser facility, about three (3) months at each transition compound and about one (1) month at each shoreline pond electrode site. The second stage is dynamic commissioning, which consists of operational performance testing while connected to the existing network and operating near full operating conditions. This process will take about two (2) months and will include all sites noted above.

Temporary telecommunication construction related infrastructure requires commissioning that will also include static and dynamic commissioning and will take approximately three (3) weeks at each facility (switchyards, converter stations, transition compounds, electrode sites, construction camps and marshalling yards). Permanent telecommunication construction related infrastructure requires similar commissioning, however the timeline will be approximately three (3) months at each facility (switchyards, converter stations, transition compounds, electrode sites, construction camps and marshalling yards).

Environmental concerns related to commissioning relate to unintended release of hydrocarbons into the environment.

Environmental Protection Procedures

- a) All equipment containing fluids will be checked for leaks by the supplier and/or manufacturer and will be tested according to the manufacturer's directions prior to commissioning activities;
- b) There will be monitoring during commissioning for spills and/or leaks;
- c) Appropriate spill kits will be on hand to respond to a spill or leak (see Section 9.13);

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- d) In the event that a spill or leak is detected, the Master Spill Response Plan will be referred to for response to any incidents; and
- e) All other requirements of this EPP will be adhered to during commissioning.

11.34 SITE REHABILITATION

Environmental Concerns

The primary concern with environmental rehabilitation is site stabilization and erosion prevention. This is particularly pertinent to temporary structures such as roads, quarries, and cofferdams.

Environmental Protection Procedures

Environmental rehabilitation will be consistent with all applicable standards, codes, acts and regulations and the conditions of EA release.

General rehabilitation approaches are provided in this section. However specific rehabilitation approaches will also be developed in compliance with regulatory requirements and industry best practice and will be completed on a site-by-site basis and included in the C-SEPP. An outline of the requirements of the site-specific rehabilitation plan is provided below.

11.34.1 Site-Specific Rehabilitation Plan

The following outlines the requirements of the Site-Specific Rehabilitation Plan:

- a) Removing and stockpiling overburden and organic material for re-use;
- b) Re-grading areas to control erosion and establish suitable drainage;
- c) Replacing the overburden and organic material to produce conditions for re-growth; and
- d) Encouraging natural re-vegetation.

On some Sites there may be limited overburden and organic matter. Nutrient poor soils and a shorter growing season may also slow down and reduce the rate of vegetation re-establishment. In these cases, it may be necessary to import seed, mulch or geotextiles to artificially improve re-vegetation for key areas. Measures to prevent the invasion of disturbed sites by non-native plant species will be considered. Acceptable approaches include, but are not limited to, the following:

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- 1) Use of native plant and soil material for rehabilitation and re-vegetation;
- 2) Use of only species that are non-aggressive and non-persistent (where local plants are not available or will not meet the rehabilitation objectives).
- 3) Implementation of measures to ensure that additional materials (required to limit erosion, reduce sedimentation or enhance establishment) are weed and disease free; and

All areas of the construction sites will require careful consideration of the landscape within which the work is taking place to ensure that the correct approach is taken. Areas will be prioritized in terms of need and importance and the level of rehabilitation will be modified accordingly. Factors that will be considered in determining the rehabilitation approach include, but are not limited to, the following:

- a) Site and public safety (including future access requirements);
- b) Sedimentation concerns and proximity to waterbodies;
- c) The natural habitat of the area (i.e., vegetation, soil, and hydrology
- d) Wildlife habitat considerations;
- e) Riparian habitat considerations;
- f) The productivity of the site (i.e. moisture, content and nutrient regime) and its effect on re-vegetation;
- g) The availability of materials and implications of importing unnatural material;
- h) Land use and their effect on success of rehabilitation techniques; and
- i) Overall cost of rehabilitation measures.

Once the schedule of work at each construction area has been developed, a detailed schedule for carrying out rehabilitation work will be developed in accordance with regulatory requirements and will also consider industry best practice for implementation of site rehabilitation. The site-specific rehabilitation plan will indicate timing of the rehabilitation works for each area to be rehabilitated. Consideration will be given to progressive rehabilitation throughout the construction period, as opposed to waiting for the end of construction before starting with rehabilitation.

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11.34.2 General Measures

- a) Rehabilitation will be required for all temporary works, including roads, stream crossings, camps and quarry and borrow areas;
- b) No temporary buildings or structures associated with the work will be left on Site upon completion of the work;
- c) All solid waste, including petroleum, oil and lubricant containers will be removed from Site;
- d) Pre/Post occupation inspection will be completed by the OSEM; and
- e) The OSEM will prepare a report for all sites documenting Site conditions prior to disturbance and upon Site abandonment and rehabilitation. Each report will include a description of the condition of vegetation and other aspects of natural environment.

Quarry/Borrow Areas

The following measures are specific to quarry and borrow areas and will be considered in rehabilitation plans for those areas:

- a) Any organic material or overburden removed during development of the borrow pits and quarries will be stockpiled near the pit or quarry area for future use during rehabilitation of the borrow pit or quarry. Overburden (and non-PAG rock) that is not suitable for rehabilitation purposes will be stockpiled for temporary use or permanent disposal. Stockpiling will be in stable configurations and contoured to match the surrounding landscape. For temporary stockpiling it will be and returned to the borrow pit or quarry opening once extraction from the pit or quarry is complete;
- b) As site conditions dictate, vegetation or other cover materials may be established on slopes to control erosion and dust (as outlined in Section, "Erosion Prevention and Sediment Control"). Quarries and pits reclaimed during operations may be used as test plots to evaluate suitable re-vegetation techniques to be used for the rehabilitation of other work areas in the future;
- c) Arrangements will be made with the representatives of the Department of Natural Resources for an inspection to be conducted prior to abandonment of the site;
- d) All equipment and material will be removed from the site;
- e) All pit and quarry slopes will be graded to slopes less than 20%, or to a slope conforming to that existing prior to quarrying;

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- f) Excess overburden may be used for sloping but topsoil or organic material may not be used for sloping. Following sloping, topsoil or organic material may be spread over the entire quarry area to promote vegetation; and
- g) Quarry conditions, including slope on rock walls, will be determined through the Rehabilitation Plan. Each quarry will be evaluated on a site-specific basis to determine if cliff faces should be converted to rubble slopes.

Roads/Stream Crossings

- a) The following measures are specific to road and culvert/bridge rehabilitation and will be considered in rehabilitation plans for those areas:
- b) The Contractor will submit a plan for controlling erosion during rehabilitation activities. This plan would address construction activities that have the potential for stream sedimentation;
- c) When working in a stream or waterbody, remove all fill around pipes before water bypass installation and pipe removal;
- d) The stream will be dewatered at the site using a non-eroding, water tight diversion during excavation. Settling basins will be used to ensure that muddy water does not enter the waterbody;
- e) Fill material that requires temporary placement will be placed in stable areas outside of stream channels and flood plains;
- f) Channel banks will be armoured with large rock, woody debris and vegetation when needed;
- g) Channel and vegetation rehabilitation will be required if there are disturbances upstream and downstream of the stream crossing site;
- h) Stream channels will be restored to natural grade and dimensions and re-vegetation may be required;
- i) All culverts will be removed;
- j) Temporary bridges in all areas of the site will be removed; and
- k) Removed culverts and other structural materials will be disposed of as per the WMP.

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12 ENVIRONMENTAL MONITORING AND FOLLOW UP

12.1 ENVIRONMENTAL COMPLIANCE MONITORING

To ensure that appropriate and effective environmental mitigation measures are employed during construction, the Project will have full-time OSEMs at various work fronts. These individuals will continuously inspect worksites and activities for conformance with the EPP, C-SEPPs, engineered mitigation measures required by design; and compliance with government regulations and permits.

This EPP establishes the basis for environmental compliance monitoring at the work fronts, i.e., monitoring for regulatory compliance to verify that conditions of all permits and approvals are satisfied, and that all environmental regulatory requirements are met. Refer to the Regulatory Compliance Plan (RCP) for further information on regulatory compliance for the LCP.

Non-conformance with this EPP, C-SEPP, and/or non-compliance with permits, approvals, and regulatory requirements will be documented, as indicated in the following paragraphs, as well as in the RCP, and as addressed under the Contractor responsibilities for mitigation measures. Corrective action will be identified, target dates will be agreed upon, and responsibilities will be assigned to appropriate Personnel. This documentation will be distributed to other members of the Project's environmental management team and written notice of agreed corrective action will be forwarded to the Contractor so that issues are resolved to the satisfaction of the Project's environmental management team.

If non-conformance items are noted that require immediate attention, or if agreed corrective action is not implemented in a timely and effective manner, then appropriate resources will be contracted by the Project to immediately undertake the required action.

Daily Field Reports will be prepared by the OSEM and approved by the Environmental Engineering Coordinators. They are distributed to appropriate Project team members including the Construction Manager and the Environmental Engineering Manager. These reports will include a description of work being undertaken by the Contractor and document incidents of non-conformance with environmental requirements. The Environmental Engineering Coordinators, in consultation with Project Personnel and the Contractor, will prepare Environmental Compliance Audit Reports, and the frequency of these reports will be risk-based with a baseline of semi-annual auditing, and will ultimately document all incidents of non-compliance and their causes. The Environmental Coordinators will distribute the Environmental Compliance Audit Reports to relevant Project team members. The Environmental Engineering Coordinators will be responsible for managing the Non-Conformance Registry,

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including updating it regularly, and incorporating all conditions into the Registry to ensure that these are complied with in a timely manner.

The Contractor will be responsible for developing a site-specific Compliance Monitoring Plan to be included in the C-SEPP. This will include such things as frequency of monitoring, parameters, locations and media to be monitored, etc. All analysis conducted to support compliance monitoring are subject to the Accredited Laboratory Policy.

12.2 ENVIRONMENTAL EFFECTS MONITORING

The intent of Environmental Effects Monitoring (EEM) is to confirm predictions made as part of the Environmental Assessment. EEM monitoring will be carried out by the ERC Team. The EEM program results will be communicated to the ECR Manager by the Environmental and Regulatory Compliance Leads.

Should effects deviate from predicted, the ERC Team will determine the cause and appropriate action. Should this information be linked to work practices, the EPP will be revised and updates will be provided to contractors and staff. It is noted that there may be additional requirements for approvals and communication with the regulators related to the EEM Plans and regulatory guidelines.

12.3 ANNUAL ENVIRONMENTAL PERFORMANCE REVIEW

At the end of each construction year the project will convene an environmental performance workshop to review all work activities that relate to environmental concerns, issues and/or mitigations. This workshop will include a review of environmental audits carried out by project staff during the year. The review process will give all parties a chance to evaluate overall environmental performance and compliance with government regulations, permits, the EPPs, and C-SEPPs.

13 CONTINGENCY PLANS

Contingency plans to address unplanned occurrences and emergency situations are provided in the following sections. The following unplanned occurrences and emergencies have been addressed under contingency plans:

- i) Fuel and Hazardous Material Spills (Master Spill Response Plan);
- ii) Wildlife Encounters (including nesting and denning sites);
- iii) Historic and Archaeological Resources; and

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iv) Forest Fires (ERP).

13.1 FUEL AND HAZARDOUS MATERIALS SPILLS

Spills of fuel and/or hazardous materials can potentially be harmful to human health and safety, vegetation, soil, surface water, ground water, wildlife, aquatic organisms, historic resources and human health and safety.

In case of a fuel or hazardous material spill project staff will refer to the Master Spill Response Plan (refer to document LCP-SN-CD-0000-EV-PL-0007-01) for detailed contingency measures. A site-specific fuel and hazardous materials response plan will form part of the C-SEPP.

To mitigate environmental effects of fuel and hazardous material spills and leaks, Contractors will at all times maintain in good condition at least one spill kit dedicated to each piece of fuel-powered equipment. Each spill kit will be located on the equipment and stored in a weather-proof container. Each spill kit will have an absorption capacity of no less than 23 litres.

The Contractor will ensure adequate and appropriate spill response materials and equipment are available for use relative to the scope of work and environmental sensitivities - i.e., spill kit containing aquatic booms for working near water and spill kits capable of capturing 110% of reasonable potential spill volumes should be present at the camp site(s) and with mobile field crews.

13.2 WILDLIFE ENCOUNTERS

Wildlife encounters pose a potential risk for stress or injury to both the wildlife and Site Personnel. To reduce the risk and stress, control measures and environmental protection procedures have been put in place and are shown below. As a protection measure, hunting, trapping or fishing by Project Personnel is not permitted on Site.

The following procedures will be implemented on site to prevent the attraction of wildlife to work fronts and camps:

- a) work fronts and camps will be kept clean of food scraps and garbage;
- b) Animal proof disposal containers will be used and will be regularly emptied and transferred to an approved waste disposal site (as per WMP); and
- c) No personal pets, domestic or wild, will be allowed on the Site.

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In the case of wildlife encounters the following will be implemented:

- i. No attempt will be made by any worker at the project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot;
- ii. Equipment and vehicles will yield the right-of-way to wildlife;
- iii. Any wildlife sightings or encounters will be reported to the OSEM;
- iv. The OSEM will be responsible for all actions in response to nuisance animals, including the use of firearms by bear monitors in the project area. A research permit for relocation of nuisance animals may be required from the Wildlife Division, Department of Environment and Conservation, Government of Newfoundland and Labrador.
- v. If the nest of any bird is encountered during construction and operation activities, work around the nest will be stalled until the Wildlife Division has assessed the situation and appropriate mitigation is applied;
- vi. Any incidents that result in the displacement or killing of wildlife will be reported to the OSEM complete with details on the incident and the names (and contact information) of the persons involved; and
- vii. In the event of a bear encounter project personnel will follow the procedures as outlined in the Bear Awareness Training.

13.3 HISTORIC AND ARCHAEOLOGICAL RESOURCES

Historic resources that are disturbed, destroyed or improperly removed from a site represents a potential cultural loss of information and history that could otherwise be handled and interpreted in an efficient and appropriate manner.

Under the *NL Historic Resources Act* RSNL 1990, c.H-4, all archaeological sites and artifacts are the property of the Crown, and will not be disturbed. The Project will take all reasonable precautions to prevent Employees or other persons from removing or damaging any such objects or sites. Persons in contravention may be held liable for prosecution under Section 35.1 and 35.2 of the *Historic Resources Act* RSNL1990, c. H-4. Personnel working in the vicinity will be advised of the find, including the OSEM.

In case of a suspected discovery of an archaeological site or artifact the following procedures will apply:

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- a) Archaeological materials encountered will be reported initially to the OSEM. The OSEM will then immediately report this to the Site Environmental Manager, the Environmental Engineering Coordinator, and Construction Manager. The Provincial Archaeologist at PAO (Martha Drake, Provincial Archaeologist, 709-729-2462) will be informed of the discovery by Environmental Engineering Coordinator with the following information:
- i. Nature of activity;
 - ii. Nature of the material discovered; and
 - iii. Precise location of the find.
- b) The site area will be flagged for protection and avoidance;
- c) All work will cease within 50 m of the discovery until the ERC team advises the PAO of the discovery. The PAO, in consultation with the ERC team, will provide direction regarding the discovery and may authorize a resumption of the work. If required, a full archaeological assessment will be conducted of the site and immediate area; and
- d) The PAO will assess the significance of the discovery and determine if mitigation is required. The ERC team in consultation with the PAO will develop mitigation measures which are approved by the PAO.

13.4 FOREST FIRES

Construction for the development of the Lower Churchill may have activities that increase the risk of fire in the natural environment. Fires on Site could spread to the surrounding area and forest. The main concerns include human health, damage to vegetation, wildlife and air and water quality. In case of a forest fire Project Personnel will refer to the Emergency Response Plan for detailed contingency measures.

The operator will take all precautions necessary to prevent fire hazards when working at the site. These include but are not limited to:

- a) An Operating Permit will be required during the forest fire season;
- b) All flammable materials will be stored and handled properly; and
- c) All flammable waste will be appropriately disposed of on a regular basis;

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In the case of a fire being encountered the following will be implemented:

- a) The Construction Manager will appoint a supervisory staff member as “On Scene Commander” for fighting any forest fires for each work front;
- b) Immediate steps will be taken by the operator and Contractors on site to contain or extinguish the fire. Applicable personnel will be trained in firefighting and the use of such equipment. Equipment will be provided in proper operating condition to suit the labour force and will comply with manufacturer’s standards;
- c) Fires will be immediately reported to the Construction Manager who will in turn report it to the applicable authorities (1-866-709-3473). The following information is required when reporting a fire:
 - i) name and telephone number;
 - ii) time of detection of fire;
 - iii) size of fire, location of fire; and
 - iv) weather conditions (rain, sun, wind direction and speed, temperature).
- d) Sufficient firefighting equipment to suit the labour force and fire hazards will be provided by the Contractor. Equipment will be provided as specified in the forest fire regulations and Operating Permit and will include shovels, back tanks and axes. Such equipment will comply with and be maintained to manufacturer standards. Project personnel will be trained in the use of such equipment;
- e) During the fire season, ATV’s will be equipped with a fire extinguisher or suitable equivalent containing a minimum of 227 grams of ABC dry chemical. Other machinery and equipment will be equipped with a fire extinguisher containing a minimum of 4.5 kilograms of ABC dry chemical;
- f) The forest fire suppression equipment referred to in the Operating Permit will be provided at the operating site in the following table:

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Table 13-5 - Forest Fire Suppression Equipment Requirements

Employees	Back Tank Pumps	Axes or Pulaski Tools	Grubbers or Shovels
5 or less	1	1	1
6-10	2	2	2
11-15	3	3	3
16-20	4	4	4
>20	Add 1 back tank pump, 1 axe or Pulaski tool and 2 grubbers or shovels to the above figure for each group of 5 additional employees or fraction of that number of employees. The back tank pump must have a capacity of 20 litres and be of a type approved by the forest service.		

- g) The Contractor is required to ensure all fire pumps are approved by Forest Services, and all approvals will be documented;
- h) When the number of Employees reaches 20 or over, one fully functional forest fire pump, such as the Wajax Mk3, will be available at the work front. Pump accessories will include: a gated “Y” valve, hose strangler and two nozzles for each unit, additionally, 610 meters of forest fire hose will be available for each unit. If there are greater than forty (40) Employees, two (2) of these systems are required;
- i) The forestry official issuing the Operating Permit may specify deviations from the equipment requirements (should local operating conditions warrant deviations);
- j) The actual location of the forest fire suppression equipment in relation to the operating site may be designated by the forestry official issuing the permit;
- k) A copy of the Operating Permit will be on the operating site and will be shown when requested by a forestry official or during an LCP Environmental Audit;
- l) The Operating Permit may be temporarily suspended by a forestry official if the fire weather index for that locality rises to high or extreme;

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- m) Where a forest fire occurs on forest land in an area where logging or industrial operations are being carried out the person/s carrying out the operations will immediately notify the nearest forest management district office or ranger station and commence fighting the fire with all labour, materials, equipment and facilities at his or her disposal until relieved of this responsibility by a forestry official or the fire is extinguished; and
- n) For additional information regarding forest fire contingency planning, refer to the ERP.

14 CONTACT LIST

LCP General Information:

1-(888)-576-5454

lowerchurchill@nalcorenergy.com

DOEC Water Resources – St. John’s:

(709) 729-5713

DOEC Crown Lands - Happy Valley-Goose Bay:

(709) 896-2488

DOEC Wildlife Division:

(709) 637-2029

DFO: Habitat Management – Labrador:

(709) 896-6193

DNR Forestry Division:

(709) 497-8479

DNR Mines Division:

(709) 729-6447

Service NL, GSC - Happy Valley-Goose Bay:

(709) 896-5471

Provincial Archaeology Office:

(709)729-2462

Environment Canada Environmental Emergency Report Line:

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(709)772-2083 or 1-(800)-563-9089

Town of Happy Valley-Goose Bay:

(709) 896 3321



Supplier/Contractor Document Requirements

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<p>Comments:</p> <p>This document supersedes LCP-SN-CD-0000-IM-PR-0002-01, Rev C3 (SLI No. 505573-0000-37AG-I-0015)</p>	<p>Total # of Pages: (Including Cover): 24</p>
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Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval	Quality Assurance Approval	Project Manager (Generation + Island Link) Approval
C1	16-Dec-2013	Issued for Construction	<i>N. Collins</i> N. Collins	<i>D. Green</i> D. Green	<i>D. Green</i> D. Green	<i>R. Power</i> R. Power

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INTER-DEPARTMENT/DISCIPLINE APPROVAL (where required)

	Department Manager Approval	Date
RFO	 B. Barnes	28-Oct-2013

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0 SUMMARY OF CHANGES

General Update throughout document	Document number superseded from contractor document to LCP PT number
	Removal of SLI and EPCM contractor to reflect organizational integration.
	General formatting and use of current template
Appendix A – Supplier Document Front Sheet – (LCP-SN-CD-0000-IM-PR-0002-01 Appendix A)	Removed from procedure. New reference to the Document Front Sheet for Suppliers/Contractors LCP-PT-MD-0000-IM-FR-0001-01.
Appendix B – Drawing Templates	Removed from procedure. New reference to the Drawing Templates for Suppliers/Contractors LCP-PT-MD-0000-IM-FR-0002-01.
Appendix C – Document Control Aconex User Guide	Removed. Now part of the Starter KIT.
Appendix D – Final Documentation Chart	Removed.
Appendix E – Binder Cover	Removed from procedure. New reference to the Binder Cover Pages for Final Documentation LCP-PT-MD-0000-IM-FR-0009-01.
Appendix F – Major equipment list and supply chain information	Removed from procedure
Appendix G – Table of Contents for Installation, Commissioning, Operations and Maintenance Manual and Manufacturer’s Record Book	Removed from procedure. New reference to the: Installation, Commissioning, Operations and Maintenance Manual Table of Contents - LCP-PT-MD-0000-IM-FR-0004-01, Manufacturer’s Record Book Table of Contents - LCP-PT-MD-0000-IM-FR-0006-01 Dispatch Dossier - LCP-PT-MD-0000-IM-FR-0008-01
Appendix H – Example of the Binder Spine Templates	Removed from procedure. New reference to the Binder Spines for Final Documentation LCP-PT-MD-0000-IM-FR-0005-01.
Accessing Aconex	Added

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1 PURPOSE

The purpose of this procedure is to define the responsibilities and methodology required to control the submission of Supplier/Contractor technical documents identified in the Supplier/Contractor Documents Requirements List (SDRL) as required for the Lower Churchill Project (LCP). This includes coding of technical documents and submission process for documentation being reviewed through to final handover.

2 SCOPE

This procedure applies to all Supplier/Contractors that provide goods or services for the Lower Churchill Project. The Supplier/Contractor shall transmit all documentation to LCP Document Control (LCPDCC) using LCP Aconex transmittal.

This procedure will provide all the details and submission requirements for Supplier/Contractor technical (revision controlled) document and drawing deliverables as listed on the approved SDRL defined for the project scope of work.

3 DEFINITIONS

Aconex	Electronic Document Management System which is a secure on-line platform for storing, managing and distributing project information for the Lower Churchil Project.
As-Built Documentation	Technical (Revision Controlled) Documentation where mark-up information has been formally incorporated into a new revision of the original document.
CA	Contract Administrator is responsible for managing the Agreement and Contract Administration from Award through to Completion.
Documentation	Documentation is any communicable material that is used to describe, explain or instruct regarding some attributes of an object, system or procedure, such as its parts, assembly, installation, maintenance and use.
Supplier/Contractor	Firm, corporation, organization, company, etc. with a scope of work under a purchase order, contract or agreement for the LCP.
SDRL	Supplier/Contractor Document Requirements List indicates the document and data requirements, timing of submissions, types of review, as-built requirements, handover deliverables and any requirements for inclusion in final documents/manuals.

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SDRL Code	A 3-character alpha-numeric code representing document types. e.g.: B01 = General Arrangement and Layouts.
SDR (A01)	Supplier Document Register (A01) - documents list identifying individual document deliverables by purchase order. This register will capture deliverable requirements as agreed by Contractor/Supplier and Company. Contractor/Supplier is responsible to create and approve this document as a revision controlled document.
OCR	Optical Character Recognition is text recognition software (Adobe Standard) that is used to convert electronic files to PDF format.
Portable Document Format (PDF)	Portable Document Format (PDF) is a file format used to represent documents in a manner independent of application software, hardware, and operating systems. Each PDF file encapsulates a complete description of a fixed-layout flat document, including the text, fonts, graphics, and other information needed to display it.
Supplier/Contractor Documents	Documents that a Supplier/Contractor issue to LCPDCC for Review and Acceptance by LCP Project Team such as drawings, parts list, calculations, procedures, reports and manuals pertaining to the contract, purchase order or agreement.
Red-line drawing	A red-line drawing is essentially an intermediate drawing that shows corrections or changes to a previous drawing. The term red line literally comes from the (typically) red pen used to amend the drawings by hand. These mark-ups show changes made to the drawing subject matter during the manufacturer or construction of the product. Red-lines are used to then develop record drawings. Record drawings, also called "as-builts" accurately reflect what was constructed and are used for future work and/or reference.
Retained Documentation	Documents/Drawings which are designated to be held by the Supplier/Contractor for a designated period of time.
Responsible Lead / Package Engineer (PE)	The person who is responsible for the package awarded to Supplier/Contractor and Interdisciplinary Coordination (IDC) Review of Supplier/Contractor Documents.
Revision Controlled Documents	A document deliverable resulting from a service related contractual relationship or a Supplier/Contractor document created in support of engineering, construction, procurement, manufacture, preservation, installation, commissioning and operation.

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LCPDCC	Lower Churchill Project Document Control Centre.	
Starter Kit Templates	LCP-PT-MD-0000-IM-FR-0001-01	Document Front Sheet for Suppliers/Contractors
	LCP-PT-MD-0000-IM-FR-0002-01	Drawing Templates for Suppliers/Contractors
	LCP-PT-MD-0000-IM-FR-0003-01	SDR Template (A01)
	LCP-PT-MD-0000-IM-FR-0004-01	Installation, Commissioning, Operations and Maintenance Table of Contents Template
	LCP-PT-MD-0000-IM-FR-0005-01	Manual Binder Spine Templates for Final Documentation
	LCP-PT-MD-0000-IM-FR-0006-01	Manufacturing Record Book Table of Contents Template
	LCP-PT-MD-0000-IM-FR-0008-01	Dispatch Dossier Table of Contents Template
	LCP-PT-MD-0000-IM-FR-0009-01	Manual Binder Cover Pages for Final Documentation
	LCP-PT-MD-0000-IM-FR-0010-01	Major Equipment and Supply Chain Information
	Superseded	The information from a document that is now to be found on another document. Contractors/Suppliers are to make the appropriate cross-references both on the superseded document and the Supplier Document Register.
Transmittal	Tracks and establishes a history of documentation transfer to and from Suppliers/Contractors through Aconex.	
Void	The information on the document/drawing is no longer valid and/or in use.	

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ICOM (R01)	<p>Installation, Commissioning, Operating and Maintenance Manual – an organized compilation of documents and data as per the following sections:</p> <ol style="list-style-type: none"> 1. Installation section shall include all erection/assembly drawings, instructions as to the use of special tools provided, tolerances allowed on setting dimension, handling and unpacking instructions. Also includes quantities of preservatives and fluids required for shipment. 2. Commissioning section shall include list of spare parts, special tools and utilities required, pre-commissioning checks to be performed, sequenced procedure for dynamic commissioning and start-up and fault finding guidelines. Copies of all relevant drawings shall be included. 3. Operating section shall include description of equipment, operating procedures for start-up, steady state, shutdown, emergency and fault conditions, operating parameters, function of protective devices and controls, copies of all relevant cause and effect charts and block diagrams, and fault finding guidelines. 4. Maintenance section shall include instructions for maintenance disassembly, repair/overhaul and reassemble, schedule of preventative maintenance/maintenance frequencies. 	
MRB (R02)	<p>Manufacturing Record Book is an organized compilation of construction, manufacturing, installation, testing, reporting and certification documentation required to demonstrate that constructions, equipment materials and fabricated systems and units are in compliance with the statutory regulations and specified requirements.</p>	
DISPATCH DOSSIER (R05)	<p>Dispatch Dossier shall mean all those documents required, as a minimum to accompany goods released to site from Contractors/Suppliers and Fabricators. Procured goods shall not be dispatched without Dispatch Dossier. Also includes quantities of preservatives and fluids required for shipment.</p>	
TRAINING MANUAL (R06)	<p>Operator and Maintenance training manual shall be a separate document that contains detailed training information developed by the Supplier/Contractor from the documents prepared for the project (e.g.: drawings, manuals, spare parts, BOM's etc).</p>	

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4 RESPONSIBILITIES

Contractors/Suppliers – Are responsible to be completely aware of and follow the requirements herein. Supplier/Contractor shall have a designated Document Control contact person responsible for Aconex setup and coordinate contractual submissions to LCPDCC. Supplier/Contractor shall create and submit all required documentation as per the stipulations of this document.

LCP Document Control (LCPDCC) Team – Is responsible for clarifying the requirements where necessary as well as the receipt, standard Document Control quality checking and management of the documentation submitted to LCP by the Supplier/Contractor.

LCP Document Control (LCPDCC) Centre – is responsible to manage and process Supplier/Contractor document submittals in accordance with this document. Email LCPDCC@lowerchurchillproject.ca

LCP Responsible Lead/Package Engineer – is responsible for coordinating and identifying the distribution, review/approval cycles, and providing guidance for the management of technical documents including:

- Establish and Control of Review and Distribution Matrices
- Control the Inter Discipline Coordination (IDC) review of documents for assigned work package(s) on the project.
- Resolve the issues that may occur internally during the IDC review of Supplier/Contractor documents.
- Incorporate the comments and assign review status from the IDC review of Supplier/Contractor documents.
- Sign off the Supplier/Contractor documents.
- Submit the Supplier/Contractor documents to LCP Document Control Center (LCPDCC), who will issue them to the Supplier/Contractor.

LCP Contract Administrator - Responsible for managing the contract requirements and obligations with the Supplier/Contractor.

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5 REFERENCES

LCP-PT-MD-0000-IM-FR-0001-01	Document Front Sheet for Suppliers/Contractors
LCP-PT-MD-0000-IM-FR-0002-01	Drawing Templates for Suppliers/Contractors
LCP-PT-MD-0000-IM-FR-0003-01	SDR Template (A01)
LCP-PT-MD-0000-IM-FR-0004-01	Installation, Commissioning, Operations and Maintenance Table of Contents Template
LCP-PT-MD-0000-IM-FR-0005-01	Manual Binder Spine Templates for Final Documentation
LCP-PT-MD-0000-IM-FR-0006-01	Manufacturing Record Book Table of Contents Template
LCP-PT-MD-0000-IM-FR-0008-01	Dispatch Dossier Table of Contents Template
LCP-PT-MD-0000-IM-FR-0009-01	Manual Binder Cover Pages for Final Documentation
LCP-PT-MD-0000-IM-FR-0010-01	Major Equipment and Supply Chain Information
LCP-SN-CD-0000-EN-PR-0002-01	Engineering - Service Codes and Equipment Tagging
LCP-PT-MD-0000-IM-PR-0009-01	Procedure for Issuance of Revision Controlled Documents for Internal Review & Acceptance
LCP-PT-MD-0000-IM-SD-0001-01	Coding Standard

6.0 INTRODUCTION

The objective of this document is to define the requirements for Suppliers/Contractors to submit documentation and drawing to the LCP project team from creation to completion/turnover.

6.1 SUPPLIER/CONTRACTOR DOCUMENT REQUIREMENTS LIST (SDRL) AND DOCUMENT REGISTER (SDR)

All potential Suppliers/Contractors will be provided a project specific SDRL and associated templates as part of the initial Bid Package. This SDRL forms the basis of the contractually required document deliverables. The SDRL is necessary to produce the SDR also known as the A01 on the SDRL. Upon award, the SDR (A01) document should be completed by the Supplier/Contractor to include a complete list of required document deliverables as agreed in the SDRL. Each listed deliverable should have an associated forecasted submission date, etc. The SDR is to be submitted as defined on the SDRL.

Supplier/Contractor shall submit a completed SDR (A01) form (LCP-PT-MD-0000-IM-FR-0003-01) indicating the document deliverables to be supplied per the Purchase order/Agreement's specific SDRL.

The SDR (A01) shall always be the first document produced and delivered within two weeks after award of contact or purchase order. This document register is subject to review and acceptance by LCP and identified as SDRL code A01.

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Once the SDR (A01) has been agreed with the LCP Responsible Lead/Package Engineer, the Supplier/Contractor shall maintain the SDR (A01) until contract closeout and issue in Aconex on a monthly basis with any and all updates.

The SDR (A01) shall be completed as follows:

1. The Document/Drawing numbers shall be assigned in accordance with Section 6.2.
2. Document Title.
3. If at the time of the initial submission of the SDR (A01) specific titles cannot be identified, the Supplier/Contractor shall contact the LCP Responsible Lead/Package Engineer for clarification.
4. In conjunction with LCP document coding, the Supplier/Contractors may reference their own document number and revision sequence (where applicable).
5. Include the planned submission date per the SDRL requirements.

Once a document has been submitted per the SDR (A01), the document number shall not be re-used. If a document is superseded or made void, this shall be stated clearly in the SDR (A01). Same if the placeholder is cancelled, it shall be clearly stated on the SDR.

6.2 DOCUMENT/DRAWING CREATION

All Supplier/Contractor document/drawing numbers will be reserved by LCPDCC after approval of SDR (A01), in accordance with the Coding Standard, LCP-PT-MD-0000-IM-SD-0001-01 for the Lower Churchill Project. All reserved document/drawing numbers or place holders will be transmitted via Aconex.

Electronic documentation submitted by the Supplier/Contractor for review must be in the text searchable PDF format OCR (Adobe Standard Software).

Electronic documentation may also be required in native format for integration into design development. Specific requirements and exceptions will be outlined in the package specific Supplier/Contractor Documents Requirements List (SDRL).

All documents in letter (size 8-1/2 in x 11 in) and legal (size 8-1/2 in x14 in) shall include the Document approved LCP Front Sheet for Suppliers/Contractors - LCP-PT-MD-0000-IM-FR-0001-01 as the first page of each document.

Electronic files shall be limited to one file per document/drawing. Where there are multiple files, a unique and logical reference would need to be applied. Please note: a document with multiple pages submitted as a single document is reviewed as one document. Any revisions to a particular page or sheet of the document shall require the complete document to be resubmitted with the next revision. Partial submissions will not be accepted.

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All drawings shall be created and delivered on standard paper sheets. All drawings should also be defined with a border and no markings shall be permitted outside the border. Drawing notes shall be positioned in a column at the right hand side of the drawing.

Drafting standards shall be in compliance with the project symbol requirements.

The following tables describe the accepted drawing formats and scales to be used on the Lower Churchill Project.

Table 1 – Acceptable Drawing Sizes

STANDARD		DIMENSIONS		PROJECT REQUIREMENTS
ISO 216 (Metric)	A0		841 mm x 1189 mm	X
	A1		594 mm x 841 mm	X
	A2		420 mm x 594 mm	X
	A3		297 mm x 420 mm	X
	A4		210 mm x 297 mm	X
ANSI Y14.1 (Imperial)	E	34 in x 44 in		X
	D	22 in x 34 in		X
	C	17 in x 22 in		X
	B	11 in x 17 in		X
	A	8.5 in x 11 in		X

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Table 2 – Accepted Drawing Scales

Type of Drawing	Metric Scales
Topography	
General, Hydrology, Topography	1:20 000
	1:10 000
	1:5 000
	1:2 000
	1:1 000
Plans and Profiles	1: 500
	1:200
	1:100
Building Drawings	
Location Plan, Key Plan	1:10 000
	1:5 000
Site Plan, Layout Plan	1:2 000
	1:1 000
	1: 500
General Layout Drawing, Plot Plan	1:500
	1:200
	1:100
Layout Drawing (general or partial)	1:100
	1:50
Detail and Assembly Drawings	1:30
	1:20
	1:10
	1:5
	1:2
	1:1

6.2.1 REVISION STATUS

All documents and drawings require a revision status upon submission. The first submission will be submitted as revision status of A1 – Issued for Review, unless otherwise agreed to by the LCP Responsible Lead/Package Engineer. All A1 documents are to be resubmitted at revision B or higher **and** achieve a Review Code 01 to be considered ready for use.

All drawing revisions shall be shown by a “cloud” surrounding the area with revision symbol. The revision symbol shall be a triangle with revision letter/number inside. Note of the revision are to be made in the title block of the drawing. Clouds are not to cover portions of the drawing which has not been revised.

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Previous revision symbols and clouds are to be removed and only current revision shall be shown when a drawing is re-issued.

Revision Status are as follows:

- A – IDC – Issued for review
- B – Approved for Use/Implementation/Bid
- C – Approved for Purchase/Construction/Fabrication
- D – Approved for Design
- L – As-Built/Final
- N – Cancelled
- S – Superseded
- V – Void

If a drawing or document is to required to be voided, it must be VOIDED in its entirety and then issued at the next submission as a V status. VOID shall be written within parallel lines across the full drawing or the first page of a document and authorized by the LCP Responsible Lead/Package Engineer.

If a document or drawing is required to be superseded meaning the information on the existing document/drawing has been re-located to another document/drawing, the Contractor/Supplier is to make the appropriate cross-references on the superseded document and show a revision status of S to represent that the information has been superseded and issued S1.

All changes in revision statuses must be reflected on the SDR upon the next monthly submission.

6.2.2 TAG NUMBERS

The purposes of tagging and numbering are for the work protection code process, for asset management by identifying individual equipment in the different project facilities, and for the procurement of equipment and material, including bulk material. Reference Engineering - Service Codes and Equipment Tagging - LCP-SN-CD-0000-EN-PR-0002-01.

Tag numbers shall be used and clearly identified on all Supplier/Contractor documents to facilitate rapid and efficient identification of the equipment throughout LCP.

For equipment items with tag numbers, the tag number must be placed on the drawing and in proximity to the item so there is no confusion which tag belongs to which item.

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6.3 DOCUMENT AUTHORIZATION

The Supplier/Contractor shall be responsible to ensure that:

1. All necessary checking, authorization and acceptance of their documents is performed prior to submittal to LCPDCC;
2. All the Supplier/Contractor documents are submitted via the LCP Aconex System to LCPDCC and never sent directly to the LCP Responsible Lead/Package Engineer or LCP Contract Administrator; and
3. The Sub-Supplier/Sub-Contractor documents are to be complete and integrated in a logical manner with those being provided by the Supplier/Contractor and shall be accepted by supplier/contractor prior to submission to LCP team.
4. All documentation/drawings are of good quality.

6.4 SUBMISSION OF SUPPLIER/CONTRACTOR DRAWINGS AND DOCUMENTATION

Upon award of the contract/purchase order, the LCP Contracts Administrator/Buyer will request the contact name, email address and phone number of the Supplier/Contractor's Document Control representative. An email will be sent to the representative by LCPDCC advising of the required steps to creating an Aconex user account(s). This includes:

1. Setting up their organization with Aconex directly.
2. Providing accounts to your internal team members
3. Contacting the LCPDCC representative to add you and your company participants to the applicable LCP databases in Aconex and submit the required Aconex presentation, online tutorial, forms and any other relevant information.
4. Participating in project specific training with your Document Control representative. Example: Uploading Documents to Aconex.

All document/drawing numbers must be reserved prior to submission, which will be developed and approved from the Supplier/Contractors SDR (A01). The assigned document/drawing numbers shall be processed electronically via Aconex approved metadata placeholder and issued by LCPDCC to the Supplier/Contractor by Aconex transmittal. Any document or drawing received without an assigned number will not be processed.

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The dates shown for documents to be submitted on the SDR (A01) shall be the forecasted date of arrival at the LCPDCC via the electronic document management system (Aconex). The forecasted date shall be in accordance with the expected dates as defined in the SDRL.

If hardcopies of documents are required to be submitted in addition to the electronic submission via Aconex a copy of the transmittal to be submitted with the hardcopy and sent to LCPDCC team as follows:

Nalcor Energy
 Project Delivery Team
 Lower Churchill Project
 350 Torbay Road, Suite 2
 St. John's, Newfoundland
 A1A 4E1
 Attention: LCP Document Control

6.4.1 QUALITY OF DOCUMENTS UPON SUBMITTAL

Typically, all documents are issued electronically as searchable Optical Character Recognition (OCR) PDF documents. All pages of documents and drawings shall be of correct orientation, legible, with all required content, numbered correctly as requested through the SDR and assigned by Aconex. Both documents and drawings should include the correct revision, dates, signatures and stamps (if required). All pages of a document should be numbered correctly and consecutively with no blank pages. All documents/drawings shall be in the English language.

All dates referenced shall be in the format dd-mmm-yyyy (eg: 17-May-2013)

6.4.2 REVIEW OF DOCUMENT AND DATA

Review and comment by the LCP Responsible Lead/Package Engineer/LCP Contract Administrator or conversely, the failure to review, shall not imply acceptance or relieve the Supplier/Contractor of any responsibility or liability for dimensional or functional accuracy or completeness of such data, or the equipment being supplied.

The LCP Responsible Lead/Package Engineer/LCP Contract Administrator shall review in accordance with the Procedure for Issuance of Revision Controlled Documents for Internal Review & Acceptance - LCP-PT-MD-0000-IM-PR-0009-01 and returned to the Supplier/Contractor within the terms of the Purchase Order/Agreement.

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6.4.3 RETURN OF SUPPLIER/CONTRACTOR DOCUMENTS

The LCP Responsible Lead/Package Engineer shall assign to each of the Supplier/Contractor document submitted, one of the Review Codes as as listed below:

- Code 01 - Reviewed and Accepted – No Comments
- Code 02 - Reviewed – Incorporate Comments, Revise and Resubmit
- Code 03 - Reviewed – Not Accepted
- Code 04 - Information Only
- Code 05 - Not Reviewed

6.4.4 RESUBMISSION OF SUPPLIER/CONTRACTOR DOCUMENTS.

All documents submitted/resubmitted for review shall have achieved Review Status Code 1 or 5 or have been made void/cancelled at Purchase/Agreement closeout.

Once code 01 has been received, LCP Package Engineer will request a B1 or C1 to be issued by Supplier/Contractor. Resubmission of document assigned Return Code 02 and 03 is required before being considered suitable to proceed with the work. The Supplier/Contractor has 14 calendar days or unless otherwise specified in the contract from receipt of comments to resubmit the document

Any documents modified after acceptance at Code 01 or 05 must be resubmitted for review/acceptance.

On each subsequent submission of same documentation previously reviewed by LCP, the Supplier/Contractor shall use the applied same unique number but different revision as per LCP Coding Standard. If on the next submittal of a document where the previous submittal has not yet been returned then the Supplier/Contractor shall consult with LCP Responsible Lead/Package Engineer prior to issuing the revised document.

All drawing revisions shall be shown by a “cloud” surrounding the area with revision symbol. The revision symbol shall be a triangle with revision letter/number inside. Note of the revision are to be made in the title block of the drawing. Clouds are not to cover portions of the drawing which has not been revised. Previous revision symbols and clouds are to be removed and only current revision shall be shown when a drawing is re-issued.

6.4.5 RED-LINES

Red-Lines will be required as directed by the LCP Responsible Lead/Package Engineer. This may include all or none of the company supplied documents.

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6.4.6 AS-BUILT/FINAL DOCUMENTS

The SDRL template provides the LCP Responsible Lead/Package Engineer identification of the As-Built requirements. The Supplier/Contractor shall ensure that the final status of the documents reflects only those documents that need updating to reflect their accurate final status, need to be submitted:

- a) The "As-Built/Final" status shall be provided for materials/equipment/construction.
- b) Where subsequent modifications have been undertaken to materials/equipment/construction provided these are reflected in the final documents.
- c) Shall be issued at a revision status of "L"

At the completion of the Purchase/Contract, all documents shall reflect the "As-Built/Final" status of the service, and the Supplier/Contractor shall include the following paragraph in the Final Stage Payment Certificate:

"We the Supplier/Contractor certify that all documents supplied in association with the above Purchase/Contract fulfill our contractual requirements and reflects the "As-Built/Final" status."

"As built" drawings, shop drawings and material lists shall be forwarded no later than 14 calendar days or unless otherwise specified in the contract after the end of fabrication.

6.5 MANUALS

6.5.1 PRELIMINARY ISSUE

The templates provided are for guidance with the final content being agreed with the LCP Responsible Lead/Package Engineer.

- Installation, Commissioning, Operations and Maintenance Manual (ICOM) Table of Content - LCP-PT-MD-0000-IM-FR-0004-01
- Manufacturer’s Record Book (MRB) Table of Content - LCP-PT-MD-0000-IM-FR-0006-01
- Dispatch Dossier Table of Content - LCP-PT-MD-0000-IM-FR-0008-01

Preliminary Submittal

After approval of the Table of Contents, the Supplier/Contractor must submit electronically and in one file, the first submittal of the complete manual in an OCR enabled PDF format for review.

Note: Adobe OCR Documents preserve the fidelity of the original files and are more reliable and easier to use because they retain the fonts, images, graphics, and layout of any source file regardless of the application and platform used to create them. Adobe OCR Documents can lock down content to create

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easily searchable, auditable documents of record. Bookmarking shall also be applied based on the Table of Content.

6.5.2 FORMAT FOR MANUALS

The Supplier/Contractor shall submit all manuals in English.

Material shall not be submitted in loose form but shall be completely fastened together and bound in a rigid binder. Binder size maximum of 4" D- size to be used ensuring ½" of space is available so not to restrict the turning of pages. Document to be printed double sided where possible to reduce the number of binders required.

Professional-quality presentation binder that has 3 secure locking rings and a clear view cover that folds back for easy insertion of the Manual Binder Cover Page for Final Documentation - LCP-PT-MD-0000-IM-FR-0009-01 and spine label holder for the Manual Binder Spine Templates for Final Documentation LCP-PT-MD-0000-IM-FR-0005-01. Binders must have 2 inside pockets for filing CD or DVD and a D-Ring mechanism, complete with triggers, for easy access.

The number of hardcopies per manual are as follows:

- R01 - ICOM - three (3) hard bound copies upon handover.
- R02 – MRB - electronic version and the supplier/contractor to keep original hardcopies for traceability and auditing purposes – three (3) hard bound copies upon handover.
- R05 – Dispatch Dossier – three (3) hard bound copies – one to be delivered to site with the equipment/goods and the other 2 to be sent to LCPDCC Document Control Centre.
- R06 – Training Manual – three (3) hard bound copies upon handover.

6.5.3 ELECTRONIC COPY

Electronic copy shall be submitted using Aconex transmittal process.

Special Note: Electronic and hard copy must be identical

The final submission of the manuals shall include;

- Two (2) copies of each DVD (Master and Backup)
- All drawings submitted with final manuals shall be As-Built and original drawing along with the .dwg electronic native format or other Company approved formats as applicable.
- Electronic versions of all manuals shall be provided in PDF File Format and in their original Native Electronic File Format. There shall be one PDF file for each manual and multiple PDF files for one Manual will not be accepted.
- PDF File formats shall be in one OCR file using Adobe Acrobat software

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- Native electronic files shall be submitted in Microsoft 2000 or higher electronic format (with each electronic file clearly identified according to its proper location in the manual based on the table of contents).

Upon confirmed approval by the LCP Responsible Lead/Package Engineer on the final version of Manuals, the Supplier/Contractor shall prepare the final version of Manuals in DVD Format, the procedure for which is described below. The Supplier/Contractor shall submit two (2) copies of each DVD, one marked "MASTER", and the other marked "BACKUP". Each DVD shall have a label with details including and not limited to "Project Document Number", "Project Title" & "Agreement/PO Number". Each DVD shall be of good quality and shall be virus checked before submission to the LCP Responsible Lead/Package Engineer for final acceptance.

The Manuals in DVD format shall be created in a format known as "Portable Document Format" (PDF) using Adobe Acrobat Writer 8.0 or latest software for Windows XP. The DVD shall be self-executing and the software for the operation of the DVD is Adobe Acrobat Reader for Windows XP which shall be delivered as part of the DVD Operating System. Adobe Acrobat Reader allows the PDF files to be viewed, printed and navigated.

DVD format requirements shall be:

- Electronic documents shall be converted from the native file to PDF image files using Adobe Acrobat Writer 8.0 or higher.
- Non-electronic documents shall be scanned to minimum 300 dpi (Dots per Inch) and converted from the original format to PDF using Adobe Acrobat Writer 8.0 or higher.
- Create the folders to match the table of contents
- Create bookmarks to identify chapters and sections and thumbnail for pictures and images.

6.5.4 TRAINING MANUAL (R06)

Operator and Maintenance training manual shall be a separate document that contains detailed training information, developed by the Supplier/Contractor from the documents prepared for the project (eg: drawings, manuals, spare parts, BOM's etc).

- Manual Front Page and Spines
- Document Front Sheet for Suppliers/Contractors
- Title of the Project- Lower Churchill Project
- Project Contract Number and description of Work
- Manual Nalcor Document Number and Revision
- Name and Address of Main Supplier/Contractor and Sub-Supplier/Contractor
- Volume No. of Manual

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6.5.5 FINAL SUBMISSION OF MANUALS

The Supplier/Contractor shall submit to the Lower Churchill Project a complete electronic PDF version as well as hard copy(s) of the complete set of manuals to the following address:

Nalcor Energy
 Project Delivery Team
 Lower Churchill Project
 350 Torbay Road, Suite 2
 St. John's, Newfoundland
 A1A 4E1
 Attention: LCP Document Control Centre

One electronic PDF version must be uploaded and submitted via transmittal using the Lower Churchill Project Aconex System.

Prior to final issue of the ICOM it is recommended that the LCP Responsible Lead/Package Engineer meet the Supplier/Contractor to review the manual to prevent repetitive issues and the requirements described below have been met. All other manuals are to be submitted for acceptance via Aconex for approval prior to submitting final version.

6.6 COMPONENT SPECIFIC REQUIREMENTS

6.6.1 HYDRO – GENERATION – COMPONENT 1 - 3D MODEL CATIA

As part of the scope of the Lower Churchill Project the Hydro Generation Component 1 will be developing a 3D Model. CATIA by Dassault System is the software used to develop this model.

To meet this requirement, equipment Supplier/Contractor are required to provide a 3D representation of the facilities and equipment that are being provided in CAT.PART format or STEP or IGES compatible with CATIA.

3D models provided in formats other than the above require validation and approval from the company prior to submission.

Electronic Copy drawings shall be provided in DWG (AutoCAD), CAD Drawing and PDF format.

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6.6.2 TRANSMISSION LINES, TOWERS AND FOUNDATIONS – COMPONENT 4 - 3D MODEL PLS

Transmission lines

The transmission line designs are completed with the use of the PLS-CADD software (PLS Systems Inc.)

All sag/tension reports, stringing charts and plan and profile sheets are produced with PLS-CADD. All vector loads for each loading cases and line angle are produced with the PLS-CADD/LITE software

Towers

The tower designs are completed with the PLS-TOWER software. The supply of tower shall include the updated PLS-TOWER models, compatible with the PLS-CADD software. The PLS-TOWER backup file shall be supplied. Each tower type will be supplied with the full set of PLS-TOWER models. For each tower type, a PLS-TOWER model shall be supplied for each of the tower height, at each 1.5m increment, from minimum tower height to maximum tower height.

Foundations

The steel grillage foundation designs are completed with the SAP2000 software. The supply of the grillage foundation type shall be supplied with the updates SAP2000 models, including the tower foundation loads as defined by the PLS-TOWER software.

7.0 PROJECT SPECIFIC INSTRUCTIONS

To ensure efficient handling of drawings and other documents, Supplier/Contractor shall abide by the following rules:

- All drawings to be produced using the LCP Drawing Templates for Suppliers/Contractors - LCP-PT-MD-0000-IM-FR-0002-01. It is acceptable for the Supplier/Contractor to place its complete drawing within the LCP drawing frame.
- A document with multiple pages submitted as a single document will be reviewed as one document. Any revisions to a particular page or sheet of the document shall require the complete document to be resubmitted with the next revision assigned.
- When a Section is shown on a separate drawing sheet, the Plan drawing number shall be included in the Section identification.

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- Reference drawings shall be tabulated in the “Reference Drawing” section at the bottom of the drawing. Equipment/nozzle tabulation on General Arrangements (GA) shall be on the right side of the drawing.
- Drawings produced must be submitted as a complete drawing file. This means all drawing files must be bound to include all relevant information. This is necessary to properly access/view and use the drawing.
- Documents identified as requiring the Engineer’s Seal and Signature will be in accordance with the Newfoundland and Labrador Professional Engineers and Geoscientists Act. Refer to www.pegnl.ca.
- Supplier/Contractors shall ensure that all documents involved in the provision of architectural services, when issued, shall bear the signature and seal of the architect who prepared or approved them as per The Architects Act of the province of Newfoundland and Labrador.

8.0 RECORDS

N/A

9.0 ATTACHMENTS

N/A



Document Front Sheet

NE-LCP Contractor/Supplier	Contract or Purchase Number and Description:		Contractor/Supplier Name:		
	Document Title:			Total Number of Pages Incl. Front Sheet	
	Contractor Document Number:			Revision Number:	
	Supplier Document Number:			Revision Number:	
	NE-LCP Document Number:			NE-LCP Issue Number:	
	Approver's Signature:		Date (dd-mmm-yyyy):	Review Class:	
<u>Comments:</u>			Equipment Tag or Model Number:		

NE-LCP	REVIEW DOES NOT CONSTITUTE APPROVAL OF DESIGN DETAILS, CALCULATIONS, TEST METHODS OR MATERIAL DEVELOPED AND/OR SELECTED BY THE CONTRACTOR, NOR DOES IT RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OR OTHER OBLIGATIONS. <input type="checkbox"/> 01 – REVIEWED AND ACCEPTED – NO COMMENTS <input type="checkbox"/> 02 – REVIEWED – INCORPORATE COMMENTS, REVISE AND RESUBMIT <input type="checkbox"/> 03 – REVIEWED - NOT ACCEPTED <input type="checkbox"/> 04 – INFORMATION ONLY <input type="checkbox"/> 05 – NOT REVIEWED			
	Lead Reviewer:	Date (dd-mmm-yyyy):	Project Manager:	Date (dd-mmm-yyyy):
	NE-LCP Management:	Date (dd-mmm-yyyy):		
	<u>General Comments:</u>			

Nalcor Energy – Lower Churchill Project



Drawing Templates for Supplier/Contractor

Nalcor Doc. No. LCP-PT-MD-0000-IM-FR-0002-01

Comments: Updated to generalize the template (removed SLI Logo)	Total # of Pages: (Including Cover): 3
--	--

Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval
B2	12-Dec-2013	Issued for use	<i>Nicole Collins</i> Nicole Collins	<i>Victoria Stanford</i> Victoria Stanford
B1	22-Jul-2013	Issued for Use	Jackie Drover	V. Stanford

CONFIDENTIALITY NOTE:

This document contains intellectual property of the Nalcor Energy – Lower Churchill Project and shall not be copied, used or distributed in whole or in part without the prior written consent from the Nalcor Energy – Lower Churchill Project.

Sample of 11 x 17 Size Supplier/Contractor

***** DATUM REFERENCE

***** UNITS ARE IN METRES REFERENCED TO GEODETIK. COORDINATE REFERENCE: UTM 6° (UNIVERSAL TRANSVERSE MERCATOR) PROJECTION, NAD83, ZONE __ CENTRAL MERIDIAN 63° 00' W LONGITUDE. *****

ISSUE	REV.	DATE	DISTRIBUTION & STATUS	No.	DATE	REVISION	MOD.	VER.	APP.
			ISSUE REGISTER	No.		REFERENCE DRAWING			
						REVISION REGISTER			

***** FOR INTERNAL USE ONLY *****

REVIEW CLASS: _____ EQUIPMENT TAG NUMBER: _____

REVIEW DOES NOT CONSTITUTE APPROVAL OF DESIGN DETAILS, CALCULATIONS, TEST METHODS OR MATERIAL DEVELOPED AND/OR SELECTED BY THE CONTRACTOR, NOR DOES IT RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OR OTHER OBLIGATIONS.

1. REVIEWED AND ACCEPTED NO COMMENTS
 2. REVIEWED - INCORPORATE COMMENTS, REVISE & RESUBMIT
 3. REVIEWED - NOT ACCEPTED
 4. INFORMATION ONLY
 5. NOT REVIEWED

LEAD REVIEWER: _____ Date (dd-mm-YYYY): _____

NE-LCP MANAGEMENT: _____ Date (dd-mm-YYYY): _____

PROJECT MANAGER: _____ Date (dd-mm-YYYY): _____

PROFESSIONAL STAMP

INSERT CONTRACTOR/SUPPLIER LOGO IN THIS SPACE

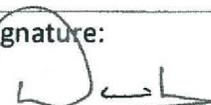
DESIGNED	APPROVED (Discipline Lead Engineer)
DRAWN	APPROVED (Engineering Manager)
VERIFIED	
DATE	SCALE
SUPPLIER DOC No.	NE DOC No.

CLIENT	
PROJECT	LOWER CHURCHILL PROJECT
TITLE	
Rev.	

Document Front Sheet



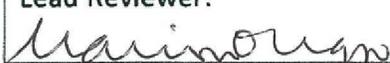
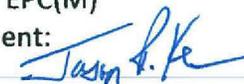
NE-LCP Contractor/Supplier

Contract or Purchase Number and Description: LC-G-02 (Project No. 505573)		Contractor/Supplier Name: SNC-Lavalin Inc.	
Document Title: Waste Management Plan – Component 1 and 4b		Total Number of Pages Incl. Front Sheet 88	
Contractor/ Supplier Document Number:		Revision Number:	
EPC(M) Document Number: 505573-0000-68RA-I-0008		Issue Number: 02	
NE-LCP Document Number: LCP-SN-CD-0000-EV-PL-0005-01		NE-LCP Issue Number: B3	
Approver's Signature: 		Date (dd-mmm-yyyy): 04-OCT-2012	Review Class:
Comments:		Equipment Tag or Model Number:	

NE-LCP or EPC(M)

REVIEW DOES NOT CONSTITUTE APPROVAL OF DESIGN DETAILS, CALCULATIONS, TEST METHODS OR MATERIAL DEVELOPED AND/OR SELECTED BY THE CONTRACTOR, NOR DOES IT RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH CONTRACTUAL OR OTHER OBLIGATIONS.

01 – REVIEWED AND ACCEPTED – NO COMMENTS
 02 – REVIEWED – INCORPORATE COMMENTS, REVISE AND RESUBMIT
 03 – REVIEWED - NOT ACCEPTED
 04 – INFORMATION ONLY
 05 – NOT REVIEWED

Lead Reviewer: 	Date (dd-mmm-yyyy): 09-Oct-2012	Project Manager:	Date (dd-mmm-yyyy):
NE-LCP or EPC(M) Management:  for R. POWER	Date (dd-mmm-yyyy): 09-OCT-2012		

General Comments:



Lower Churchill Project

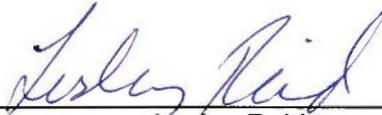
WASTE MANAGEMENT PLAN

Component 1 and 4b

SLI Document No. 505573-0000-68RA-I-0008-02

Nalcor Reference No. LCP-SN-CD-0000-EV-PL-0005-01-B3

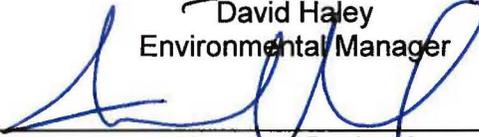
Date: 30-Sep-2012

Prepared by: 

Lesley Reid
Environmental Coordinator Transmission Lines and
DC Specialties

Check by: 

David Haley
Environmental Manager

Approved by: 

Normand Bechar
Project Manager

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Revision					
N°	By	Check	Appr.	Date	Remarks
02	LR	DH 	NB	30-Sep-2012	Issued to be aligned with other management documents
01	MW	KD	NB	09-Apr-2012	Issued for Client review and acceptance
00	MW	KD	NB	08-Mar-2012	Issued for Client approval
PC	MW	KD	NB	19-Jan-2012	Issued for Review
PB	MS	KD	NB	28-Oct-2011	Issued for Review

 SNC • LAVALIN	WASTE MANAGEMENT PLAN		Revision		
	Component 1 and 4B				
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MAINTENANCE OF THE WASTE MANAGEMENT PLAN (WMP)

This *WMP* will at times require updating in response to changes in the Project, Contractor work methods, group structure, or technological advancements that provide a higher level of environmental protection. The subsections below indicate the process with respect to maintenance and implementation of the *WMP*.

Initiating Revisions

This *WMP* is a controlled document and revisions may only be processed by SNC Lavalin's (SLI's) Environmental Manager. It is anticipated that most of the revisions to this *WMP* will be initiated by the environmental management team at the site or at the Lower Churchill Project office in St. John's.

Nalcor staff shall request revisions through document control. *WMP* holders and readers/reviewers (within SLI, government agencies, contracting firms, other stakeholders, etc) may request revisions by forwarding a completed Revision Request Form (RRF), provided in Section 12, to SLI's Environmental Manager. These revision requests will be screened and reviewed by SLI in conjunction with Nalcor staff, and forwarded to SLI's Project Manager for approval.

Compliance Instructions

Revision requests that have been accepted by SLI's Project Manager will be sent to SLI's Environmental Manager for distribution to key Project participants as "Compliance Instructions" These instructions shall be signed off by key holders of the *WMP* and returned within two days of receipt. A log of compliance instructions shall be maintained by SLI's Environmental Coordinator (Hydro), and these will be incorporated periodically into a revised edition of the *WMP*

Revision Procedures

Revisions to the Waste Management Plan shall be made annually, or as required, in accordance with SLI's document control procedures. SLI's Environmental Manager

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	Component 1 and 4B				
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will issue the accepted revisions of the Waste Management Plan to key holders, Contractors, and readers/reviewers. Each revision will be accompanied by a Revision Control Record (provided in Section 12) that:

- a) identifies all compliance instructions that have been issued since the last revision; and
- b) Lists the sections being superseded.

Within two working days of receiving a revised Plan, *WMP* holders shall:

- a) Familiarise themselves with revised sections of the *WMP*;
- b) Incorporate all revisions into their areas of responsibility, as appropriate;
- c) Ensure that all personnel are familiar with the revisions; and
- d) Acknowledge receipt of the revised *WMP* by forwarding via fax, email, or mail a signed and dated acknowledgement form to SLI's Environmental Manager. The receipt of revision acknowledgement form is located in Section 12.

 SNC • LAVALIN	WASTE MANAGEMENT PLAN Component 1 and 4B		Revision		
	Nalcor Doc. No. LCP-SN-CD-0000-EV-PL-0005-01		B3	Date	
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1 INTRODUCTION

This *Waste Management Plan (WMP)* is developed to establish safe, efficient and environmentally compliant waste management during construction and commissioning activities of the Lower Churchill Project (LCP). This plan outlines the roles and responsibilities that all Project participants must follow to ensure that the collection, storage, transportation and disposal of all wastes generated during construction and commissioning activities of the LCP is managed in an environmentally sound manner.

1.1 PURPOSE

Specifically the purposes of this *WMP* are to:

- a) comply with the conditions and requirements of Environmental Assessment (EA) release;
- b) outline the Lower Churchill Project's commitments to minimize potential environmental effects - including commitments made in the Environmental Impact Statement (Nalcor, 2009) and during the regulatory review process under the joint review panel;
- c) manage potentially adverse impacts on the environment and protect the health and safety of site personnel (including Contractors, Subcontractors/vendors and visitors);
- d) provide a reference to applicable legislative requirements and guidelines;
- e) provide a reference document for Lower Churchill Project participants to use when planning and/or conducting specific procurement, construction and commissioning activities with respect to waste management;
- f) provide a detailed summary of waste management issues and measures to be implemented during construction and commissioning;

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g) provide direction for environmental orientation programs for Lower Churchill Project participants; and

h) communicate changes to the *WMP* through an interactive revision process;

The intent is to afford a high degree of control over the handling of waste and to implement the ideals of the three R's namely reduction, recovery/reuse and recycling of wastes. Ultimately this plan will help to minimize potential adverse environmental effects and provide a framework for those involved in the Project.

This document will be reviewed on an annual basis (or as deemed necessary by SLI or Nalcor) throughout the construction phase and updated as necessary to accommodate the dynamics of design and construction as it progresses.

1.2 SCOPE AND APPLICATION

The scope of this *WMP* covers the engineering, procurement, construction, and commissioning phase of the Lower Churchill Project for Components 1 and 4b. The focus of this plan is on construction and commissioning activities for the site access roads, reservoir preparation, accommodations and administrations complex, laydown areas, AC line from Muskrat Fall to Churchill Falls, and the Muskrat Falls hydroelectric generating facility. Section 2 describes the Project in more detail. Note that the cable crossing at the Strait of Belle Isle and the Labrador Island Transmission Link are not within the scope of this *WMP*.

This *WMP* is one component of the Lower Churchill Project's *Environmental Management Plan (SLI Document # 505573-0000-68RA-I-0004, NE-LCP Document # MFA-SN-CD-0000-EV-PL-0001)*. Other subordinate documents of the Environmental Management Plan include the following:

a) *Contract-Specific Environmental Protection Plan (C-SEPP) Template (SLI Document # 505573-0000-68RA-I-0011, NE-LCP Document # LCP-SN-CD-0000-EV-PL-0006-01)*

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- b) *Rehabilitation Plan (RP) (SLI Document # 505573-0000-68RA-I-0007, NE-LCP Document # LCP-SN-CD-0000-EV-PL-0004-01);*
- c) *Regulatory Compliance Plan (RCP) (SLI Document # 505573-0000-68RA-I-0003, NE-LCP Document # LCP-SN-CD-0000-RT-PL-0001-01); and*
- d) *Project-Wide Environmental Protection Plan - Component 1 and 4b (SLI Document # 505573-0000-68RA-I-0005, NE-LCP Document # LCP-SN-CD-0000-EV-PL-0002-01);*

Nalcor's Emergency Response Plan is a companion document to the Environmental Management Plan. It contains a Master Spill Response Plan, which shall be used by contractors as a basis for preparing their own spill response plans.

This *WMP* applies to all Project participants, including Nalcor, SLI, Contractors, Subcontractors, suppliers, service providers, and all employees of these organizations.

Given the Lower Churchill Project's magnitude, accepted *Contract-Specific Environmental Protection Plans (C-SEPPs)* shall be required. C-SEPPs shall be prepared by all contractors for all construction contracts to ensure that effects on the environment are minimized to the extent practical. These C-SEPPs shall provide sufficient detail on the Contractor's:

- a) Scope of work;
- b) Methods of construction;
- c) Sequence of activities;
- d) List of resources (i.e. equipment and site workforce);
- e) Temporary and permanent installations;
- f) Environmental protection procedures and alternative procedures, if required; and
- g) Environmental contingency measures.

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One aspect of the C-SEPP will be how the Contractor proposes to handle the waste from their activities.

This *WMP* will serve as a resource to Contractors as they prepare their own *C-SEPPs*. Contract packages shall include the C-SEPP template, with specific instructions on how these templates are to be properly completed. All C-SEPPs shall require approval by both SLI and NE-LCP prior to the contractor's mobilization to site.

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2 PROJECT DESCRIPTION

2.1 MUSKRAT FALLS HYDROELECTRIC DEVELOPMENT AND AC TRANSMISSION LINE (COMPONENT 1 AND 4B)

Muskrat Falls is one of two hydroelectric developments being planned for the lower Churchill River. The remotely controlled nominal 824 MW Muskrat Falls Hydroelectric Development will be composed of the following sub-components and associated ac connector lines to an ac switchyard:

- a) 16 km of permanent access roads, including upgrading of existing roads and new construction;
- b) Reservoir, approximately 60 km long and 101.4 km² in total area;
- c) Replacement fish habitat;
- d) A north roller compacted concrete (RCC) overflow dam;
- e) Gated spillway including:
 - i) Approach and discharge channels; and
 - ii) Vertical lift gates.
- f) A close coupled intake and powerhouse including:
 - i) intakes with gates and trash racks;
 - ii) concrete lined water passages;
 - iii) turbine/generator units at approximately 206 MW each with associated ancillary electrical/mechanical control equipment;
 - iv) power transformers (includes 1 spare), located on the draft tube deck of the powerhouse; and
 - v) 2 overhead cranes;
- g) A south dam;

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- h) Component diversion works (i.e. cofferdam and spillway for diversion channel);
- i) Stabilized north spur;
- j) ac switchyard at Muskrat Falls; and
- k) Churchill Falls switchyard extension.

Figure 2-1 shows the current concept for the generating facility.



Figure 2-1: Muskrat Falls Generating Facility (Component 1)

2.2 SUB-COMPONENT 4B: HVAC OVERHEAD TRANSMISSION LINE MUSKRAT FALLS TO CHURCHILL FALLS

- a) Transmission lines from Muskrat Falls to Churchill Falls:
 - i) 2-315 kV ac, 3 phase lines, double bundle conductor;
 - ii) Single circuit galvanized lattice steel guyed suspension and rigid angle towers; and
 - iii) 250 km long.

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2.3 CONSTRUCTION RELATED INFRASTRUCTURE

Construction related infrastructure will be established to support construction activity for components 1 and 4b. Some of this infrastructure is temporary and shall be decommissioned before the end of the construction phase. It is anticipated that the following infrastructure will be required:

- a) A 1,500 person accommodations and administration complex (for construction period);
- b) Access roads associated with the main dam structure, the accommodations complex and reservoir;
- c) Diversion facilities (i.e. upstream and downstream coffer dams, the latter of which is to be removed prior to tailrace flooding);
- d) Borrow pits and quarries;
- e) Construction bridge;
- f) Concrete and crushing plants;
- g) Construction power and site communications infrastructure;
- h) Reservoir clearing camps and wood storage yards;
- i) Material storage and laydown areas including the potential use of port facilities (if upgrades are required to port facilities they shall be completed by the responsible party);
- j) Fuelling and fuel storage facilities;
- k) Spoil areas;
- l) Muskrat Falls 25 kV construction power line & construction power terminal substation;
- m) HVac transmission line construction camps; and
- n) Trash and debris collection boom, associated roads and debris storage areas.

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3 RELEVANT LEGISLATION

There are federal, provincial and municipal regulatory requirements that apply to the waste management needs of the Project. The Project will fully comply with all applicable regulatory requirements. Copies of all permits and licenses shall be obtained and kept on file and a copy provided to SLI by all Contractors, Subcontractors and facilities for all aspects of their work related to waste disposal. Compliance will be facilitated through a program of environmental compliance monitoring, primarily implemented by the On-Site Environmental Monitors.

3.1 FEDERAL

The following federal acts apply to waste management at the Project:

- a) *Transportation of Dangerous Goods Act (TDGA);*
- b) *Canadian Environmental Protection Act (CEPA); and*
- c) *Hazardous Materials Information Review Act.*

3.2 PROVINCIAL

The following provincial acts and regulations apply to waste management at the Project:

- a) *Waste Management Regulations;*
- b) *Waste Diversion Regulations*
- c) *Dangerous Goods Transportation Act;*
- d) *Storage and Handling of Gasoline and Associated Products Regulations;*
- e) *Used Oil Control Regulations;*
- f) *Environmental Control Water and Sewage Regulations;*
- g) *Newfoundland and Labrador Environmental Protection Act (NLEPA); and*

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h) *Water Resources Act.*

3.3 MUNICIPAL

Should any construction activities take place within any municipal boundaries, local bylaws will need to be complied with and permits obtained.

Note: The above legislation listed in Sections 3.1, 3.2 and 3.3 is not considered exhaustive. The waste generator is responsible to ensure all relevant legislation is followed prior to waste generation and disposal on the LCP.

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4 STAGED APPROACH TO WASTE MANAGEMENT

The following subsections describe waste management responsibilities before and after the start of the Garbage Removal and Disposal Contractor's (GRDC's) mandate, and Figure 4-1 shows the anticipated workforce during the approximate 6 year construction period.

4.1 PRE-GRDC IMPLEMENTATION

The Early Works contracts are the first to be awarded for the Project. The purpose of these contracts is to develop access and infrastructure to facilitate construction of the Muskrat Falls hydroelectric generating facility. These Early Works construction contracts are as follows:

- Main Site Access Road South Side (including clearing);
- Accommodations Complex Site Utilities
- Accommodations Complex Buildings;
- Administrative Buildings; and
- Construction Power.

During initial stages of Accommodations Complex development, a starter camp will be constructed. This camp will house the Bulk Excavation Contractor's workforce until the Accommodations Complex is fully developed.

After this starter camp is completed, the GRDC will begin its work, and provide service primarily to those housed at this camp.

It is anticipated that the total workforce on site will start at 125 to a maximum 490 people during the Early Works construction period.

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4.2 POST-GRDC IMPLEMENTATION

Post-GRDC work includes all construction contracts that begin after the start of all Early Works contracts. During this time it is expected the site workforce will increase substantially from about 630 people initially and reaching 1,500 workers in the 4th year of construction.

As described above, the GRDC will remove and dispose of domestic wastes and sewage from holding tanks in facilities provided by SLI (e.g. wash-cars, trailers), sewage sludge from septic tanks for the starter camp, and sludge from the Accommodations Complex sewage treatment plant. All wastes generated in facilities established by Contractors (e.g. portable toilets, lunchroom/office trailers, etc) shall be the responsibility of the Contractor.

Excluded from the GRDC's mandate are construction & demolition wastes, all wastes generated by Contractors working in remote locations (e.g. Reservoir Clearing, ac Transmission Line), hazardous wastes other than sewage and sewage sludge as mentioned above and biomedical wastes.

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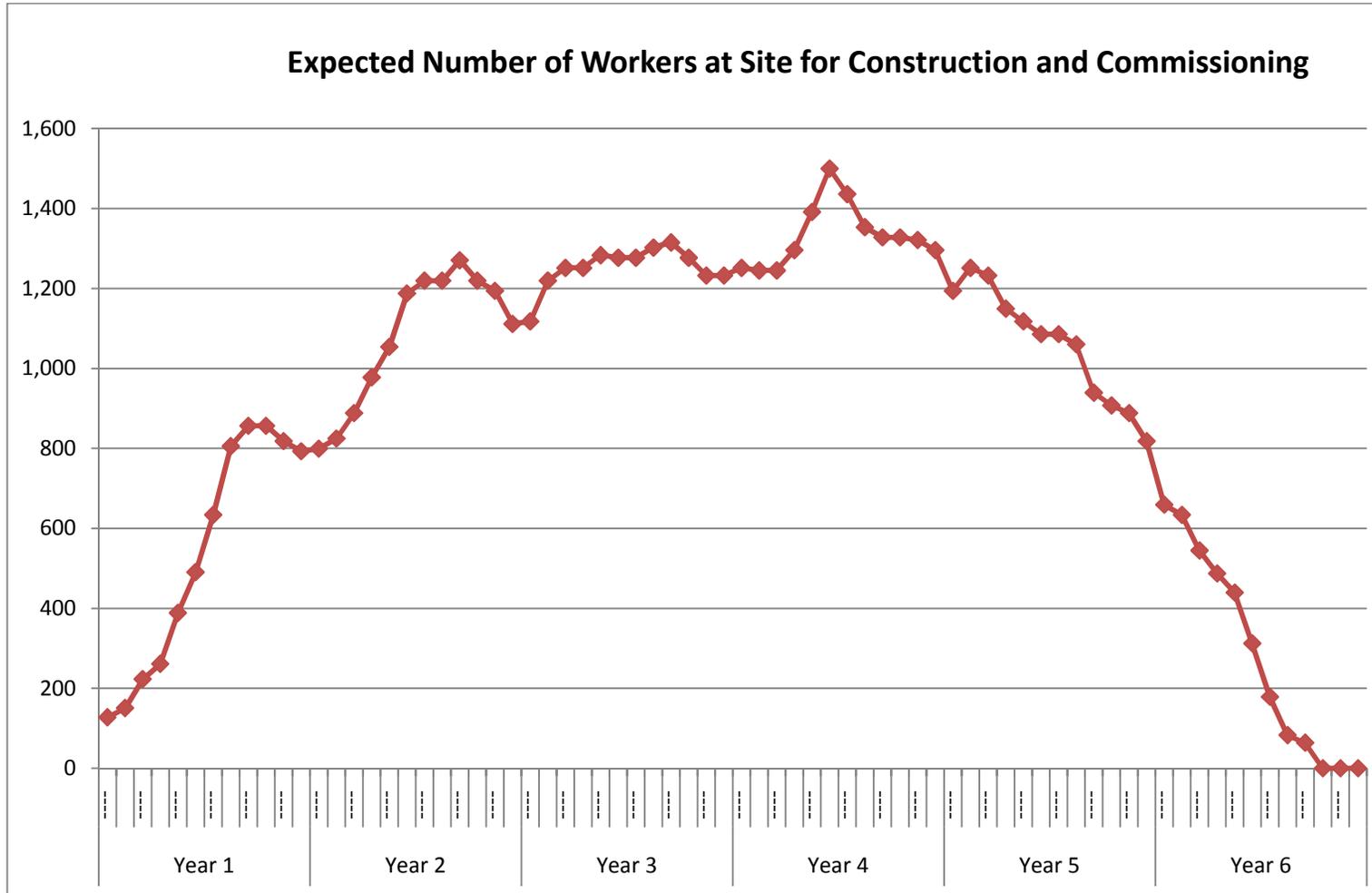


Figure 4-1: Expected Workforce from Year 1 to Year 6

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5 ROLES AND RESPONSIBILITIES

The Lower Churchill Project environmental management team is comprised of NE-LCP and SLI environmental, engineering, and construction management staff. A Responsibility Matrix is provided in Figure 5-1. Figure 5-2 illustrates the team structure. Roles and responsibilities of team members are further defined in the sections that follow.

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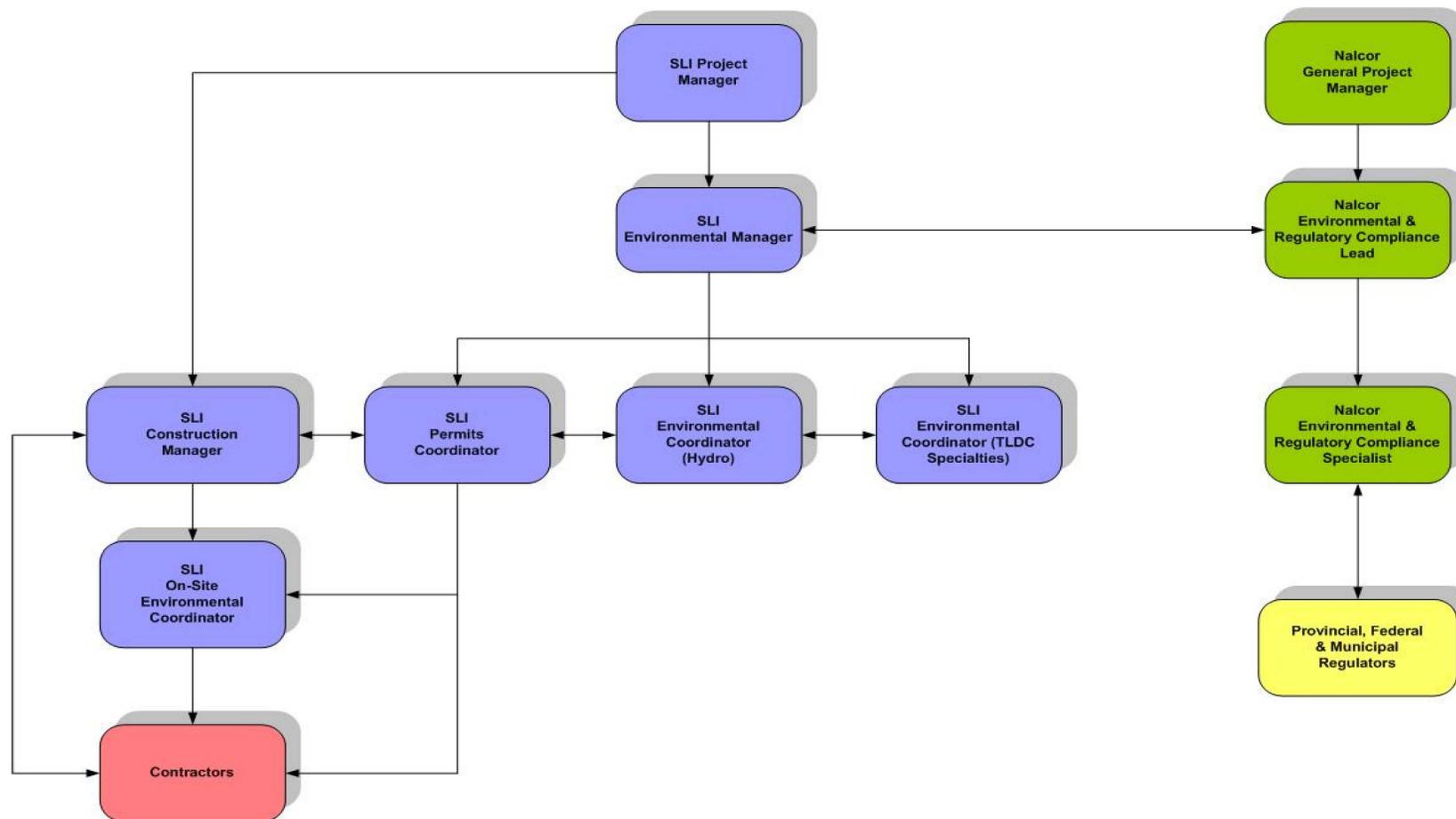


Figure 5-1: Lower Churchill Project Hydroelectric Generation Facility Project: Environmental Management Team

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Activity	SNC Lavalin Inc	Project Manager	Environmental Manager	Environmental Co-ordinator (Hydro)	Permits Co-ordinator (T/DC Specialties)	Component Co-ordinator	Construction Manager	Interface Manager	Area Manager	On-Site Environmental Monitor	SLI Staff	Nalcor Energy	Garbage Removal and Disposal Contractor	Medical Services Contractor	Roads Contractor	Other Contractors
Administration Activities																
Development of the WMP	A	R	S	S	S	S	S	I	I	I	S	I	I	I	I	I
Review of WMP	A	R	S	S	S	S	S	I	I	I	I	A/R	I	I	I	I
Approval of WMP (SLI/Nalcor)	A	R	I	I	I	I	I	I	I	I	I	R	I	I	I	I
Implementation of the WMP	A	R	R	R	R	R	R	I	I	S	I	C	R	R	R	R
Management/Revisions of the WMP	A	R	R	S	S	I	C	I	I	S	S	C	I	I	I	I
Contractor Orientation	A	C	I	I	I	I	R	I	I	S	I	I	R	R	R	R
WMP Compliance Monitoring (Contractors and Site Services)	A	R	R	S	S	I	C	I	I	R	I	C	C	C	C	C
Corrective Actions	A	R	C	C	C	I	R	I	I	S	I	I	R	R	R	R
Managing Compliance Tracking Registry	A	R	R	R	R	I	C	I	I	I	S	C	I	I	I	I
Waste Management Activities																
Early Works																
Sewage Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Domestic Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Construction Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Hazardous Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Biomedical Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	R	S	S
Work after first 6 months																
Sewage Disposal	A	R	S	S	C	I	R	I	I	R	I	I	R	I	R	R/S
Domestic Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	R	I	R	R/S
Construction Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Hazardous Waste Disposal*	A	R	S	S	C	I	R	I	I	R	I	I	I	I	R	R
Biomedical Waste Disposal	A	R	S	S	C	I	R	I	I	R	I	I	I	R	S	S

Accountable, Responsible, Supports, Consulted, Informed

Figure 5-2: Responsibility Matrix

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5.1 NALCOR

5.1.1 Individual Responsibilities

Nalcor's *Project Manager* shall be accountable for the review and acceptance of the *WMP*. As part of this process Nalcor shall be responsible for making sure that the plan as prepared is consistent with its environmental policy, and commitments made during the Environmental Assessment process to various aboriginal groups and stakeholders are honoured.

Nalcor's *Project Manager* shall be consulted on the various aspects of *WMP* management and will provide information to SLI's Environmental Management Team as required to manage and update the *WMP* and process applications for selected permits, as identified by Nalcor.

Nalcor's *Environmental and Regulatory Compliance Lead* and Nalcor's *Environmental and Regulatory Compliance Specialist* will support the *Project Manager* in his/her responsibilities. Communication and liaison with local municipalities and federal/provincial regulators will be the responsibility of the *Environmental and Regulatory Compliance Specialist*.

5.1.2 Nalcor Auditing Function

Nalcor will periodically perform audits on SLI's performance as it relates to the *WMP* to ensure compliance with commitments in the EIS and regulatory requirements.

5.2 SLI

Waste management support will fall under the guidance of the SLI Environmental Management Team (as shown in Figure 5-1). SLI shall provide onsite direction and monitoring of all waste management activities throughout the life of the Project. In addition, once the Garbage Removal and Disposal Contractor are engaged, SLI will:

- Provide a Hazardous Waste Storage Area for Contractor use; however construction and maintenance of storage facilities (i.e. used oil tanks) and final

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disposal and removal of equipment will be the responsibility of the Contractor and he/she will abide by applicable regulations;

- Provide common collection locations for domestic waste and removal and disposal of this waste periodically through the GRDC¹;
- Provide services for the removal of sewage sludge through the GRDC¹;
- SLI/GRDC will not provide domestic waste collection services or sewage sludge removal services for Contractors operating during this phase in remote locations, nor for the road construction Contractor, reservoir clearing Contractor, ac Transmission Line Contractor, or for any construction camps used by them.

Administration type responsibilities are defined further in the following section of individual responsibilities.

5.2.1 Individual Responsibilities

SLI Project Manager

This individual shall be:

- Accountable for developing, implementing, managing and approving the *WMP*;
- Accountable for approving *WMP* revision requests;
- Accountable for all SLI staff actions including waste management compliance monitoring, tracking and potential corrective actions;
- Informed of Nalcor's review and acceptance of the *WMP*;
- Accountable for Contractor waste management actions and enforcing compliance related to the *WMP*; and
- Accountable for ensuring the Contractor receives the applicable site orientation related to waste management.

¹ Note the GRDC will remove and dispose of these wastes collected from only the hydroelectric generating facility site, Nalcor and Contractor laydown areas, and accommodations complex site.

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SLI Environmental Manager

This individual shall be:

- responsible for all processes involved in developing, implementing and managing the *WMP*;
- Responsible for managing all *WMP* revision requests, including receiving such requests, coordinating the screening of these by appropriate members of SLI's and Nalcor's environmental management teams, and preparing/distributing waste management "Compliance Instructions" to key Project participants;
- Responsible for all SLI staff actions including waste management compliance monitoring and tracking, and enforcing corrective actions;
- Informed of Nalcor's review and acceptance of the *WMP*;
- Responsible for oversight of the Contractor's waste management activities such as storage and disposal;
- Responsible for distributing accepted *WMP* revisions to key Project participants, and receiving acknowledgement of receipt; and
- Responsible for ensuring that an annual performance review of the *WMP* is conducted.

SLI Environmental Coordinators (Hydro and Transmission)

This individuals shall be:

- Responsible for managing and implementing the *WMP* and waste management environmental compliance monitoring;
- Informed of Nalcor's review and acceptance of the *WMP* and the Contractor's orientation;
- Supportive to SLI's Environmental Manager in overseeing the Contractor's waste management activities;

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- Responsible for maintaining a log of waste management “Compliance Instructions”;
- Responsible to ensure all waste streams generated by the Contractors are identified in the Waste Management Plan; and
- Responsible for undertaking quarterly compliance audits for applicable components.

SLI Permits Coordinator:

This individual shall be:

- Responsible for managing the Permit Registry in conjunction with the *SLI Environmental Coordinator (Hydro)* and the *SLI Environmental Coordinator (Transmission)*;
- Supportive to SLI’s *Environmental Coordinators* with implementing and managing the *WMP* as well as waste management compliance monitoring;
- Informed of Nalcor’s review and acceptance of the *WMP* and the Contractor’s orientation;
- Consulted by the Contractors regarding disposal practices and requirements of permits; and
- Responsible for maintaining copies of permits/licenses, and track and communicate permit requirements for waste management.

SLI Component Managers:

These individuals shall be:

- Responsible for ensuring the *WMP* is included in procurement packages;
- Supportive for the development of the *WMP*;
- Consulted during waste management compliance monitoring; and
- Informed about all other aspects of the *WMP*.

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SLI Construction Managers:

These individuals shall be:

- Responsible for overseeing construction including management of on-site waste management activities through implementation of the *WMP*;
- Responsible for reporting directly to SLI's *Project Manager* in St. John's;
- Consulted on all aspects of management of the *WMP*, waste management compliance monitoring, and compliance tracking;
- Responsible for ensuring Contractors receive the appropriate orientation and training required related to waste management; and
- Responsible for overseeing waste management activities by the Contractors at the Project Site, and reporting any non-compliance and enforce corrective actions.

SLI Area Managers:

These individuals shall be:

- Informed on all aspects of the *WMP*;

SLI On-Site Environmental Monitors:

These individuals shall be:

- Responsible for monitoring on-site Project activities;
- Responsible for evaluating the Contractors' environmental performance with respect to requirements established in the *WMP*;
- Responsible for tracking on-site compliance with regulatory requirements and conditions of all permits and approvals as they relate to waste management.
- Responsible for reporting directly to the OSEC, Construction Manager and SLI's Environmental Coordinators;
- Responsible for interacting with the Contractors on waste management matters;

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- Responsible for preparing and submitting daily reports to SLI's Construction Managers, Environmental Manager, and Environmental Coordinators;
- Supportive to SLI's Construction Managers with ensuring Contractors receive the appropriate waste management orientation before working on site; and
- Responsible for ensuring that the Contractor's waste streams are all properly characterized.

SLI On-Site Environmental Coordinators:

These individuals shall be:

- Responsible for coordinating all activities and monitoring effort by the On-Site Environmental Monitors to ensure the WMP is complied with.
- Responsible for evaluating the Contractors' environmental performance with respect to requirements established in the *WMP*;
- Responsible for reporting directly to the Construction Manager and liaising with SLI's Environmental Coordinators;
- Responsible for interacting with the Contractors on waste management matters; and
- Supportive to SLI's Construction Managers with ensuring Contractors receive the appropriate waste management orientation before working on site.

5.2.2 SLI Auditing Function

The purpose of SLI's auditing function will be to evaluate the performance of the *WMP* and to identify opportunities for continual improvement.

SLI auditing will consist of daily field reports, quarterly environmental compliance audit reports, initiating corrective action and annual performance reviews.

Daily reports will be completed by the On-Site Environmental Monitor. These reports will focus on the Contractors' environmental performance, including a summary of their waste management activities.

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A quarterly environmental compliance audit reports will be completed by SLI Environmental Coordinators for the Transmission and Hydro components. These reports will review all aspects of the Contractor's performance and will have a section focusing on incidents of non-compliance with the *WMP*. SLI's Environmental Coordinators shall distribute the Environmental Compliance Audit Reports to relevant Project participants.

An annual performance review will be completed by key members of the Environmental and Construction teams. This audit will review all aspects of the Contractor's performance, including activities that relate to waste management and disposal. The review process will give all parties a chance to evaluate overall environmental performance and compliance with government regulations, permits and all Plans, including the *WMP*.

5.3 CONTRACTORS

In all cases, Contractors must communicate clearly to SLI the types and volumes of waste they produce. In addition, they must regularly monitor their waste management activities to ensure that all required approvals are always in place and that facilities are appropriately licensed to accept their wastes.

5.3.1 Pre-GRDC Implementation

Contractors shall be responsible for the management of waste in their working areas in accordance with this *WMP*. Responsibilities include the safe collection and containment of all hazardous and non-hazardous waste. Contractors will also be responsible for the offsite transportation and final disposal of waste to a facility or site licensed to accept it. All waste will be the responsibility of the Contractor.

Biomedical waste will be the responsibility of the Medical Services Contractor. Contractors will support the Medical Services Contractor through approved temporary disposal of biomedical items.

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5.3.2 Post-GRDC Implementation

The GRDC shall be responsible for collection of domestic waste and sewage removal at the camp facility post contract award. Contractors shall support the GRDC in the task of domestic waste disposal by management of domestic waste in their specific working areas in accordance with this *WMP*, including the transportation of waste to the provided containers or designated storage areas.

In certain cases in remote areas or areas that are difficult to access, Contractors (including the Roads Contractor, Reservoir Preparation Contractor and ac Transmission Line construction) will be responsible for managing their own domestic waste and sewage removal. Contractors will be responsible for the offsite transportation and final disposal of the domestic waste and also for engaging a licensed Sewage Removal Contractor.

All Contractors are responsible for their own construction and demolition material and all hazardous waste generated as a result of their activities. This material shall be transported to a facility or site licensed to accept it. A temporary storage area will be identified by SLI for temporary placement of hazardous materials, until such time that it can be transported to the appropriate facility or disposed of by a Hazardous Materials Sub-contractor (as engaged by the Contractor). This storage area is only a location to be provided by SLI, and the construction, maintenance and eventual removal of all hazardous material is the responsibility of the Contractor.

Biomedical waste will be the responsibility of the Medical Services Contractor. Contractors will support the Medical Services Contractor through approved temporary disposal of biomedical items.

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6 MANAGEMENT PLAN

This *WMP* has been prepared, with considerations for current waste management practices in the province, for Component 1 and 4B of the Lower Churchill Project. That being said, waste management within the Province is changing, under the direction of the Provincial Waste Management Strategy. It can be expected that waste management requirements for the Project may need to be revised and revisited in the future as more local and regional modern waste management facilities and programs are established. Currently the Happy-Valley Goose Bay region contains a municipal landfill that accepts domestic waste along with a privately owned soil treatment facility licensed to accept hydrocarbon impacted soil. There is no licensed hazardous waste facility in the region. In addition, initiatives and programs for waste segregation are limited in the region at this time. As a result of the limited facilities and waste programs in the region, it is anticipated that most hazardous wastes will require transportation and disposal outside of the region or Province. In the event local waste initiatives and new waste facilities are established, the *WMP* will be revised to reflect these changes. Revisions to this plan shall be made as identified in the Preface.

This *WMP* addresses all wastes expected to be generated onsite during Component 1 and 4B work, classifies waste into streams and outlines the handling and disposal options for each type of waste. A summary of potential waste treatment and disposal options is included in Table 6-1.

All construction activities and their associated waste streams (outlined in the subsections below) are subject to appropriate regulations. Section 3 of this document provides a list of relevant legislation that applies to waste management on the LCP.

Contractors shall provide the Engineer with two (2) copies of all permit documentation and licenses immediately on receipt from regulatory agencies. Any subcontracted facility accepting any type of waste and recyclable materials shall provide documentation to the Contractor, and copies of this documentation shall be kept on file for inspection by the Engineer.

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6.1 WASTE CLASSIFICATION

Contractors on site are responsible for the handling, sorting and in some cases storage and disposal of the waste they generate at the site (See Section 5, Roles and Responsibilities for Contractors responsibilities at different stages of the Project).

There are a number of strategies that Contractors can use to handle wastes expected at the site. These strategies are as follows:

- **Waste segregation:** All site Contractors, Subcontractors and the GRDC will be required to implement category-wise segregation of waste streams (i.e. liquid wastes, solid wastes, recyclable, hazardous, etc.) in accordance with local disposal requirements. All waste categories will be analyzed and the principals of the following three R's will be applied:
- **Reduction initiatives:** Reducing the raw material consumption is the first step to reduce waste generation. To practice this principle all processes and material used will be evaluated on the basis of possible reduction in raw material usage.
- **Recovery/reuse initiatives:** Recovery of usable material or energy as a by-product is an important part of the waste minimization process. All opportunities for onsite reuse of waste materials will be highly encouraged.
- **Recycling initiatives:** Recycling is the next option considered for the successful management of the waste streams. Wherever possible, recycling of used oil, beverage containers, tires, copper and aluminum, etc. and reuse of the material in other applications will be encouraged. A site orientation on recycling will be provided by SLI's Representative to all Contractors, Subcontractors and employees regarding recycling responsibilities.
- **Disposal:** Disposal becomes the final option when other options are not technically or economically feasible. All waste shall be disposed of according to relevant guidelines and regulations, as detailed in the following sections.

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Hazardous vs. Non-Hazardous Wastes

The types of solid wastes considered include inert or non-hazardous wastes of various kinds (i.e. containers, filters, belts, scrap metals, domestic garbage, etc.) or hazardous wastes (i.e. used oils, solvents, paints, used/unused chemicals, old batteries, chemical based sludge etc.).

Both hazardous and non-hazardous wastes will be generated at the site. A general description of such wastes is illustrated in Figures 6-1 and Figure 6-2. A description of the prescribed handling and disposal methods of the anticipated materials generated at the site is provided in the following sections.

A Hazardous Waste Storage Area (HWSA) will be provided by the Project; however the Contractors will be responsible for construction and maintenance of any storage facilities (i.e. used oil tanks) that they place at the site. Contractors shall arrange for transportation to a licensed hazardous waste facility for possible recovery, treatment and disposal as required. All storage, handling and disposal activities will follow applicable regulations.

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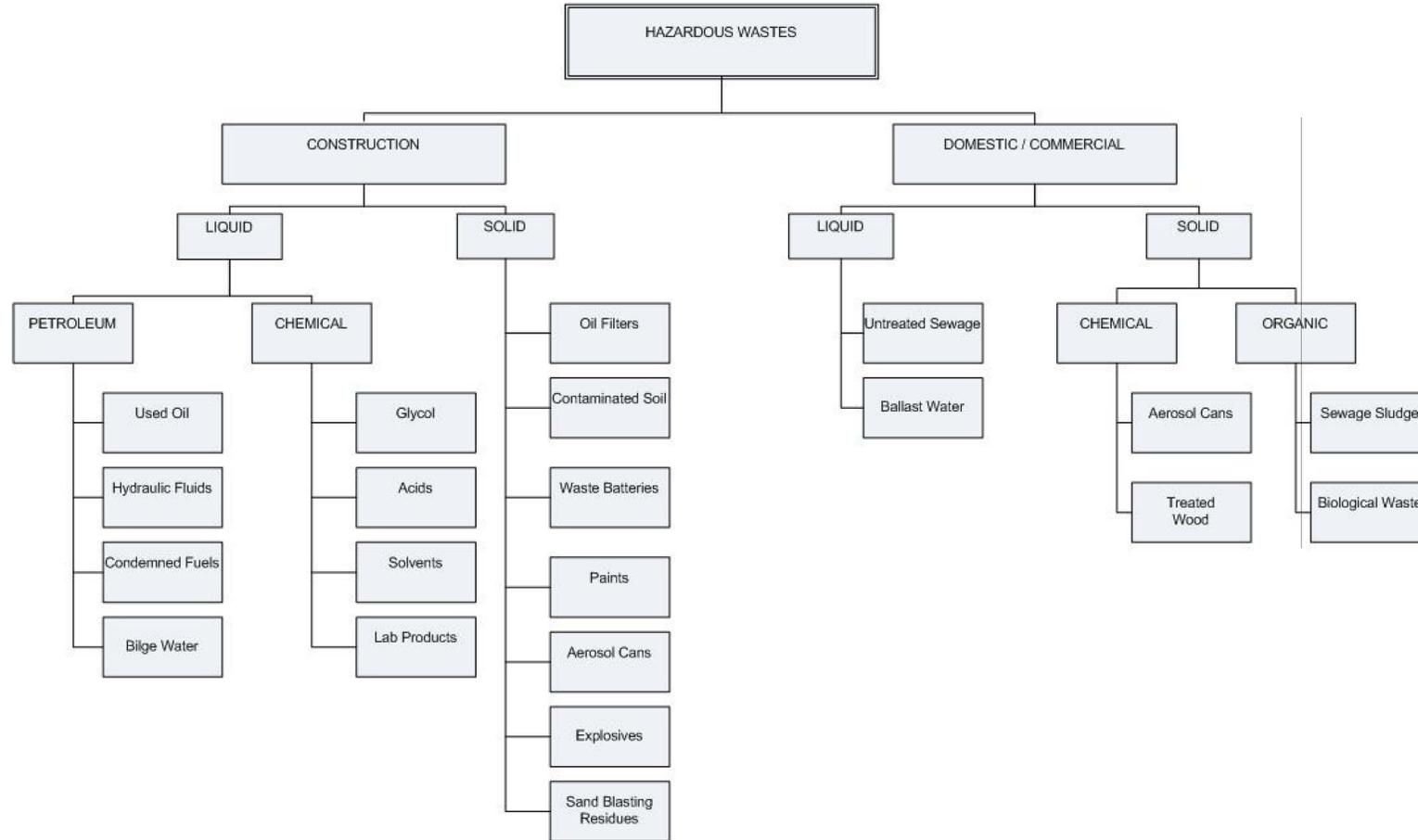


Figure 6-1: Potential Hazardous Waste Generate

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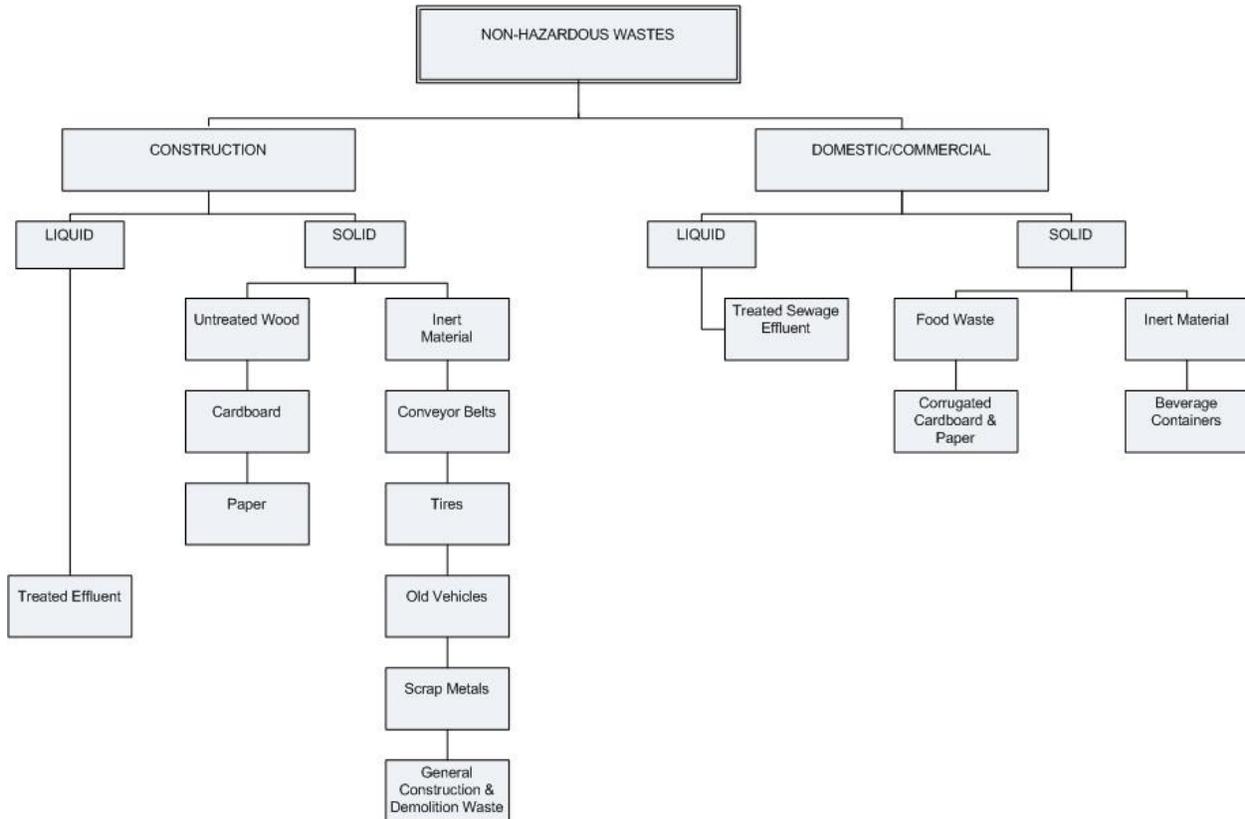


Figure 6-2: Potential Non-Hazardous Wastes Generated

6.2 HAZARDOUS WASTES

It is expected that hazardous wastes will be generated during construction activities. Hazardous wastes include such materials as used batteries, paint, cleaning fluids and petroleum based wastes.

Special precautions shall be exercised when handling these materials since the improper release or disposal could adversely affect the environment. Personnel handling wastes will be required to have specific training and utilize PPE to ensure safe handling and disposal.

A HWSA will be provided by the Project, however the Contractor will be responsible for construction and maintenance of any storage facilities (i.e. used oil tanks).

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Contractors shall arrange for transportation to a licensed hazardous waste facility for possible recovery, treatment and disposal as required.

All chemical and hazardous wastes generated in remote areas will be managed under all applicable guidelines and regulatory requirements and brought to a licensed hazardous waste facility on a regular basis. Processing of the various anticipated chemical wastes are described below. Approved containers for hazardous wastes stored on site and transported to licensed disposal/recycling facilities shall meet requirements of the *Transportation of Dangerous Goods Regulations* (see <http://www.tc.gc.ca/eng/tdg/moc-menu-202.htm>).

Note: Contractors are responsible for disposal of their Hazardous waste including preparation, suitable shipping containers and transportation of the hazardous waste to an offsite licensed disposal facility. Regular checks will be made by the On-Site Environmental Monitors.

6.2.1 Hazardous Construction Wastes

6.2.1.1 Hazardous Construction Liquid Petroleum Wastes

Petroleum-based wastes generated at the site will primarily be used engine and hydraulic oil. In addition there may be rear end/differential gear lubricants, oil from site electricity generators, used degreasing solvents, contaminated or expired diesel. These wastes shall be segregated as necessary in order to render the individual waste streams easier to reuse for other purposes, recycle or permit recovery of by-products.

Used Oil and Hydraulic Fluids

The Contractor is encouraged to initiate acceptable recycling options for used oil, either onsite or offsite, wherever practical. For example, used oil could be reused or combined (with new oil) where low-grade fuels may be used such as kerosene heaters, waste oil burners for shops and warehouses (with DOEC approval) or it could be sent offsite for recycling.

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The Contractor shall deposit used oil in a secondary containment tank located at the HWSA. The Contractor is responsible for installing and maintaining these tanks. The waste oil shall be regularly collected by a qualified and experienced Hazardous Waste Contractor. The Hazardous Waste Contractor shall be engaged by the Contractor.

The tanks will have double-containment and roof-vent connection for oil removal as defined in the *Used Oil Regulations*. All connecting pipes will be above ground, making it easier to inspect for leaks. The tank fill ports will normally be locked and the keys made accessible to designated employees only as per the *Provincial Used Oil Control Regulations*.

Note: Waste oil may be contaminated with small amounts of diesel fuel, heating fuel and water, while still retaining its recycling properties. Contamination with gasoline, glycol, solvents, or solids will render waste oil unfit for recycling into usable engine oil at any offsite facility and create a large increase in disposal unit costs.

Regular monitoring will be carried out as per “Design, Construction, Operation, Maintenance and Inspection of Terminal and Tank Facilities Guidelines”, API-2610 and any additional provincial registration requirements and *Provincial Used Oil Control Regulations* under the *Environmental Protection Act*. The Contractor shall provide the Engineer with two (2) copies of all permit documentation immediately on receipt from regulatory agencies. This includes the permit from the disposal facility permitted to accept the used oil.

The Contractor is required to maintain an active inventory of all petroleum products on site. This will ensure that reasonable balance is maintained between the amount of oil used/recovered versus amounts unused and in inventory.

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Condemned Fuels

Diesel fuel is sometimes condemned when the water content is too high. These fuels can be stored in drums at the HWSA by the Contractor and transported offsite to be used by others as low-grade fuels through a waste exchange program or sent to a licensed offsite facility for destruction.

Bilge Water

The word is typically used to describe the water that collects in the bilge compartment of a marine vessel. Water that does not drain off the side of the deck drains down through the ship into the bilge. This water may be from rough seas, rain, minor leaks in the hull, other interior spillage, etc. The water that collects in the bilge must be pumped out to prevent the bilge from becoming too full and threatening to sink the ship.

Bilge water can be found aboard almost every vessel. Depending on the ship's design and function, bilge water may contain water, oil, urine, detergents, solvents, chemicals, pitch, particles, and so forth.

By housing water in a compartment, the bilge keeps these liquids below decks, making it safer for the crew to operate the vessel and for people to move around in strong weather.

Under no circumstances shall bilge water be discharged into the ocean. This water shall be collected by an approved waste management firm, and treated and/or disposed of at an approved hazardous waste facility.

6.2.1.2 Hazardous Construction Liquid Chemical Wastes

Solvents

During construction, solvents will be used as a degreasing agent in the maintenance shops, Generator enclosures and utility services buildings. These degreasing solvents are toxic petroleum based chemicals; however, non-toxic citrus-based alternatives shall be encouraged as substitutes where only moderate degreasing or

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cleaning is required. Detergents and steam jets shall be used where feasible to minimize the use of solvents. Solvents shall not be allowed to drain onto the ground; they shall be collected in drip pans for reuse or disposal.

Residual or used solvents shall be stored in leak-proof containers. The containers will be shipped offsite to a licensed recycling/disposal facility. Industrial part washers/solvent recyclers are available and Contractors are encouraged to use them to reduce the amount of waste solvent generated.

Lab Products

During construction, materials testing may be established on site. These sites will predominantly perform physical tests; chemical waste generation will be minimal. The personnel working in these facilities will be trained to identify and segregate the hazardous components from their waste streams. The chemical wastes shall be stored in containers (as outlined in Material Safety Data Sheets (MSDSs) required by Workplace Hazardous Materials Information System regulations and other relevant legislation, as shown in Table 6-1) and shall be collected by a qualified and experienced Hazardous Waste Contractor.

6.2.1.3 Hazardous Construction Solid Wastes

Used Filters

Used oil filters will be generated with ongoing heavy equipment maintenance. Used filters drained of oil will be stored in separate lined drums established at the HWSA by the Contractor for pickup by a qualified and experienced Hazardous Waste Contractor. A final record of disposal from the licensed hazardous waste facility should be provided by the Contractor to the Engineer.

Contaminated Soil

Effective implementation of this *WMP* should lead to a reduction of soil contamination via on-going inspection and scheduled maintenance of equipment, use of trays for draining, lining of loading and unloading zones and using secondary

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containment, for example secondary containment of hazardous materials storage tank areas. In spite of these measures, spills, leaks and ruptures may occur and hydrocarbon contamination of soil is a possibility. All spills and leaks shall be reported to the On-Site Environmental Monitors and immediate corrective action shall be taken. Refer to the Master Spill Response Plan and the P-WEPP for contingency and response plans in the case of a petroleum spill. Contaminated soil shall be transported to a licensed Soil Treatment Facility.

Note: Contaminated soil should be substantially reduced through education programs, equipment maintenance, operational techniques and manual “pick and shovel” excavation of land based spills wherever possible. The On-Site Environmental Monitors will be provided with a progressive and final record of disposal from the offsite licensed soil treatment facility.

Waste Batteries

It is expected that the bulk of used batteries generated will be primarily the lead acid type.

Used batteries shall be stored at the designated HWSA. The Contractor shall be responsible for storage/disposal/recycling of used lead/acid batteries, including draining and provision of shipping pallets, and transportation of the waste batteries to an off-site licensed disposal or recycling facility. The following procedures should be used for lead acid type batteries, such as those used by vehicles and industrial equipment:

- protect battery terminals with electrical tape to prevent short circuits;
- wrap battery with cloth, tape, and place in a polyethylene (garbage) bag;
- place in sturdy cardboard box, again packed with tape;
- place packaged batteries on a pallet, ensure all batteries are covered, and wrapped in shipping wrap or strapped. Do not ship batteries in a drum.
- Batteries must be shipped in accordance with the TDG Regulations.

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Paints

Waste paint will be recycled or reused if possible. Water-based paint will replace oil-based paint, alkyd, or epoxy wherever technically and economically feasible. Waste paint will be stored in drums at the designated HWSA and shipped to a licensed recycle/disposal facility. Paint cans that do not contain residual paint can be placed with general waste for disposal at a landfill approved to accept such waste. Paint and paint cans generated by Contractors, will be their sole responsibility, along with handling, shipping and disposal as applicable.

Aerosol Cans

The use of aerosol cans on site will be discouraged, however; where unavoidable, aerosol cans with residual product shall be collected separately in marked containers at the various work areas. Contractors, employees and other site personnel will be advised to separate these cans from the general waste stream. The cans shall be transported off site by a certified Hazardous Waste Contractor. Aerosol cans that do not contain residual product can be placed with general waste for disposal at a landfill approved to accept such waste.

It is recommended that the Contractor follow the waste minimization policy, as aerosols should be substituted wherever possible with refillable type pump/spray bottles.

Explosives

The Contractor will deal solely and expediently with any contaminated or expired explosive material in accordance with all licensing and regulatory requirements, standards and best practices. If any explosives are to be destroyed or shipped off-site, the Contractor will acquire approval from the On-site Environmental Monitors prior to taking action.

Explosives packaging may be burned at a site designated to do so. The Contractor shall get approval from the On-Site Environmental Monitor prior to taking action.

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Sandblasting Residues

During construction, sandblasting operations will be carried out in order to prepare some metal surfaces for coatings. During sandblasting activities, the surrounding areas shall be shrouded for dust control and all residual materials resulting from the sandblasting shall be collected by Contractor and temporarily stored in drums for analytical testing consistent with DOE's Pollution Prevention Division's guidance document entitled *Leachable Toxic Waste, Testing and Disposal*. The sandblasting residues, if determined through analysis as hazardous, shall be shipped offsite in accordance with all regulatory requirements, including those of the *Transportation of Dangerous Goods Regulations*, for final disposal at a facility licensed to accept hazardous materials. As previously discussed, hazardous material shall be temporarily stored in the Project provided storage location (HWSA). If the sandblasting residue is deemed non-hazardous, it will be transferred to a landfill approved to accept such waste.

6.2.2 Hazardous Domestic/Commercial Wastes

6.2.2.1 Hazardous Domestic/Commercial Liquid Wastes

Untreated Sewage

Toilet and wash facilities will be located throughout the site. For early works packages, port-a-potties or holding tanks will likely be used. Subsequent to the Early Works program septic systems with tile fields will be utilized for the starter camp, a full water and sewer/sewage treatment plant will thereafter be used for Accommodations Complex, sewage holding tanks and portable toilets will be used at remote locations. See Section 5, Roles and Responsibilities for information on sewage waste throughout the life of the Project.

In the case of toilet facilities not connected to any form of treatment, human waste shall be collected using a licensed septic removal service and sent to a licensed disposal facility. This will be required in cases where the responsibility does not rest with the GRDC (e.g. construction camps and work sites used by the Reservoir

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Clearing and ac Transmission Line Contractors, or any of the Early Works Contractors). The Contractor shall provide the Engineer with two (2) copies of all permit documentation and licenses for this service immediately on receipt from regulatory agencies. These services are available within the Town of Happy Valley-Goose Bay.

Ballast Water

The Ballast Water Control and Management Regulations, under the Canada Shipping Act, identifies the procedures to be used for release of Ballast Waters in Canadian Waters. Provisions of these regulations shall be strictly followed by all vessels involved in transporting goods, equipment, and materials involved on the Project.

6.2.2.2 Hazardous Domestic/Commercial Solid Wastes

Organic - Biomedical Waste

Small amounts of biomedical wastes will most likely be generated during construction. For the purpose of this Waste Management Plan, biomedical wastes regarded as hazardous include:

- All waste sharps (e.g. waste needles), wherever they are generated;
- All waste material generated in on-site medical clinics and mobile treatment centres that have become contaminated with bodily fluids;
- All wastes deposited in receptacles that are labelled “Biomedical Wastes Only” and which are strategically located within Company provided facilities; and
- All similar wastes collected and stored by Contractors in their own facilities.

Note that all soft waste materials contaminated with “significant amounts” of bodily fluids shall be immediately double bagged in plastic. These shall be placed in a “Biomedical Waste Only” receptacle provided by the Company or Contractor. All other materials and surfaces that have come in contact with such fluids shall be immediately cleaned with a disinfectant, such as bleach.

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Persons using needles to administer their own medication (e.g., diabetics) shall place their used needles in the approved sharps containers provided throughout the site.

Sharps generated in remote locations shall be collected and stored in approved sharps containers.

Biomedical wastes collected from filled sharps containers and “Biomedical Waste Only” receptacles shall be removed from the work site and transported to a licensed facility for destruction and disposal.

Disposal of biomedical waste collected at Company supplied facilities is the responsibility of the Medical Services Contractor. There is an existing bio-medical waste collection service that collects waste from Happy Valley - Goose Bay. The Medical Services Contractor shall organize a pickup/drop off schedule with for this service.

Off-site removal and disposal of biomedical wastes collected by Contractors and stored at their facilities shall be the Contractor’s responsibility.

Organic - Sewage Sludge

Sewage sludge generated by sewage treatment systems shall be removed from site by the GRDC and disposed of at a licensed waste disposal site.

Chemical - Treated Wood

During construction, pieces of unusable lumber treated with wood preservation chemicals shall be collected and disposed of in a licensed waste disposal site.

Chemical - Aerosol Cans

Aerosol cans shall be collected and disposed of in a licensed waste disposal site.

6.3 NON-HAZARDOUS WASTES

The handling, storage and disposal of waste materials that are classed as Non-Hazardous and generated at the site is generally the sole responsibility of the

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Contractor and shall be managed under all applicable guidelines and regulatory requirements.

An exception to this would be food wastes generated at the permanent Accommodations Complex. These wastes will be collected, hauled, and disposed of by the GRDC in accordance with a services contract.

6.3.1 Non-Hazardous Construction Wastes

6.3.1.1 Non-Hazardous Construction Liquid Wastes

Treated Effluent

Treated effluent (including effluent discharging into a water body from settling ponds, sewage treatment plants, and concrete batch plants) shall be released to the environment in accordance with SLI's approval.

Prerequisites for this approval are that all applicable regulatory permits and approvals be provided to SLI, and that the effluent quality is shown to meet all regulatory requirements (e.g. *Environmental Control (Water and Sewer) Regulations* and Section 36(3) of the *Fisheries Act*), and permit conditions.

All concrete trucks and associated equipment shall be cleaned in a manner that conveys all wash water to an approved settling pond to ensure its treatment prior to release to the environment. Washing of this equipment should preferentially take place at the concrete batch plant; however, minor washing of concrete truck chutes and hand tools may take place at the delivery location, provided that all wash water is contained and directed to an approved settling pond for treatment.

6.3.1.2 Non-Hazardous Construction Solid Wastes

The discussion below focuses on solid non-hazardous waste destined to approved waste disposal sites. Written copies of the site operators' permission shall be provided to the Engineer prior to disposal.

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Inert Material

SLI is committed to reducing the volume of the overall waste to the greatest extent practicable by reusing and recycling. Inert waste, such as waste concrete from the cleaning of cement trucks and pumps, off-spec and/or surplus production shall be reused rather than dumped whenever practicable.

If required, disposal of small amounts of waste concrete shall be done at a designated disposal site, which shall be accepted by the On-Site Environmental Monitors. The concrete shall be discharged into one or more "cow patties" not more than 6 feet in diameter and allowed to cure completely before being incorporated into the site fill.

Where possible, off spec or waste concrete shall be utilized to manufacture items such as barriers, retaining structures, etc; disposal shall be considered a last resort. If disposal is required, construction and demolition (C&D) waste shall be taken to a landfill approved to accept such waste.

Conveyor Belts and Tires

Conveyor belts and tires have limited life and, when no longer usable, contribute to construction waste generation.

Contractors must pursue a tire and conveyor belt exchange program with the vendors; and an investigation of alternative uses for old conveyor belts and tires shall be ongoing. Some suitable alternate uses for tires are dock protection and road protection in turning areas. However, for the most part, used conveyor belts and those tires not included under the MMSB tire recycling program (i.e. heavy equipment and industrial tires, etc.) shall be removed from the site and transported to a licensed waste disposal area. Tires included under the MMSB program, shall be taken to a MMSB authorized collection point by the Contractor for disposal.

Old Vehicles

Vehicles and equipment shall be shipped offsite for reuse/recycle when they are no longer useable. While awaiting back shipping, each Contractor shall store unusable

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vehicles and/or their metallic parts in areas designated by the Engineer. These shall be collected and hauled to a licensed metals recycling facility for processing.

All fluids shall be drained/collected and stored in a manner acceptable to SLI (in Project provided storage location previously mentioned) where they shall be collected and/or transported to a licensed Hazardous Waste Facility.

Scrap Metals

This waste stream consists of ferrous and nonferrous scrap metals of various types. Metal scraps may be generated from cut-off parts of reinforced steel bar, wire, ends of piping and other similar items. Scraps shall be deposited in a metals storage bin and collected by a licensed metals recycler.

Bulky scrap metals such as unusable vehicles or large appliances shall be shipped offsite for salvaging and disposal. Reusable scrap metals such as sheeting and used drums will be reused as a part of an effective waste reduction program. Recoverable/recyclable scrap metals shall be sent to the recycling facilities directly by the Contractor. Scrap metals that cannot be recycled will be sent to a landfill approved to accept such waste.

General Construction and Demolition Waste

Waste generated during construction activities may include salvageable materials such as electrical cables and reels, cladding, piping and insulation, where possible, these shall be removed from site for potential reuse. Alternatively, any useable excess materials, which might be required for maintenance and/or repairs, will be stored neatly in a warehouse or designated laydown area. Innovative use of excess materials, such as using electrical reels for stacking supports or portable bollards, will be encouraged where practical. Materials that cannot be recycled or reused will be transported directly to a landfill approved to accept such waste.

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Untreated Wood

During the construction phase, pieces of broken untreated lumber shall be collected and disposed of in a landfill authorized to accept such waste. .

Larger pieces of untreated lumber shall be stored at an SLI approved temporary storage area for potential reuse. Site personnel shall be informed to reuse this lumber material as much as possible or wherever feasible. When no longer usable at the site, untreated wood waste shall be shipped offsite for reuse.

Cardboard and Paper

Cardboard and paper wastes shall be recycled collected and sent to a local recycling facility, if available, or disposed of at an approved waste disposal site.

6.3.2 Non-Hazardous Domestic/Commercial Wastes

6.3.2.1 Non-Hazardous Domestic/Commercial Liquid Wastes

Effluent from a sewage treatment system that meets all regulatory requirements and permit conditions for discharge to the environment shall be released in accordance with the Engineers approval.

6.3.2.2 Non-Hazardous Domestic/Commercial Solid Wastes

Inert Material

The solid domestic waste stream consists of food waste, recyclable containers (cans, bottles), inert non-combustible domestic waste, packaging, corrugated cardboard, plastics, and paper and paper products.

The disposal of solid domestic waste is the sole responsibility of the Contractor for all Early Works contracts. For all other contracts, a GRDC is expected to be in place and this waste disposal Contractor shall assume responsibility for this waste stream.

All solid wastes generated in remote locations (including the Roads Contractor) will be managed by individual Contractors and transported to a licensed waste disposal site on a regular basis.

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Food Waste

The majority of the food wastes will be generated in the lunchroom areas of the construction site and accommodations complex. All food waste shall be collected and disposed of in an enclosed and covered wildlife-proof bin to minimize the attraction of wildlife.

Bag lunch wastes generated in various work areas shall be collected in plastic bags and taken directly to wildlife-proof bins. This will then be placed in a storage bin and taken to a landfill for disposal or compost. Appendix A includes a supplier's brochure of bear resistant containers that are acceptable for use as wildlife-proof bins.

Where possible, purchasing bulk food packages shall be encouraged at the site to minimize waste production, through the reduction of packaging materials.

Beverage Containers

Although plastic waste will be included in the garbage stream, bulk purchases and, where possible, reusable containers should be utilized to reduce the overall generation of plastic waste.

Where reuse of beverage containers at the site is not possible, and where practical, arrangements shall be made to transport those beverage containers to a local recycling depot.

Corrugated Cardboard and Paper

Fibre waste will be included in the garbage stream; however, where possible, paper reduction strategies should be exercised to reduce the overall generation of fibre waste. Examples of reduction strategies may include workplace initiatives promoting double-sided printing, employee training, procurement policies with respect to packaging, etc.

All cardboard and paper shall stored in a bin and be shipped off site to a licensed recycling facility, when required.

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Reduction in cardboard waste will be achieved by encouraging Contractors and suppliers to avoid extensive packaging.

6.4 OTHER WASTES

6.4.1 International Waste

Due to the possibility of shipment of supplies by water at the Happy Valley - Goose Bay and Cartwright Ports, international waste may be off-loaded from an international source, upon inspection and approval of the Canadian Border Services Agency (CBSA). The On-Site Environmental Monitors will be responsible to contact CBSA prior to off loading, however under a contractual arrangement, responsibility will rest with the Contractor and all associated documentation and records will be made available to the On-Site Environmental Monitors upon request.

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Table 6-1: Treatment and Disposal Plan

Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
Petroleum Waste Stream				
Used Oil including used Hydraulic Fluids	Collect in trays and drums. Transfer to ULC storage tanks. Ship offsite.	Ship Offsite to a Licensed Facility for recycling or destruction	<i>Used Oil Control Regulations, EPA</i> <i>GAP Regulations, EPA</i> <i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i> <i>Fire Prevention Flammable and Combustible Liquids Regulations under the Fire Prevention Act, 1991</i>	Contractor
Condemned Fuels	Collect and store in drums at the Hazardous Waste Storage Area (HWSA). Ship offsite.	Ship Offsite to a Licensed Facility for recycling or destruction	<i>GAP Regulations, EPA</i> <i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i> <i>Fire Prevention Flammable and Combustible Liquids Regulations under the Fire Prevention Act, 1991</i>	
Used Oil Filters	Store canisters in separate drums at the HWSA. Ship offsite.	Recovery/Landfill at Licensed Offsite Facility	<i>Used Oil Control Regulations, EPA</i> <i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	
Contaminated Soils	Analyse Samples. Consult Regulations. Ship offsite.	Ship to Licensed Offsite Facility for Destruction or Bioremediation	<i>NL Guidance Document for the Management of Impacted Sites</i>	

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
Chemicals				
Acids	Store in approved containers at the designated HWSA. Ship to offsite disposal facility.	Reduce / Dispose offsite.	<i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	Contractor
Solvents	Use non-toxic solvents when feasible. Store in approved containers at the designated HWSA. Ship to disposal facility offsite.	Reduce / Dispose offsite.	<i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i> <i>Fire Prevention Flammable and Combustible Liquids Regulations under the Fire Prevention Act</i>	
Waste Batteries	Store at the designated HWSA. Ship offsite by a qualified and experienced Hazardous Waste Contractor as per TDG requirements.	Ship to Licensed Offsite Facility for recycling or disposal.	<i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	Contractor
Aerosol Cans	Collect cans separately in marked drums. Store at the HWSA. Ship offsite by a qualified and experienced Hazardous Waste Contractor.	Reduce / Ship contents to Licensed Offsite Facility Offsite for disposal.	<i>TDG Regulations</i> <i>Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	
Solvents, Paints, epoxies and adhesives.	Collect cans with residual product in drums. Store at the designated HWSA. Ship offsite. Empty containers can be collected	Dispose offsite at an offsite Licensed facility.	<i>Fire Prevention Flammable and Combustible Liquids Regulations under the Fire Prevention Act, 1991</i>	

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
	and shipped with regular waste for disposal in Regional Landfill.			
Laboratory Products	Store at source. Dispose offsite.	Dispose offsite at an offsite Licensed facility.	<i>TDG Regulations Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	
Explosives (expired or contaminated)	In accordance with all regulatory standards, protocols, good practices.	Reduce, destroy, ship off-site	<i>TDG Regulations</i>	Contractor
Other Wastes				
Fluorescent bulbs/tubes	Store at the designated HWSA. Ship offsite by a qualified and experienced Hazardous Waste Contractor.	Recovery/Landfill at Licensed Offsite Facility	<i>TDG Regulations Reference Material for the WHMIS Requirements of the Hazardous Products Act and Controlled Products Regulations</i>	Contractor
Tyvek Suits/Rags	Store at the designated HWSA. Ship offsite by a qualified and experienced Hazardous Waste Contractor.	Recovery/Landfill at Licensed Offsite Facility		
Printer and Toner Cartridges	Store and send back to supplier or manufacturer.	Recycle	<i>Discuss with equipment supplier.</i>	
Domestic Wastes				
Food	Collect in plastic bags.	Landfill/Compost		

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
	Take directly to storage bin. Do not store outside.	at Regional Waste Management Facility or approved landfill site.	<i>Waste Diversion Regulations, EPA Provincial Waste Management Strategy Waste Management Regulations, EPA</i>	Contractor during early works. GRDC upon implementation of contract (exception: road Contractor, reservoir clearing, ac transmission line Contractors).
Paper and Cardboard	Contractors store dry materials for collection. Place in storage bin and ship offsite to a licensed recycling facility or Regional Waste Management Facility, when required.	Landfill when applicable/ Recycle		
Plastics	Plastics of non-toxic materials to be included with regular waste and transported to landfill.	Recycle/Landfill		
Beverage Containers	Collect beverage containers accepted under the MMSB Beverage Container Recycling Program and make available to charitable organizations.	Recycle		
Tin Cans	Contractors store dry materials for collection by GRDC. Collect and store with recyclable plastics and	Recycle		

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
	ship offsite to Regional Waste Management Facility.			
General Wastes	Collect and store in compactor bin. Ship offsite to a licensed facility.	Landfill		
Inert Bulk Wastes				
Passenger and light truck tires	Remove from site and transport to a licensed tire storage/disposal area. Work within the MMSB's Used Tire Recycling Program	Re-use / Recycle / Dispose offsite	<i>Waste Management Regulations, EPA MMSB – Used Tire Recycling Program</i>	Contractor
Vehicles	Drain and collect residual fluids and store in laydown area. Ship offsite via licensed metals recycler.	Recycle	<i>Waste Diversion Regulations, EPA Waste Management Regulations, EPA</i>	
Bulk Construction Debris	Stockpile in designated laydown area. Reuse/Recycle where possible. Ship offsite to Regional Landfill Site.	Reuse / Recycle / Dispose offsite		
Scrap Steel / Wire / Aluminum	Store recyclable wire or aluminum in metal bins at storage area. Store bulk steel at laydown area and ship offsite.	Recycle offsite	<i>Waste Diversion Regulations, EPA Waste Management Regulations, EPA</i>	

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
Sandblast Residue	Collect at source. Store in drums at the storage area. Ship offsite or transfer to landfill.	Landfill		
Concrete	Disposal of "cow patties" at designated site. Once cured can be used in site fill material	Reuse as fill		
Special Wastes				
International Waste	Contact Canadian Border Services Agency for inspection and approval prior to off loading.	Landfill	<i>Health of Animals Act , Section 17 Health of Animals Regulations, Section 47 and 105 (3) Plant Protection Act Plan Protection Regulations</i>	Contractor
Biomedical Wastes	Store in special waste receptacles Ship offsite.	Dispose offsite		
Asbestos Waste	Requires removal at source by a licensed Asbestos Abatement Contractor.	Landfill	<i>Environment Protection Act Asbestos Abatement Regulations, 1998 The Occupational Health and Safety Act Highway Traffic Act</i>	
Human Waste	Collected at source and removed by a licensed Septic Removal Contractor.	Treatment and Disposal	<i>Public Health Act, Sanitation Regulations</i>	Contractor during early works. GRDC upon implementation of contract (exception: road

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Waste Type	Site Handling/Shipping Methodology	Treatment or Disposal Strategy	Applicable Regulations/Permits/Information	Primary Responsibility
				Contractor, reservoir clearing, ac transmission line Contractors).

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7 ESTIMATED VOLUMES OF SPECIFIC WASTE STREAMS

Potential waste streams were identified in previous sections however the primary waste streams identified at the planning stage that are expected to be generated at the Project site include domestic, sewage and construction waste. As such, waste volumes for these three waste streams have been calculated for early works and work following the start of the GRDC's mandate. In addition, two other significant wastes that have been identified include used oil and explosive boxes. The volumes of all items are calculated and shown in the sections below.

7.1 EARLY WORKS

7.1.1 Domestic Waste (Early Works)

The estimated amount of domestic waste to be generated during the first 6 months is approximately 50 tonnes. A generation rate of 1 kg/person/day was utilized to calculate this number as domestic waste directly corresponds to population or in this case the number of workers located on site.

The estimated tonnage is expected to fill approximately five, 37 yd³ compactor trucks, based on 10 tonnes per load. Figure 7-1 provides the breakdown of domestic waste volume per month.

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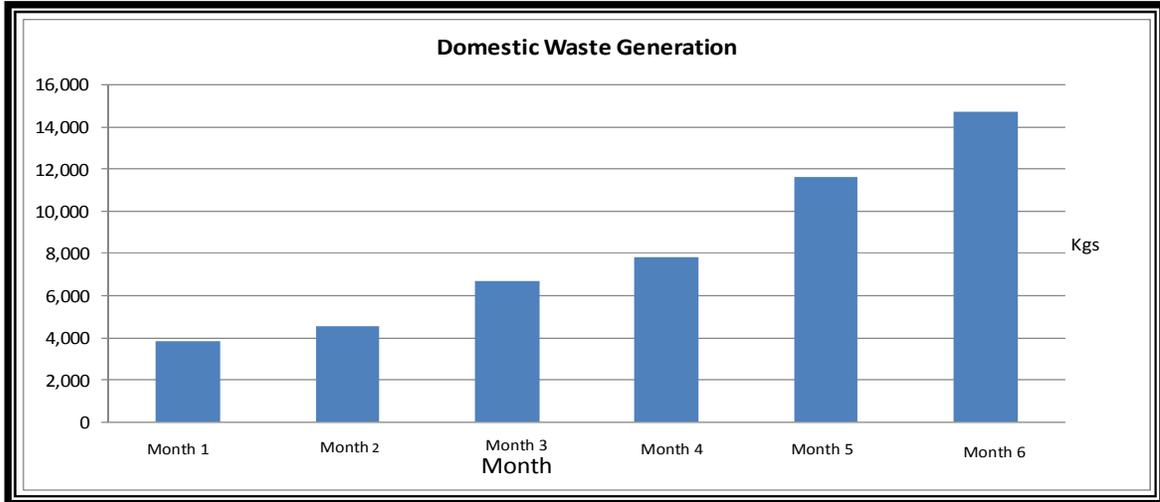


Figure 7-1: Domestic Waste Generation (pre-GDRC implementation)

7.1.2 Sewage Waste (Pre-GDRC Implementation)

During the majority of the early works, more notably during the construction of the access road, the site will be serviced with portable toilets. Based on an estimated sewage generation rate of 10 L/person/day, the total estimated amount of sewage waste to be generated prior to the start of GDRC’s mandate is about 500,000 L. Figure 7-2 provides the breakdown of sewage waste volume per month. More information about sewage disposal is located in Section 6.2.

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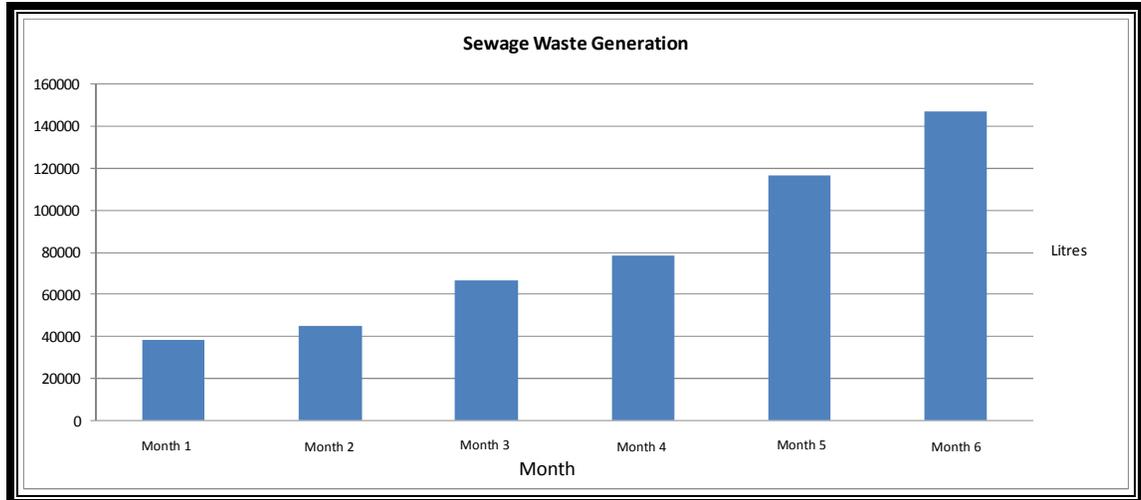


Figure 7-2: Sewage Generation (pre-GDRC implementation)

7.1.3 Construction Waste (Early Works)

7.1.3.1 Access Road

It is assumed that the amount of construction waste generated during the construction of the Access Road will be minimal, however only a small amount of formwork is expected to be needed for culvert installation. This is estimated to be approximately 500 kg or 0.5 tonnes.

In addition, the use of silt fencing will be required for protection to surrounding environment. This waste is type is estimated to be approximately 0.25 tonnes. An additional, 1 tonne is carried to account for miscellaneous construction waste items.

Therefore, based on the information above, the total amount of waste generated during the construction of the access road is estimated to be approximately 1.75 tonnes.

7.1.3.2 Accommodation Complex and Site Services Infrastructure

As with the construction of the access road, the construction of the accommodation complexes will also generate very little construction waste. Due to the

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accommodations units arriving prefabricated, the estimated amount of waste generated is low, and is made up mostly of wood cuttings generated from wooden foundation cribbing and some plastic and plywood waste. It is assumed that 225 kg of wood waste would be produced per trailer. Current estimates are that 26 trailers will be needed for an approximate total of 6000 kg or 6 tonnes.

Piping for site services will be manufactured of HDPE and will be cut and fused to the desired length. Based on an estimated overall length of 4.6 km of HDPE pipe, and an assumption of 0.1 m of wastage per 15 m of pipe, with a weight of 120 kg/15 m, the total tonnage of waste generated from piping activities is .25 tonnes.

7.1.4 Used Oil (Early Works)

A considerable amount of heavy equipment will be utilized during the early phases of the Project. In keeping with necessary maintenance schedules, Contractors are required to maintain equipment and equipment fluids. During this phase, it is estimated that nearly 16,500 litres of waste oil will be generated. More information on used oil is provided in Section 6.2.1.1.

7.1.5 Explosive Boxes (Early Works)

During the early phase of this Project, the use of explosives will be necessary for excavation of the access roads. An estimated total of 1,300 cases of explosives will be required for road construction activities. Once the explosives are removed and used during construction, the cases will be destroyed as identified in Section 6.

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Table 7-1: Estimated Waste Volumes (Early Works)

Waste Type	Estimated Volume
Domestic Waste	50 Tonnes
Sewage Waste	492,000 Litres
Construction Waste (includes Access Road, Accommodations Complex and Site Services)	8 Tonnes
Used Oil	16,500 Litres
Explosive Boxes	1,300 Cases

7.2 WORK POST GRDC AWARD

7.2.1 Domestic Waste

The total estimated amount of domestic waste to be generated from year 1 to year 6 is 1,900 tonnes. This equates to approximately, one hundred and ninety 37 yd³ compactor truck loads. Figure 7-3 provides the breakdown of domestic waste volume per year.

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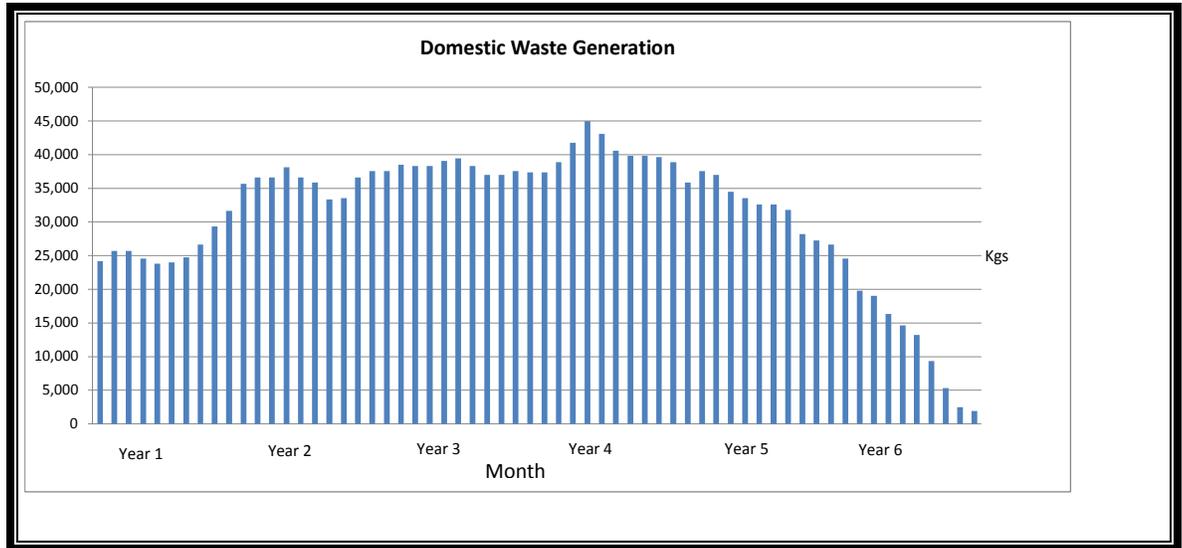


Figure 7-3: Domestic Waste Generation Year 1 to Year 6

7.2.2 Sewage Waste

Based on the assumption that the average worker generates approximately 270 L/day of sewage, the total estimated amount of sewage waste to be generated after year 1 to year 6 is estimated at 525,000,000 Litres. Although, this volume represents the total amount generated, it is expected that only 10,000 litres of sludge would be removed from the sewage treatment plant per year for a total of 50,000 litres over the life of the Project. Figure 7-4 provides the breakdown of sewage waste volume per year. More information about sewage disposal is located in Section 6.

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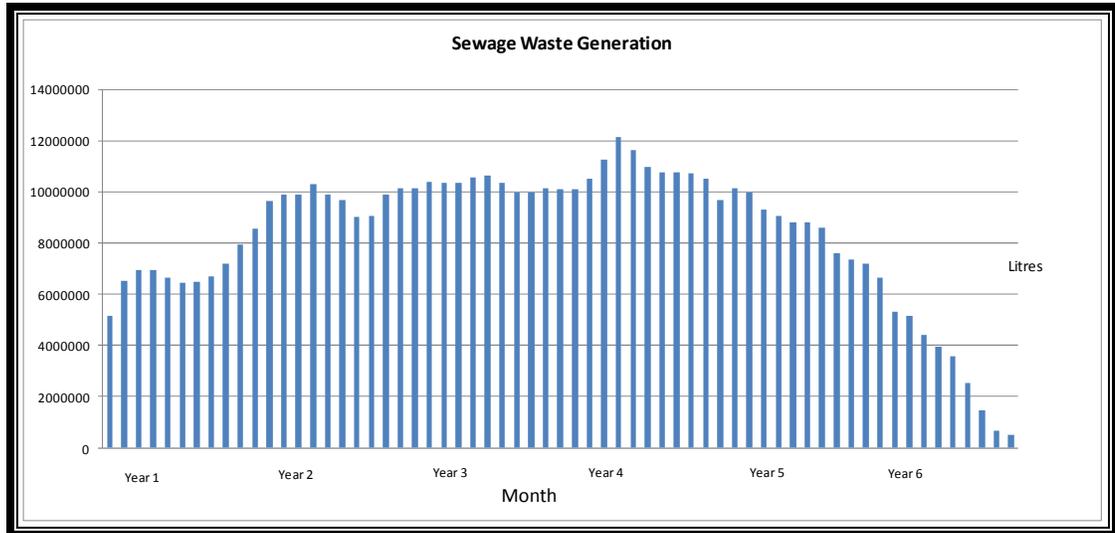


Figure 7-4: Sewage Generation Year 1 to Year 6

7.2.3 Construction Waste

Based on waste information obtained from the Bull Arm Construction Site during fabrication of the Hibernia Gravity Base Structure, the reported waste tonnage for the construction debris waste stream was 8,400 t/yr. Based on this information we can estimate a total of 42,000 tonnes over the life of this Project. Of that tonnage approximately 23,000 t is expected to be recyclable metals, including scrap rebar and with an additional 4,800 t in recyclable wood.

It is assumed that although different in scope, the LCP will likely see similar types of waste tonnages after GRDC implementation.

7.2.4 Used Oil

Similar to the section above, an estimate for waste oil is based on data obtained during fabrication of the Hibernia Gravity Base Structure. The volume of waste oil generated on site was reported to be 936,000 L/yr. This volume can be considered

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comparable based on the length of the Project and types of equipment used for a total of 4.7 million litres. More information on used oil is provided in Section 6.

7.2.5 Explosive Boxes

During the later phase of this Project, the use of explosives will be necessary during bulk excavation. An estimated total of 13,000 cases of explosives will be needed to complete this work leaving 13,000 empty cases once the explosives have been utilized. More information on explosive boxes is provided in Section 6.

Table 7-2: Estimated Waste Volumes (Year 1 to Year 6)

Waste Type	Estimated Volume
Domestic Waste	1,900 Tonnes
Sewage Waste Generated to Treatment Plant	525,000,000 Litres
Sewage Sludge Removed from Treatment Plant	50,000 Litres
Construction Waste	42,000 Tonnes
Used Oil	4,700,000 Litres
Explosive Boxes	13,000 Cases

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8 WASTE MANAGEMENT REQUIREMENTS

As part of the overall waste management plan, the LCP is committed to ensuring that every person on site is provided with the opportunity and direction to practice responsible waste management. Waste receptacles, such as recycling and waste bins, will be strategically placed throughout the site and will be clearly labelled as to what should be placed in them. Recycling bins will be placed in heavy traffic areas, common work areas, and, most importantly, in locations where recyclables are typically generated.

The details of the waste collection/disposal requirements will be finalized with the GRDC, however the following sections discusses the anticipated requirements.

8.1 STORAGE

8.1.1 Beverage Containers

Most empty beverage containers will be generated in dining halls of the starter camp and Accommodations Complex, and at construction sites frequented by a large number of people. Empty containers at remote locations shall be collected and contained by the Contractor and transported to a designated area for storage for future recycling or directly to the licensed recycling depot.

Blue bin recycling containers are recommended for use for the collection of beverage containers due to their high visibility. The use of dedicated recycling containers will serve as a reminder for personnel to use the recycling containers instead of throwing containers into the general refuse containers. The blue bin containers will be clearly labelled BEVERAGE CONTAINERS ONLY and be placed in the following areas around the site:

- Lunch Facilities
- General Office
- Maintenance Areas

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8.1.2 Residual Waste Containers

Waste receptacles shall be placed within all buildings and work areas for the collection of residual waste.

8.1.3 Roll Off/On and Front Load Containers

At minimum, it is anticipated that three wildlife proof 20' (40 yd) roll on/off containers will be needed on site to accept waste transferred from the smaller bins once they are removed from the site buildings. Two containers could be utilized for the residual waste stream, and a third will be required for substitution, when filled bins area being transported to the waste disposal site.

At least, one 7 cubic meter Front Load Container shall be placed on site to collected beverage containers. Once this bin is filled, it will be hauled to a licensed recycling depot for processing.

8.1.4 Construction and Demolition Waste Storage

During construction, individual Contractors will be responsible for collecting their wastes in acceptable containers within their workshops or laydown areas. Containers containing construction waste or large construction waste materials may be temporarily stored within the construction area upon approval on the On-site Environmental Monitor and must be stored according to applicable regulations.

Recyclable metals shall be placed in an onsite location suitable for pick up by a licensed metals recycler. Special arrangements shall be made with the recycler for large items.

8.1.5 Hazardous Waste Storage

A Hazardous Waste Storage Area will be provided for Contractors to utilize. The storage area will be designated by SLI to a Contractor for storage of hazardous waste. The Contractor shall be responsible for constructing and maintaining the site

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in compliance with applicable regulations and is ultimately responsible for disposal and removal of any waste management infrastructure and equipment.

Individual Contractors will be responsible for providing acceptable leak proof containers within their work areas. Containers for on-site hazardous waste storage shall, as a minimum, meet requirements of the *Transportation of Dangerous Goods Regulations*, as provided in <http://www.tc.gc.ca/eng/tdg/moc-menu-202.htm>.

The Contractor shall provide SLI with records of type and amount of waste deposited in and removed from site. SLI will monitor the storage area to ensure that Contractors store waste in a safe manner. The Contractor shall ensure that containers are removed from site on an as needed basis to a licensed hazardous waste facility for disposal.

Storage shall comply with provisions of the National Fire Code to ensure that incompatible wastes are not stored together.

All Contractors that generate handle, store, and/or transport hazardous materials and hazardous wastes shall each be required to meet all regulatory requirements that pertain to their involvement with these materials/wastes. These Contractors shall have all resources (including employees who have completed training programs acceptable to the Engineer), meet all licensing/permitting requirements of applicable federal and provincial regulations, and provide spill response resources and capabilities consistent with the Project's Master Spill Response Plan.

8.2 FUTURE WASTE MANAGEMENT REQUIREMENTS

Future provincial waste management requirements may dictate the separation of various waste streams at source. In the event that a regional plan is implemented, this Waste Management Plan will require revisions and operation changes will be needed.

These changes may result in the use of additional source separation techniques and equipment.

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8.3 CONTINGENCY PLANS

An adverse event is one that can result in potential negative effects on the health and safety of site personnel, Contractors, the public, or the environment. The following sections describe potential adverse events and appropriate responses to deal effectively with them.

Note that the federal *Transportation of Dangerous Goods Regulations* requires an approved *Emergency Response Assistance Plan* for those who transport explosives. Such a plan, when implemented effectively in response to an incident involving explosives, helps mitigate environmental effects.

The Project's *Master Spill Response Plan* is another document intended to facilitate an effective response to a spill incident aimed at mitigating effects of spills of oil, fuels, and other hazardous materials.

Proactive measures to anticipate and prepare for adverse events are expected of all Project participants, particularly those tasked with waste management.

8.3.1 Improper Disposal

Any instances of improperly disposed of materials identified by onsite Environmental Monitors or other Project participants shall be reported immediately to SLI's Construction Manager and Environmental Coordinator (Hydro), and investigated. The responsible Contractor shall be required to remove the waste and dispose of it in a manner acceptable to the Engineer. This will include waste characterization, as directed by the Engineer, to identify the nature of the improperly disposed of material so that acceptable storage, transport, and disposal options can be identified. If a responsible party cannot be identified, arrangements will be made by the onsite Environmental Monitor to have the waste removed and transferred for disposal. For example, recyclable material will be removed from the non-recyclable waste stream.

If hazardous wastes are suspected to be improperly disposed of, then this material will be characterized. If safe and practical to do so, the material will then be placed in

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dedicated storage containers separate from other waste types that have not come into contact with the hazardous materials, and transported to and disposed of at a licensed hazardous waste disposal facility.

8.3.2 Fire

In the event of fire associated with wastes, the onsite Environmental Monitors shall be notified and the emergency response unit shall be dispatched immediately in accordance with the procedures outlined in the Project's Emergency Response Plan.

Because even small fires can quickly escalate into a dangerous situation, particularly when hazardous materials (fuels, chemicals, etc) and wastes are involved, it is imperative that the emergency response unit be dispatched immediately.

As a pro-active measure aimed at preventing fires, Contractors shall use approved storage containers and waste handlers shall be familiar with hazardous waste compatibility profiles. Non-compatible wastes will be segregated.

8.3.3 Extreme Weather Conditions

At times when forecasts call for extreme weather events (e.g. snow, rain, wind, etc), the Construction Manager at his/her discretion shall issue instructions with respect to waste management activities on site. This may include a temporary suspension of waste collection and transportation until the weather improves. In addition, the Construction Manager may also issue instructions to inspect and secure waste containers and storage sites to reduce potential for uncontrolled releases of waste to the environment.

Provisions will be made to allow at least two days of waste storage on site to allow for such adverse weather conditions.

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8.3.4 Vehicular Accidents

In the event of a vehicular accident that results in a spill of a waste material, the Contractor shall notify a SLI Onsite Environmental Monitor of the incident and the emergency response unit will be dispatched immediately in accordance with procedures outlined in the Project's Emergency Response Plan and Master Spill Response Plan, as required.

Depending on the waste type, the Contractor may be required additional notifications. In the case of accidents involving transport of explosives, the *Emergency Response Assistance Plan* shall be implemented, in accordance with provisions of the *Transportation of Dangerous Goods Regulations*.

8.3.5 Contingency Planning

Each Contractor shall address several key elements associated with managing an adverse event through the development of a contingency plan which shall be included in the contract specific EPP. The plan shall include the following:

- Location and nature of the work;
- Types of waste being transported;
- Identification of the types of emergencies that maybe reasonably expected to occur and the potential effect involving public health and safety, environment and property;
- Resources including personnel and/or sub-contractors accountable for waste management procedures;
- Roles and Responsibilities of all key personnel, responders, organizations and other agencies who have specific responsibilities under the event.
- Description of how the plan shall be implemented and who it shall be reported to, including;

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- Government assistance contacts
- Response equipment and material suppliers
- Clean up Contractors
- Fire and Emergency Authorities
- Hospitals
- SLI Contact
- Remediation Procedures
- Disposal procedures
- Reporting procedure, including:
 - Date and time of release;
 - Weather conditions;
 - Cause of the release;
 - Substance and quantity involved;
 - Affected environment;
 - Identification of all parties and individuals involved in the incident and response;
 - Identification of all those affected;
 - Containment procedure;
 - Clean up techniques;
 - Short and long term impacts
 - Measures to be implemented to prevent any re-occurrence.
- Validation, updating and maintenance procedure of the plan

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9 TRAINING

All operations personnel involved in the handling of hazardous and non-hazardous wastes will be fully trained for 'Personal Safety and Protection'. They will also be trained in emergency response and environmental protection. Contractors will be required to provide trained, qualified and experienced personnel for waste management duties. In addition, all personnel entering the site will be given basic instructions for complying with the Site Waste Management and Recycling Policy.

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10 SURVEILLANCE AND MONITORING

The onsite Environmental Monitors will proactively identify any requirements for maintenance work and report the need for repairs. Routine inspection schedules will be maintained to minimize the potential for leaks or pollution and a record will be kept of the maintenance needs and servicing performed. During construction, weekly inspections of the various waste collection and disposal points, the inventory of bulk wastes, the waste management data sheets, the status of the protective equipment and the spill kits will take place. Any non-conformance will be tracked and recorded and necessary corrective action identified.

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11 REFERENCES

Title
DOEC Guidance Documents for Municipal Solid Waste Transfer Stations
DOEC Guidance Documents for Construction and Demolition Waste Disposal Sites
DOEC Guidance Documents for Permanent Household Hazardous Waste Depots
Guidelines for Establishment and Operation of Facilities for the Outdoor Storage of Tires
DOEC Guidance Document for the Management of Impacted Sites

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12 FORMS

REVISION REQUEST FORM

<p>Section to be Reviewed:</p>	
<p>Nature of Revision:</p>	
<p>Rationale for Revision: (i.e., environmental/worker safety, etc.)</p>	
<p>Submitted by:</p>	<p>Submission Date:</p>

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RECEIPT OF REVISION ACKNOWLEDGMENT FORM

I _____ acknowledge receipt of revision _____ of the
 Waste Management Plan, SLI Document Number 505573-0000-68RA-I-0008.

 Signature

 Date

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APPENDIX A

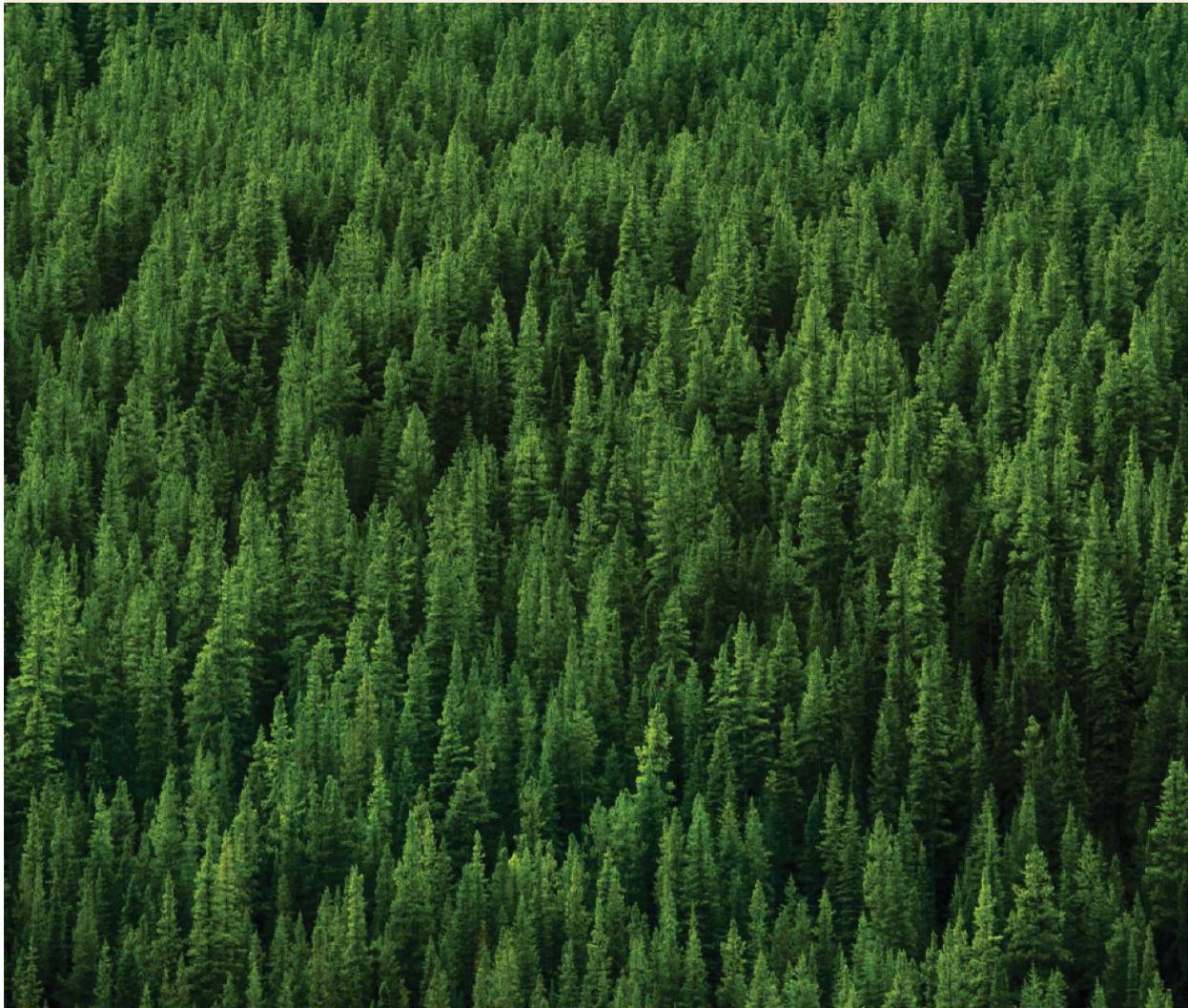
Examples of Acceptable Wildlife - Proof Disposal Bins

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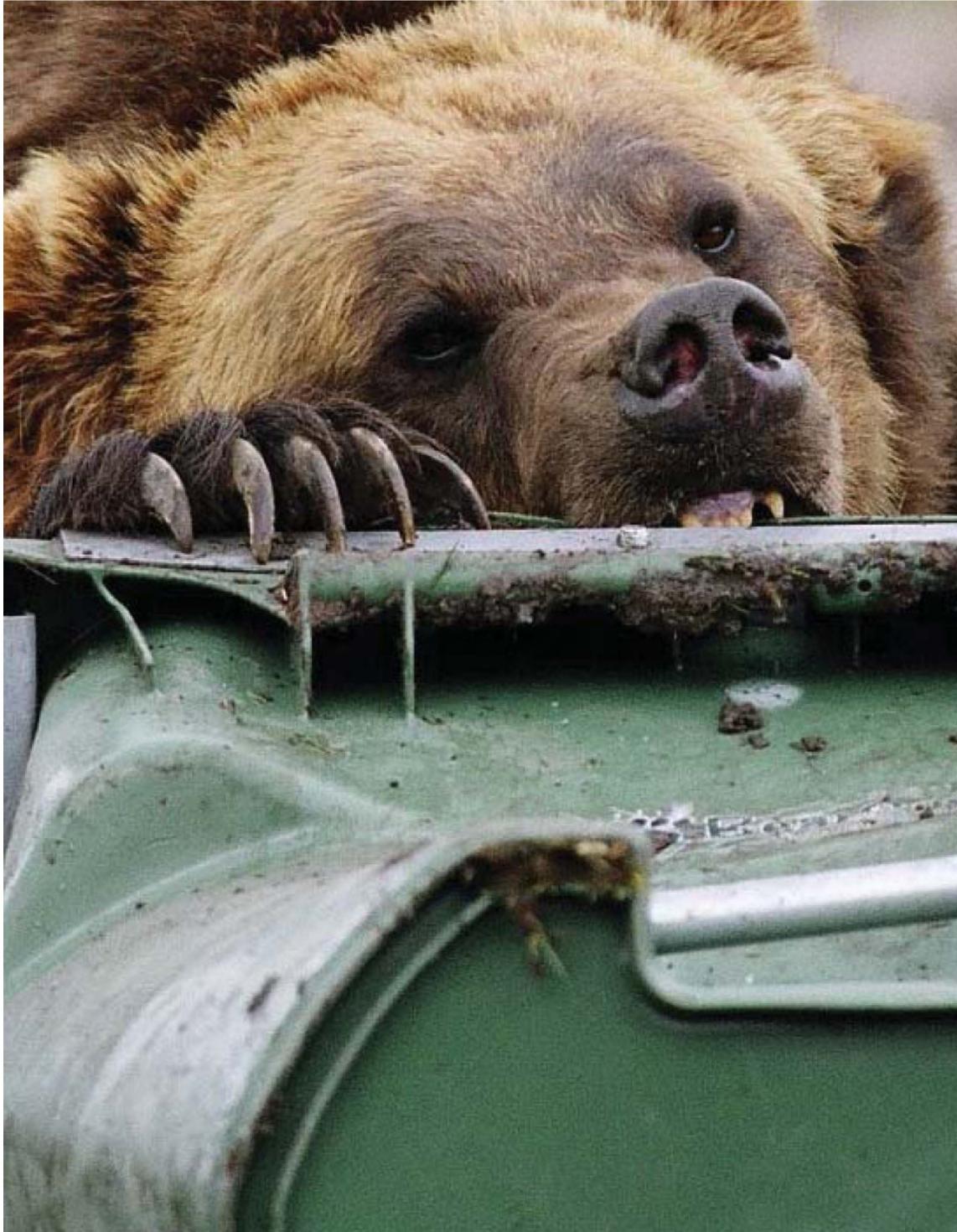


BearSaver

*Bear Resistant Refuse, Recycling
and Food Storage Solutions*



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BE Series Trash/Recycling Container



Manufactured by the North American leaders in bear-resistant containers.

Available in single and double configurations, the large capacity Model BE Series containers are equally suited for refuse or recycling. Incredible quality and durability makes these all-weather containers great for any application.

- ▶ Tilt Out Bag Rack
- ▶ Bear-Resistant and Accessible to Persons with Disabilities
- ▶ 70 Gallon Single Models and 140 Gallon Double Models Available
- ▶ Rear Service Door
- ▶ Optional Custom Laser Cut Designs
- ▶ Refuse, Recycling, or Combo Configurations
- ▶ Corrosion Resistant Materials and Powder Coated Finishes
- ▶ Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black

CE Series Trash/Recycling Container



Available in single and double configurations, the CE Series trash and recycling containers are used widely by the NPS and USFS with great success. These heavy-duty, ADA approved products are a good choice where accessibility compliance is required. The top-loading pull down chutes make these models operable even with a closed fist. Uses a standard 32 gallon trash can inside.

- ▶ User Friendly Loading Chutes for Trash and Tubes for Recycling
- ▶ Bear Resistant and ADA Compliant
- ▶ Front Service Door
- ▶ Trash, Recycling, or Combo Configurations
- ▶ Corrosion Resistant Materials and Powder Coated Finishes
- ▶ Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black

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HA Series Trash/Recycling Container



Manufactured by the North American leaders in bear-resistant containers.

Available in single and double configurations, the Model HA Series containers are equally suited for trash or recycling. Incredible quality and durability makes these all-weather containers great for any application. The stylish design allows placement in locations like visitor centers and downtown city streets where aesthetics are important.

- ▶ **Bear-Resistant and ADA Compliant**
- ▶ **Front Service Door**
- ▶ **Optional Recycled Plastic Wood Siding or Custom Laser Cut Designs**
- ▶ **Trash, Recycling, or Combo Configurations**
- ▶ **Corrosion Resistant Materials and Powder Coated Finishes**
- ▶ **Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black**

HID-A-BAG Trash/Recycling Container



Available in four sizes with trash, recycle or combination options.

Also available in single or double configurations, some models are even ADA Compliant! The Hid-A-Bag is a well known, widely used line of products with a long standing track record of exceptional durability.

- ▶ **Tilt Out Bag Rack**
- ▶ **Bear-Resistant**
- ▶ **Options that are Accessible to Persons with Disabilities**
- ▶ **32, 64, 70 and 140 Gallon Models Available**
- ▶ **Rear Service Door**
- ▶ **Refuse, Recycling, or Combo Configurations**
- ▶ **Corrosion Resistant Materials and Powder Coated Finishes**
- ▶ **Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black**

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Food Storage Lockers

Manufactured by the North American leaders in bear-resistant containers.

BearSaver Bear-Resistant Food Storage Lockers are rugged, high quality metal enclosures designed for safe and convenient food storage in campgrounds, picnic areas and trailheads. Our intermediate sized lockers are 15 (FS15) and 20 cubic feet, which are perfect for smaller campsites and trailheads. The 24 (FS24) and 30 (FS30) cu/ft lockers are large enough to hold an entire family's food supply including two large ice chests.

The **BearSaver** latching system uses a pocket style touch latch with double spring bolt actuation on its standard enclosures. Our pocket style, self-closing touch latch is composed of zinc plated steel components and hardware. A child safety release handle on the inside of the enclosure is provided. The design is very simple for users to operate but is beyond the capabilities of bears. It has a clean, attractive appearance and is ADA compliant in terms of height, reach and required pounds of operating force.



Model FS15
15 Cubic Foot Capacity Food Storage Locker

This small to intermediate sized food storage locker is perfect for trailheads, day use areas, tent cabin areas and small campsites. There is a center shelf built in to take advantage of the 15 cubic foot capacity. With provisions to bolt side-by-side, these lockers can easily be lined up for group usage.

Model FS20
20 Cubic Foot Capacity Food Storage Locker

This is an economically priced, intermediate sized food storage locker with enough capacity (20 cubic feet) for a regular sized cooler and room left over for a few dry goods. Primarily used in campsites, the FS20 can also be used at trailheads and public use areas.



Model FS24
24 Cubic Foot Capacity Food Storage Locker

One of most popular models, the FS24 has enough capacity (24 cubic feet) for a family who is camping for a week. There is room for two regular sized coolers and plenty of space left over for dry goods. Always paying attention to detail we have added hooks on the ceiling of the locker for hanging bags of dry goods. These heavy-duty enclosures with easy to use, selflatching doors will provide years of reliable services in all weather conditions.

Model FS30
30 Cubic Foot Capacity Food Storage Locker

Our largest and best selling food storage locker, the FS30 has a full 30 cubic feet of interior space to accommodate large families on extended stays. With the capacity to hold the largest of coolers and lots of dry provisions, this big locker removes the worries associated with keeping food in your car overnight.



Models FS24RCE and FS26G

These new style food storage lockers are unique in design and made for large families. The sloped roofs are great for heavy snow loads with all the quality and durability you would expect from BearSaver.

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RCE Series Residential Waste Enclosures



Manufactured by the North American leaders in bear-resistant containers.

Our line of residential waste enclosures keeps with the BearSaver tradition of producing tough, functional, long lasting outdoor equipment. The RCE Series enclosures are manufactured using the same materials and finishes as our line of commercial trash enclosures, which are used widely throughout the U.S. and Canada. Our proven, field tested outdoor enclosures will provide years of trouble-free service in all weather conditions. If you are looking to keep hungry bears out of your trash, BearSaver has the solution you need.

Available in 3 Sizes

- ▶ **RCE130F** Holds (1) 30-gallon Rubbermaid can (included with purchase). This model has a slim profile and can be easily bolted side-by-side for added capacity.
- ▶ **RCE230F or RCE230G** Holds (2) 30-gallon Rubbermaid cans (included with purchase) and has a large top-loading lid. Available with sloped or gabled roof.
- ▶ **RCE132F** Holds (1) standard 32-gallon can (not included) and can be bolted side-by-side for added capacity.
- ▶ **RCE330G** Holds (3) cans 30-gallon Rubbermaid cans (included with purchase) and has a gabled roof.

All models have provisions to either bolt down to a slab or use the BearSaver pole mount installation method. See website for details.

Mini Depot Trash/Recycling Container



Designed to hold three different recyclables, the Mini Depot can be configured just by changing the decals. Standard openings are 5" x 5" but a 5" x 10" opening can be ordered in the center position for trash input. Heavy steel construction insures years of service in the most demanding environments. With a baffle plate installed on the inside beneath the loading holes, bears (or people) cannot remove the contents.

- ▶ **Easy Loading and Unloading**
- ▶ **Bear Resistant and ADA Compliant**
- ▶ **Lockable Front Service Doors, 90 Gallon Capacity**
- ▶ **Trash, Recycling, or Combo Configurations**
- ▶ **Corrosion Resistant Materials and Powder Coated Finishes**
- ▶ **Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black**

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Commercial Containers



Manufactured by the North American leaders in bear-resistant containers.

Standard dumpsters with two loading doors are available in front load 2, 3, and 4 yard sizes. Counter-balance lid dumpsters are available in front load 2, 3, 4, 5 and 6 yard sizes. The standard dumpsters have front loading, swing-open doors so getting trash or recyclables inside is easy and clean. The counter-balance lid dumpsters use a creative latching system that requires only one finger to open. The counter-balance effect makes the tops light and easy to open. On either model, dumping is made easy by gravity latches releasing the unloading lid during the emptying process. Clip-down lids are also available as an option.

- ▶ 2, 3 and 4 Yard Front Load Styles for Trash
- ▶ Pole Mounting Options to Avoid Tipping
- ▶ Gravity Latches or Clip-Down Lids
- ▶ Bear-Resistant and Rodent Proof
- ▶ Corrosion Resistant Materials and Powder Coated Finishes
- ▶ Standard Colors are Forest Brown, Fir Green, Olive Green, Blue and Black

Bear Resistant Poly Cart



The BearSaver™ bear-resistant carts are available in 32, 65 and 95 gallon sizes as well as three (3) levels of protection: basic, moderate and high.

- ▶ Special latch box under the bib prevents animal entry
- ▶ Snap shut lid means no manual relatching is required
- ▶ Designed for manual and semi-automated collection systems

Cart Options

The Grizzly Model A fully secured cart offering the maximum level of protection. Bear resistant latch, steel reinforced side rails, lid, back corners, back stiffener and handle area. Perfect for heavy bears like grizzlies.

The Black Bear Model A tough black bear resistant cart offering a medium level of protection. Bear resistant latch, steel reinforced side rails, back corners and lid.

The Varmint Model The economy version of our rolling cart family. Great protection from raccoons, squirrels, coyotes, pets and all other small animals. A bear resistant latch and steel reinforced lid offers “lock down” protection at an affordable price.

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Nalcor Energy – Lower Churchill Project



Security Management Plan

LCP-PT-MD-0000-HS-PL-0005-01

Comments:	Total # of Pages (Including Cover): 30
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Status/ Revision	Date	Reason For Issue	Prepared By	Checked By:	Project Manager (Marine Crossings) Approval	Project Manager (Generation + Island Link) Approval	Project Director Approval
B1	27-Feb-2013	Issue for Use	D. Riffe	S. Lee	G. Fleming	R. Power	P. Harrington
A1	25 Sept 12	Issue for Review	D. Riffe				
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Inter-Departmental / Discipline Approval (where required)

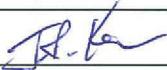
Department	Department Manager Approval	Date
Deputy General Manager		
	J. Kean	
Muskrat Falls Site Manager		
	M. Dykeman	
	Name	
	Name	

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1.0 Purpose

This Security Management Plan will define the methods used to determine the level of threats and security preparedness required to effectively address these identified threats at all construction sites for the Lower Churchill Project (hereafter referred to as LCP or the Project). The operational basis of this plan has been developed in accordance with information generated from an initial project threat assessment conducted by an independent third party consultant in December of 2011.

The physical environment of infrastructure of the Muskrat Falls construction camp and support systems will be designed and managed to reduce the potential of security related incidents/unwanted events. A risk assessment has been conducted to define those areas or zones where the security threats are and how these can be adequately mitigated any known or perceived risk. The Security Management Plan must remain an “evergreen” document to allow for changes in focus, site conditions, threats/risks and mitigating actions. Any changes to this document will be forwarded to all responsible individuals via document processing/document control/Aconex. The Security Management Plan is an integral component of the overall LCP Security Management strategy.

2.0 Scope

The scope of the LCP Security Management Plan consists of the following construction work sites and auxiliary support sites to be effectively managed from a Security perspective:

- Muskrat Falls Generation Facility
- Labrador Island Transmission Link (LITL)
- Labrador Transmission Asset (LTA)
- Miscellaneous Lay Down Areas
- Project Office (s)- Torbay Road/Hydro Place/Happy Valley-Goose Bay Office

Refer to **Attachment #1** for the LCP Project Schematic for additional information.

Other areas that have been considered and included in this plan, as and when applicable, are:

- Public access buildings

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- Marine ports

3.0 Definitions

Access Control System - A system having several features which enable a designated authority to control access to physical areas or information and resources within a given facility. This often consists of physical barriers (static and automated) and access interfaced to a computer-based information system.

Authorized Worker – Any worker who has fully met all training and testing requirements stipulated by the NALCOR / SLI and deemed to be fully competent to work within his/her defined work scope on the project. Additionally, this definition shall include those individuals who, over time, remain in good standing with all training and site access requirements.

Authorized Escort – A contractor or subcontractor representative who has completed site orientation, is fully aware of the site's emergency response and evacuation procedures, and has the authority to accompany visitors.

EPCM – Engineering, Procurement, and Construction Management Consultant- Refers to a contracted company providing technical support services under the direction and management of Nalcor. For the Lower Churchill Project the EPCM Consultant is SNC-Lavalin.

Host – A contractor or subcontractor representative who has been authorized to invite non-project personnel to the project site and receives prior clearance from the Muskrat Falls Site Management or Transmission Line Management beforehand.

Visitor – Any non-project person(s) visiting the project construction site including, but not be limited to vendors, couriers, delivery personnel, regulatory personnel, consultants, engineering representatives, stakeholders and other personnel not assigned to the site.

Badges – Purpose-specific credentials or devices which identify the bearer by electronic signature and photographic confirmation of the bearer. Badges also act as an access tool that interface with a computer based system which activates gates, turnstiles or other physical barriers designed to restrict access.

Temporary Badges – A temporary credential issued to individuals who have been authorized to access the LCP on a limited or temporary basis. Temporary badges are intended to be used in conjunction with Authorized Escorts, and shall be returned to security when visit is completed and/or permanent badge is issued.

Qualified and Competent Security Personnel – Security personnel who, as a minimum, have met all work scope criteria and job stipulations and successfully completed a nationally or provincially recognized security training, supplemented by a minimum of 2 years security work experience in a construction type environment.

4.0 Responsibilities

4.1 Project Component Manager(s)

The Project Component Manager(s) shall ensure all Contractors are fully informed of the security stipulations and requirements defined within this plan, as well as any changes or modifications made to the plan during the course of the Project. Additionally, the Project Component Manager(s) shall ensure all necessary resources; personnel and training, etc. are provided to adequately meet the requirements as defined by this Plan.

4.2 LCP Project Health and Safety Manager

The LCP Project Health and Safety Manager shall be responsible for the overall implementation and management of this Project Security Management Plan. The LCP Project Health and Safety Manager for will also provide oversight and on-going management through direct interface with:

- EPCM Health and Safety Personnel
- Muskrat Falls Site Manager and Site Management Team
- LCP Component Managers
- Telecommunications
- Security Service Provider
- Nalcor Corporate Management Team
- SOBI Crossing Project Manager/Project Team

The SOBI Crossing Project Manager and SOBI Health and Safety Advisor shall be accountable for ensuring that Management of Security is implemented and maintained for the SOBI operations/activities. The Contractor's responsibility for Site/Vessel Security will be clearly defined contractual agreements and verified by the SOBI Health and Safety Advisor.

4.3 Muskrat Falls Site Health and Safety Manager; Site Health and Safety Coordinator/Advisor

The Muskrat Falls Site Health and Safety Manager and Site Health and Safety Coordinator shall also coordinate and consult on incident investigations, secure required documentation and facilitate, through the security contractor, the site badging and induction process for all contractor and subcontractor personnel entering the project site. The Site Health and Safety Coordinator shall also collect and report all metrics and documentation as established by the Muskrat Falls Site Manager and LCP Health and Safety Manager

The Site Health and Safety Manager shall liaise with all Contractor supervision to address issues that arise concerning the security of LCP, tools and equipment.

For SOBI Operations, The SOBI Health and Safety Advisor shall monitor and observe the implementation and maintenance of Security Practices and Principles on SOBI Sites and Contracted Vessels during the execution of the scope of work.

4.4 Field Emergency Response and Security Coordinator

The Site Emergency Response and Security Coordinator shall:

- Supervise and serve as the primary day-to-day point of contact for the Security services provider in relation to establishing processes and systems needed to adequately secure the project site. Ensure the full implementation, enforcement and general application of the Security Management Plan.
- Reviews and recommends (for approval) any request for resources by Security Provider.
- Functions as the key point of contact for the Security Provider. Additionally, this position oversees and monitors the third party Security Provider to ensure all requirements and commitments outlined in the written contract are adhered to and/or effectively executed.
- Conduct periodic site inspections from a site security perspective,
- Prepare loss and incident reports and liaise with subcontractor supervision in relation to property losses and./or investigations and ensure all personnel under their authority fully comply with all provisions and stipulations within the Security Management Plan.

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- Monitor the plan's performance and assess the security contractor on a regular basis to ensure suitability and overall effectiveness.
 - Identify areas that require further threat assessment as the project develops and/or changes. This shall include a security assessment for marine ports and the transmission line construction areas, as and when required.
 - Coordinate and assist, as required, local law enforcement in the investigation, collection of evidence and resolution of criminal activity on the LCP Construction Site.
 - Participate in all supervisory safety meetings and report all required security metrics and data to the Site Health and Safety Coordinator for correlation and report to the Muskrat Falls Site Manager. The security coordinator must be responsive to project management to report on relevant security issues as required.

4.5 Contractor Security Personnel

Qualified and competent Security personnel will be responsive to the needs and requirements as outlined in the "**Authorization Protocol for Access to Project Construction Sites (LCP-PT-MD-0000-HS-PR-0001-01)**", as well as the directions of the Security and Emergency Response Coordinator and Site Health and Safety Manager. Security Officers will visually check all worker's ID presented for access to the Muskrat Falls jobsite and resolve any discrepancies before the badge bearer is permitted entry into the project site. Security officers will continue to monitor the workforce through the audit process to ensure that all personnel on site have the appropriate level of access prior to entry.

A security gate will be positioned at the entrance to the forestry access road from the Trans-Labrador Highway. During active construction, the gate will be manned on a 24 hours per day, 7 days per week. Initially, a temporary facility will be installed at the location (small trailer with generator to provide power, washroom facilities, cellular and satellite phone as well as VHF radio with the clearing and road construction contractors' frequencies). A list of personnel and vehicles involved with the road clearing and construction will be provided to the security personnel for site access. All vehicles approaching the entrance to the gate will be checked to ensure that the personnel and vehicles are authorized to enter. The lift gate can be left open when there are security personnel at the control position. The gate will be closed and locked when security personnel are not present at the control position.

The purpose of the security presence at this gate is to limit/control access to Muskrat Falls site. The following risks have been identified as Moderate to High level Risks.:

- Transportation of illegal contraband (drugs and alcohol) to/or from the construction site, which could have an adverse impact on personnel and activities. Impacts may include equipment damage, vehicle accidents and personnel injury. (Risk: Moderate)
- Theft/unauthorized transport of contractor/contractor property from the construction site. Impacts may include project delays, as well as financial impacts to contractor/company. (Risk: Moderate)
- Unauthorized access of on-lookers/curiosity seekers onto the site. Impacts may include endangerment of site personnel and/or unauthorized personnel due to the inherent dangers of the work activity combined with the distractions that may be caused by unauthorized personnel, as well as increased risk of unauthorized vehicles impacting construction site transportation patterns which could result in vehicle accidents and potential liability for Nalcor. Although the site will be sign posted advising all personnel that it is company premises and authorization is not allowed, access via snowmobiles, four wheelers, etc. is quite possible. (Risk: Moderate)
- Unauthorized demonstrations/protestors at the site entrance. Impacts may include hampered access, work stoppage and potential sabotage incidents endangering personnel, equipment which could result in work delay and/or work stoppage. (Risk: Major)

As a result of the aforementioned risks, the following protocols will be instituted:

- A Security Guard Station will be constructed a safe distance from the Trans-Labrador highway so as not to impede routine traffic on the highway at any time. Provisions will be made to direct oncoming traffic to a staging area (along the side of the access road) in the event of high traffic volume.
- The Security Guard Station will have a full time lockable gate to control access and will be manned by two Site Security Personnel at all times. One of the guards will be checking documentation and authorizations for site entry, while the other guard will be unlocking the gate, checking the vehicle for contraband or suspicious behaviour.
- The Security Guard Station will be manned and operational on a full time (24 hour) basis.

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- If a security guard suspects an individual(s) to be transporting illegal contraband to the site or demonstrating irregular behaviour, the guard should contact the Muskrat Falls Site Manager to advise the situation and detain the individual until contact is made. Any personnel found to be transporting illegal contraband or demonstrating irregular behaviour will be asked to leave the site immediately and will not be allowed to return to the site.
 - If the Security Guard suspects and unauthorized removal of equipment/property has taken place, he must advise the Muskrat Falls Site Manager and have him address the issue with the individual in question.
 - In the event that unauthorized personnel are found to be trespassing on the site, they will be asked to leave immediately. In the event they refuse to leave, the RCMP will be contacted by Security to remove these personnel from the site.

In the case that members of the public arrive at the security gate with questions related to the road construction they will be politely directed to contact the Happy Valley/Goose Bay Nalcor Office. In the event protestors/demonstrators are at the site entrance or on the site. Site Security will notify the Muskrat Falls Site Manager and advise him of the situation. The Muskrat Falls Site Manager will contact the RCMP, particularly if the situation escalates. If protestor/ demonstrator actions are inhibiting work activity, Nalcor operations may be shut down and Nalcor Project Management (through the Muskrat Falls Site Manager) may elect to file an injunction to have these personnel removed from the site, which would be private property.

The project office located at the Muskrat Falls Construction Site Area is currently only accessible to authorized project personnel through the main gate clear security. All visitors to the site are required to complete a "Remote Site Access Request Form, which must be approved by the Muskrat Falls Site Manager, the LCP Safety and Health Manager, as well as the Project Manager. Refer to Section 11 of this document for more information pertaining to Visitor Access. Once access is gained into the site, the electronic swiping process is further supplemented by a sign in/sign out requirement at the main gate. Visitors cannot enter the site until Site Security verifies the visit has been pre-approved as per the Remote Site Access Procedure. As per the visitor policy, visitors are required to sign in and sign out at the main gate and are to remain in the Main Gate Area until the appropriate project person arrives to meet the visitor. Visitors are to be escorted full time by the respective project representative for the duration of the visit to the office.

Security personnel will be involved as a key point of contact in emergency response activities, journey management and other general communications on site 24 hours per

day / 7 days a week. Additionally, security officers will be required to conduct the following:

- Periodic site inspections of the jobsite to determine if the perimeter is secure,
- Periodic inspections of all bags and packages entering the worksite;
- Periodic examination of all lunchboxes and personal packages leaving the Muskrat Falls site;
- Inspection of camp rooms as a result of reasonable suspicion (as defined under the Muskrat Falls Camp Rules) for drug and/or alcohol use.
- Inspections of all vehicles entering and leaving the Muskrat Falls site;
- Oversight and enforcement of site speed limits and conduct regular checks of their assigned area for security violations or activities of a suspicious or undesirable nature and report them to the Security Supervisor.
- Security officers shall also assist in all incident investigations, as required, relevant to health and safety observations and associated security matters.

For sites other than Muskrat Falls, Site Contractors may be required to provide Security Officers responsible for carrying out security duties. The Security Officers will be responsible for interfacing with contractors and assisting, as required, on supporting contractor's security plan. Coordination of joint security planning with contractors will require the overall communication and coordination with the site Health and Safety Coordinator for this scope of work. Should gated facilities be erected at Sub Station construction sites, security officers will be responsible for controlling and managing access and egress from these sites

4.6 Contract Workers, Visitors and Other Personnel

All workers, visitors and other personnel having reason to physically enter the Muskrat Falls site shall adhere to the requirements of this plan by attending all required training, providing required personal information, submitting to applicable drug and alcohol testing protocols and inspection, and meeting all other requirements as defined under the plan.

5.0 Security Threat Assessment

The level of security protection will vary for each area of the LCP based on risk exposure and probability of incident occurrence.

A Security Threat Assessment is the process that is used to determine the security threat (s) to the project, and is in line with the risk assessment process. The Threat

Assessments noted below utilize the LCP Risk Matrix for evaluating security related threats: The security threat assessment is normally used in areas such as:

Muskrat Falls Generation Site (North Spur and South side) Security Threats may include the following:

- Unauthorized entry into the site; **(Risk- Moderate)**
- NGO Protest Groups blocking site access (materials, equipment, personnel, emergency access); **(Risk- Major)**
- Theft of computers, proprietary information, equipment, supplies, fuel, materials- including explosive or flammable materials, tools; **(Risk- Moderate)**
- Vandalism of company or contractor property, structures, equipment, materials; **(Risk- Moderate)**
- Sabatoge of company/contractor equipment, materials, supplies, fuel; **(Risk- Moderate)**
- Bomb threat event at the construction site or accomodations. **(Risk- Moderate)**
- Emergency evacuation of the site (due to wild fire, flooding, hazardous weather conditions or other unforeseen weather related and natural disaster event) leaving equipment, materials, computers, etc. exposed for theft. **(Risk- Moderate)**
- Hunting/trapping on designated company property endangering site personnel; **(Risk-Moderate)**
- Unauthorized personnel at site locations while hazardous operations/tasks are underway (blasting, heavy lifts, excavation/trenching, loading, heavy equipment operations, high voltage work activities). **(Risk-Moderate)**
- Personnel operating equipment/vehicles or working on site while under the influence of alcohol or drugs. **(Risk-Moderate)**
- Driving on site at unsafe speeds, without seatbelts, while using cell phones or in an otherwise wreckless manner. **(Risk-Moderate)**
- Violence at the site/camp (fighting, weapons, firearms, other violent behaviour/action) **(Risk-Moderate)**

Soldier's Pond and Churchill Falls Security Threats may include the following:

- Unauthorized entry into the site; **(Risk- Moderate)**
- Protest/aboriginal groups blocking site access (materials, equipment, personnel, emergency access); **(Risk- Moderate)**
- Theft of computers, proprietary information, equipment, supplies. **(Risk- Minor)**
- Vandalism of company or contractor property, structures, equipment, materials; **(Risk- Moderate)**
- Sabatoge of company/contractor equipment, materials, supplies, fuel; **(Risk- Minor)**
- Bomb threat event at the construction site or accomodations. **(Risk-Minor)**
- Emergency evacuation of the site (due to wild fire, flooding, hazardous weather conditions or other unforeseen weather related and natural disaster event) leaving equipment, materials, computers, etc. exposed for theft. **(Risk-Moderate)**
- Hunting/trapping on designated company property endangering personnel working on site; **(Risk-Moderate)**
- Unauthorized personnel at site locations while hazardous operations/tasks are underway (heavy lifts, high voltage work activities). **(Risk-Moderate)**
- Personnel operating equipment/vehicles or working on site while under the influence of alcohol or drugs. **(Risk-Moderate)**
- Driving on site at unsafe speeds, without seatbelts, while using cell phones or in an otherwise wreckless manner. **(Risk-Moderate)**
- Violence at the site (fighting, weapons, firearms, domestic violence). **(Risk-Minor)**

Security Threats for **Transmission Lines** may include the following:

- Unauthorized entry into the transmission line temporary site; **(Risk-Moderate)**
- Protest/aboriginal groups blocking site access (materials, equipment, personnel, emergency access); **(Risk-Moderate)**

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- Theft of computers, proprietary information, equipment, supplies, fuel, materials- including flammable materials, tools; **(Risk-Moderate)**
 - Vandalism of company or contractor property, structures, equipment, materials; **(Risk-Moderate)**
 - Sabatoge of company/contractor equipment, materials, supplies, fuel; **(Risk-Moderate)**
 - Bomb threat event at the temporary site or accomodations. **(Risk-Moderate)**
 - Emergency evacation of the site (due to wild fire, flooding, hazardous weather conditions or other unforeseen weather related and natural disaster event) leaving equipment, materials, computers, etc. exposed for theft. **(Risk-Moderate)**
 - Hunting/trapping on designated company property endangering site personnel; **(Risk- Moderate)**
 - Unauthorized personnel at site locations while hazardous operations/tasks are underway (heavy lifts, loading, heavy equipment operations, high voltage work activities). **(Risk-Moderate)**
 - Persons camping on the Right-Of-Way. **(Risk-Moderate)**
 - Personnel operating equipment/vehicles or working on site while under the influence of alcohol or drugs. **(Risk- Moderate)**
 - Driving on site at unsafe speeds, without seatbelts, while using cell phones or in an otherwise wreckless manner. **(Risk-Moderate)**
 - Violence at the site/camp (fighting, weapons, firearms, other violent behavior/action.) **(Risk- Minor)**

Security Threats for **Marshalling Yards** may include the following:

- Theft of equipment, supplies, fuel, materials- including explosive or flammable materials, tools; **(Risk- Major)**
- Unauthorized entry into the site; **(Risk-Moderate)**
- Protest/aboriginal groups blocking site access (materials, equipment, personnel); **(Risk-Moderate)**
- Vandalism of company or contractor property, equipment, materials; **(Risk-Moderate)**

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- Sabotage of company/contractor equipment, materials, supplies, fuel; **(Risk-Moderate)**
 - Emergency evacuation of the site (due to wild fire, flooding, hazardous weather conditions or other unforeseen weather related and natural disaster event) leaving equipment, materials, etc. exposed for theft and/or damage. **(Risk-Minor)**
 - Unauthorized personnel at site locations while hazardous operations/tasks are underway (heavy lifts, loading, heavy equipment operations). **(Risk-Minor)**
 - Personnel operating equipment/vehicles or working on site while under the influence of alcohol or drugs. **(Risk-Moderate)**

Security Threats for the two **Electrode Sites** may include the following:

- Unauthorized entry into the site. **(Risk-Moderate)**
- Theft of equipment, materials (primarily copper). **(Risk-Moderate)**
- Individuals going into the water (without authorization) **(Risk-Minor)**
- Sabotage of any accessible equipment, supplies, materials on site. **(Risk-Moderate)**

Security Threats for the **Transition Compounds** may include the following:

- Unauthorized entry into the compound. **(Risk-Moderate)**
- Theft of equipment, materials. **(Risk-Moderate)**
- Sabotage of any switchgear, connections, etc. at the site. **(Risk-Moderate)**
- Unauthorized operation or tampering of switchgear, connections, etc. at the compound. **(Risk-Moderate)**
- Vandalism of any equipment or materials within the compound. **(Risk-Moderate)**
- Unauthorized personnel at site locations while hazardous operations/tasks are underway (hook-up, commissioning and energization) **(Risk-Moderate)**

Security Threats for **Laydown Areas** include the following:

- Unauthorized entry onto the laydown areas **(Risk-Moderate)**

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- Theft of equipment, supplies, materials, tools. **(Risk-Moderate)**
 - Vandalism of company property, equipment, materials. **(Risk-Moderate)**
 - Sabatoge of company equipment, materials, supplies stored in the laydown areas. **(Risk-Moderate)**
 - Unauthorized entry into the site while hazardous operations/tasks are underway. **(Risk- Minor)**
 - Personnel operating equipment/vehicles or working in the laydown area while under the influence of alcohol or drugs. **(Risk-Moderate)**
 - Driving on in the laydown area at unsafe speeds, without seatbelts, while using cell phones or in an otherwise wreckless manner. **(Risk-Moderate)**

Security Threats for the **Project Offices (Happy Valley/Goose Bay and Torbay Road Office)** include the following:

- Unauthorized entry into the Project Offices. **(Risk-Moderate)**
- NGO Protest Groups blocking office access (proprietary information/reference materials/documentation/reference materials, equipment, personnel, emergency access, Emergency Operations Centre); **(Risk-Moderate)**
- Theft of equipment, supplies, computers, printers, proprietary information **(Risk-Moderate)**
- Vandalism/Sabatoge of company or contractor property, structures, equipment, materials; **(Risk-Minor)**
- Bomb threat event at the Project Office. **(Risk-Moderate)**
- Emergency evacuation of the Office(due to fire, flooding, hazardous weather conditions or other unforeseen weather related and natural disaster event) leaving equipment, materials, computers, etc. exposed for theft. **(Risk-Moderate)**
- Violence at the office (fighting, weapons, firearms, other violent behaviour/action) **(Risk-Minor)**

Other areas that may be included in this plan are:

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- **Public access buildings** (Security Treats may include theft, vandalism, sabotage, NGO Protests) **(Risk-Moderate)**
 - **Marine ports** (Security Treats may include theft, vandalism, sabotage, NGO Protests) **(Risk-Moderate)**
 - **Highways** (Security Threats may include blockades by NGO Protest Groups, significant weather conditions or serious vehicle incidents limiting or prohibiting site access, emergency response) **(Risk-Moderate)**
 - **Airports** (Security Threats may include serious aircraft (fixed wing or helicopter) incidents adversely impacting company personnel and site operations). **(Risk-Moderate)**

In general terms, it can be expected that periodic disruptions from the NGO's at or near the construction site gates will occur. The scope and depth of any civil disobedience on their behalf will vary depending on personnel involved, but it is believed that this threat potential will exist throughout the duration of the project and could have an adverse impact upon construction deadlines, occupational health and safety issues and community support and relationships.

Many of the proponents have expressed concern that illegal organized criminal activity will flourish in the community. There are some indications that some organized criminal groups are making efforts to entrench themselves in the community. As a result, there will likely be an increase in the distribution, sale and use of illegal drugs, the primary focus being the construction workforce which will reach 1500 at peak stages of the project. Ongoing police intelligence indicates that there is a significant amount of hard drugs, i.e., cocaine, crack cocaine, coming into the area from Montreal and Toronto. This will have a knock-off effect and potential impact upon health and safety at the camp and worksites. As a result, the **LCP Drug and Alcohol Standard (LCP-PT-MD-0000-LR-SD-0001-01)** has been approved and in place for LCP Construction Sites, to mitigate risk. Drug and Alcohol testing will be carried out for pre-access and post incidents. Additionally all personnel are requested to be vigilant – i.e, drug and alcohol pre-access and post incident testing, as well as vigilant monitoring of personnel to identify unusual or abnormal behaviour.

A network of information has been established and intelligence will flow as the project moves forward. A continual scan of conditions in the area under the auspices of a proactive intelligence gathering mechanism will be required.

Future Project security threat assessments shall be conducted periodically using a competent individual with a recognized security background to ensure potential threats and mitigating actions are undertaken, as appropriate.

6.0 Security Methodology/Approach

6.1 Muskrat Falls Generation Site

The Security Contractor's Execution Plan addresses site security methodology and approach and should be referred to for additional detail on methodology and approach. In general terms, Site Security Methodology and Approach are defined in the following sections.

6.1.1 24 Hour Patrols

Contractor employed security personnel will undertake 24 hour / 7 days a week security patrols of the site, with particular focus on conducting such patrols after normal working hours. Such patrols will be conducted by 2 person teams that will visually inspect areas containing equipment and materials, and those site support areas susceptible to unauthorized entry. Security personnel will report any unauthorized entries and persons demonstrating suspicious behaviour to project management utilizing the project reporting protocol. Additionally, Security personnel will be monitoring vehicle speed and driving activity and reporting any violations to the Emergency Response and Security Coordinator for handling..

6.1.2 Site Access and Random Checks

All authorized site personnel and contractors will be issued a readable identification badge which is scanned at the entry gate by site security upon entry and exit from the site. Personnel entering the site via bus or van will also be required to have their identification badges scanned prior to entry and exit from the site. The identification badge will allow for an accurate accounting of all personnel on the Muskrat Falls site at any given time during the day or night. Personnel arriving at the site without their badge may be issued a temporary identification badge after presenting appropriate identification. The temporary badge must be returned to security upon leaving the site.

On a random basis, security checks of personnel entering and leaving the site will be conducted by the Security Contractor. Individuals who possess an unauthorized badge;

or no badge, shall be denied access to the Muskrat Falls site. An unauthorized badge may include, but is not limited to the following:

- Photograph of bearer does not match the individual trying to gain site access.
- Scan indicates expired training and/or other credentials
- Attempted access by authorized person at wrong gate
- Unauthorized contractor to the LCP
- Other circumstances- to be determined

Random checks of vehicles, knapsacks, plastic bags, luggage, tool boxes, lunch boxes, and other containers will be completed to verify that personnel are in possession of only personal property. All materials, tools or equipment may also be checked by security personnel. Submission to random security checks are a condition of employment on the LCP.

Reasonable suspicion of security breaches may lead to a search of an individual's site accommodations, breaches may include, but not limited to, the following:

- Theft
- Property Damage
- Suspicion of Drugs and Alcohol Possession or use/intoxication/impairment.

6.1.3 Signage

The following signage shall be posted in and around the entrances to each site:

"No Trespassing" signs, installed at all perimeter access points.

- Signs having a 24 hour emergency phone number for a person who can respond to the site. It should also be posted at each of the on-site trailers and camp facilities.
- All Signs must be posted a minimum of five feet off the ground level to prevent vandalism, sabotage or theft.

6.1.4 Video Surveillance

Video Surveillance equipment will be strategically placed on the Muskrat Fall Generation site to continuously monitor site access points and other key areas that require continuous visual monitoring. These areas will include, but not limited to, parking areas, exterior and interior of camp facilities, and areas that contain high value equipment. Video monitoring and surveillance will be overseen and managed by contractor security personnel.

At the Accommodations Complex, twelve security cameras will be located in and around the Accommodations Complex. In addition to the security cameras, extra wiring will be provided throughout the Complex buildings area to allow for quick installation of additional security cameras as the situation dictates during occupancy. The twelve cameras noted will be located in the following areas:

- Two exterior and one interior cameras will be located in the Accommodations Complex Security Building;
- One camera will be mounted on a light standard at the Emergency Power/Fuel Storage Area;
- Two cameras will be mounted on light standards (One on north side and one on the south side of the vehicle parking area near the Accommodations Complex;
- One camera will be mounted on a light standard (along the east side) for the Bus Depot;
- One interior camera will be located in the Communications Building;
- One exterior camera will be located in the main entrance of the Accommodations Core Complex;
- One exterior camera will be located in the Transit Waiting Area of the Accommodations Core Complex;
- One interior camera will be located in the Receiving and Shipping Area of the Accommodations Core Complex;
- One interior camera will be located in the warehouse area of the Accommodations Core Complex.

(Note: These cameras will be monitored at the Main Security Building at the Accommodation Core Complex)

In addition to the above, the following exterior cameras will be located at the Security Gate near the Trans-Labrador Highway:

- Two exterior and one interior camera will be located at the Security Gate Trailer;
- Two cameras will be mounted on light standards (one on the north side with the other on the south side) for the vehicle inspection area.

(Note: These cameras will be monitored at the Security Gate Trailer)

Security cameras are also planned in the following areas:

- One security camera will be mounted on a light standard at the tapping station located on the North Spur.
- One security camera will be mounted on a light standard at the Owner's Laydown Fueling Area depot.

(Note: These cameras will be monitored at the Main Security Building at the Accommodation Core Complex)

6.1.5 Drug and Alcohol Screening Process

In accordance with the **LCP Drug and Alcohol Standard (LCP-PT-MD-0000-LR-SD-0001-01)**, all project personnel and contractors will be required to undergo pre-access drug and alcohol screening. This requirement will exclude authorized visitors.

In addition to pre-access screening, personnel involved in an safety or operational related incident are required to undergo a post event screening to verify whether or not drug/alcohol consumption were a causal factor in the incident.

6.1.6 Vehicle Authorization

All vehicles coming to the site must meet applicable safety standards. All work related vehicles must:

- Be in a safe operating condition.
- Have functional seatbelts that are work by all occupants of the vehicle.
- Be equipped with a 20 pound dry chemical fire extinguisher.
- Must have an adequate first aid kit.
- Must have an amber flashing beacon clearly visible and operational.
- Must have a workable and audible back-up alarm.
- Must have a flagged buggy whip
- Have no more than three people riding in the front seat.
- Not carry any personnel in the back/box.
- Be insured to Nalcor requirements.
- Have licensing and proper insurance for public roadways or will not be allowed on site.

All vehicles not meeting these requirements will not be allowed on site.

6.1.7 Public Intervention

Security personnel may be required to interact with the public at various times

Security personnel will be instructed not to respond to any questions or interact with members of the public who may arrive at the security gate. In the case that members of the public arrive at the security gate with questions related to the Project, they will be politely directed to contact the Nalcor Informational Office in St. John's, NL.

In the event of NGO protestors arriving at the security gate the security incident reporting protocol will be followed:

- Security, Site Personnel and/or contractor personnel will not engage with or make contact with the protesting group,
- If practical and safe and the NGO protestors are outside of the secured area the security gate will be closed and locked,
- The Nalcor/SLI Communications/Information Flow established for Incident Reporting will be utilized for and incident relating to NGO Protests, etc. In the event the condition becomes more deliberate, hazardous or personnel are endangered, all operations on the site will stop immediately and personnel will evacuate the area if it is safe to do so.
- No further actions will be taken by the site personnel without explicit instructions from either Nalcor or SLI Site management.

At no time will security personnel enter into any type of physical contact or confrontational behaviour with members of the general public. Their role is strictly to advise, observe, and report.

Should activity outside the gate (via protests or otherwise) occur, the Security Guard at the Main Gate shall contact the Muskrat Falls Site Manager immediately. The Muskrat Falls Site Manager will make contact with the RCMP (Happy Valley- Goose Bay) to respond to the site to initiate action to remove individuals from company property as the situation dictates, particularly if the intent is to cause harm, disrupt or stop work activity. As required, The Muskrat Falls Site Manager may be required to file an injunction or other legal instrument with the provincial court in order for initiate RCMP action, as and when required.

6.2 AC/DC Transmission Lines, Soldier's Pond/Churchill Falls Convertor Stations and Switchyards, Transition Compounds and Electrodes.

It is anticipated that there will be several remotely located work areas during the construction of the transmission and distribution lines. Contractor shall ensure that adequate control measures are implemented to control access to such work sites during work and after work hours. Adequate control measures shall eliminate sabotage / theft and include protection of public safety during and after work hours.

Sub Station construction at the Muskrat Falls Generation Site shall be controlled by contractor provided security personnel with project specific access control protocols followed for access and egress to the substation construction area.

Construction of sub stations at both Churchill Falls and Soldiers Pond are considered isolated work site with security and access to be controlled by the contractor. Adequate control measures shall be implemented to control access to the site during and after construction work areas. Security provisions are required to be implemented by the contractor that will include controlling public access/safety and preventing the sabotage and theft and equipment from these sites. Such provisions include, but are not limited to:

- Planned/periodic patrols around the site by security services contractor personnel, particularly after work hours
- Utilization of barricading and signage at vehicle/equipment entrance points that will control access and egress to the site. Such controls will allow contractor personnel to control (i.e. screening, sign in, etc) unauthorized access to the site.

6.3 Marshalling Yards

There will be several designated Marshalling Yards for various types of equipment and materials found both on the project sites and external to the main project sites. Marshalling Yards will consist of both Contractor and Project controlled lay down areas.

Project controlled lay down areas will be adequately secured and monitored to prevent the sabotage and theft of materials and equipment. Project controlled lay downs will consist of both on site and off site areas. On site lay down areas will be afforded the security systems implied for the overall main site (i.e. gated access, security patrols, etc.). Off site project lay downs will require more detailed security planning that will require such sites to be:

- Barricaded to prevent theft and sabotage and protect public safety. Such barricading might potentially consist of fencing or some other physical means of barricading, supplemented by highly visibility signage;
 - Subject to planned patrols by contract security personnel, supplemented by video surveillance & signage;
 - Manned by qualified security personnel 24 hour / 7 days a week.
- Storage Containers (having at least 64 square feet of storage area) shall be equipped with the following:

-
- Doors shall be secured using a hasp or slide bolt with a protective device to prohibit cutting of the padlock, and attached with non-removable bolts from the exterior.
 - Padlocks shall have a minimum ½ inch thick shackle with heel and toe locking.
 - Exterior hinge pins shall be rendered non-removable by design or welding.

Contractor designated lay down areas shall be directly under the management and control of the contractor. The contractor shall be responsible to ensure that all necessary control measures are implemented to prevent sabotage and theft and to ensure public safety is protected.

6.4 Project Offices

Project Offices currently consist of offices in St. Johns, NL, and the Muskrat Falls Construction Site Area. All personnel working in any project office has the responsibility to understand, respect and enforce building security on a daily basis. Opportunistic thieves and unscrupulous individuals often prey on those who are trusting and unaware of the security risks.

The Project Office located on Torbay Road in St. John's, NL is currently only accessible to authorized project personnel who are required to utilize an electronic swipe card for access to the building. To facilitate visitors, an administrator is positioned at the main entrance during working hours. Visitors cannot enter the building until the administrator verifies the intention of the visitor (s). As per the visitor policy, visitors are required to sign in and sign out and are to remain in the Main Entrance area until the appropriate project person arrives to meet the visitor. Visitors are to be accompanied by the respective project representative for the duration of the visit to the office.

Everyone who works in the office has the responsibility to understand, respect and enforce building security daily. Opportunistic thieves and unscrupulous individuals often prey on those who are trusting and unaware of the risks. All personnel are requested to take the following steps to maintain building security practices:

General Office Security

- All personnel are requested to visible display their ID badge for identification purposes.

-
- Ensure guests/visitors are checked in at the receptionist and issued a visitor's badge. If you see any individual without a badge, ask them if they can produce their badge and escort them to the receptionist if they are unable to do so.
 - It is extremely important to report any suspicious unescorted person/stranger in the office at once to your manager/supervisor.
 - All personnel are requested to display their Identification Badge on their person at all times. Identification Badges must not be loaned to anyone in the office. Any lost or missing ID badge must be reported to the receptionist.
 - All exterior doors are provided with an alarm feature and should never be propped open at any time.
 - The practices of "tailgating" (unauthorized person following closely behind an authorized ID holder) and "piggybacking" (authorized person gaining access to the building and allowing others to follow by holding open a secure door) will no longer be permitted. Signs will be posted at each door this week to remind personnel of this
 - Third party visitors should sign-in with receptionist, be assigned a visitor badge and be escorted to employee contact. Visitors should be escorted back to reception, return visitor badge and sign out when finished for the day.

Personal Belongings:

- Always keep your purse, wallet, cash, credit cards or cell phone on your person or in a locked drawer at all times.
- Don't leave packages or other valuables around your desk or work area. Leave them at home or lock them up in the trunk of your car.
- Immediately report any theft or other criminal activity in the office to your supervisor.

Computer Data and Computer Generated Documents:

- Never leave confidential documents at printers or the fax machine.
- Always try to avoid leaving confidential documents in plain sight on your desktop.
- Store DVDs, USB drives and other mobile equipment under lock and key when not in use or you are away from your desk. Please be advised that USB drives used are to be the encrypted type as per Nalcor standards.
- Dispose of documents in accordance with the organization policies. Always shred confidential documents you wish to dispose of.

-
- It is important to Lock the keyboard (Ctrl-Alt-Del) or Windows Logo + L as soon as you leave your workstation to ensure that others cannot access your information while you are away.
 - Attach and lock laptops computers with the Kensington lock at all times. If you have any questions or problems with attaching or using these locks please contact the Helpdesk for assistance.

7.0 Emergency/Incident Response

Security personnel will be involved as a key point of contact in emergency response activities, journey management and other general communications on site 24 hours per day. During evening hours, the Security Office will be the contact point for reporting any incident/ emergency. The on-duty Security Officer will be responsible for making contact with the Muskrat Falls Site Manager to initiate Emergency Response as prescribed in the **Emergency Response Plan. (LCP-PT-MD-0000-HS-PL-0004-01)** Coordinating with the Project Security Coordinator, security personnel will potentially be required to interface with local law enforcement. Security personnel will also assist in with the incident investigation process that might include, but not limited to; securing incident scenes, accompanying and escorting personnel from the project property, etc.

8.0 Contractor Access

8.1 Site Access Control

Nalcor reserves the right to refuse access and/or entry to its premises which includes all land, property, structures and installations, vehicles and equipment owned, leased, operated or otherwise directly controlled by Nalcor, including the LCP. The construction management team will maintain control over the movements of their construction contractor and subcontractor personnel within the project work site. These measures include, but are not limited to:

- Ensuring compliance to the site specific mandatory use of personal protective Equipment.
- The construction management team shall make provisions for the transport of all construction personnel between offsite vehicle parking areas and the project site.
- Project specific badging intended to identify and allow access to authorized personnel to Muskrat Falls (see section 5.3 for specific information).

-
- Fences and other physical barriers around the perimeter of the project site with appropriate signage and guard stations limiting authorized/unauthorized access.
 - Video cameras shall be installed at key locations throughout the site and at areas considered to be high potential for security threats.
 - Limitations on the number of vehicles on project property (see section 6.12 for more specific information). Ensure that all contractor vehicles are in compliance with site requirements for obeying site speed limit requirements and backing into parking spaces.
 - Random security checks on personnel and vehicles entering and leaving the Muskrat Falls Site.
 - Controlled access to Sub Station Construction Sites. Access to be controlled by contractor personnel through designated access and egress points, supplemented by signage and planned security patrols
 - Controlled access to designated transmission and distribution construction work areas. Physical barriers supplemented by signage to implied as control measures and be responsibility of contractor.

8.2 Public or Other Access Buildings

There will be occasions that construction activities will require workers to perform tasks that are adjacent to or directly in current operating facilities (i.e. the sub-station at Churchill Falls). Local security protocols shall be followed by all construction site personnel.

9.0 Control of Tools, Equipment & Materials

Individual contractors will be responsible for controlling and managing their equipment as it is brought onto and off the project site locations. Should overall project theft become a problem, the project will, at its discretion, implement a materials pass that will be required to remove tools and equipment from project sites.

10.0 Camera Pass

The use of cameras on site to collect personal photographs is not permitted at any Project Construction Site. Only project personnel requiring the use of a camera for project related matters are permitted to use cameras on site and must have formal

approval of the Muskrat Falls Site Manager prior to taking the pictures. If client determines that propriety or sensitive information is at risk for public disclosure, the utilization of a permitting process will be implemented.

11.0 Visitor Access

For site construction activity, the number of personnel on the construction site will generally be restricted to only those required to execute the work and manage the site. However, Visitor Access may be required on the site for business related reasons. As a result of various risks associated with Site Construction at the Muskrat Falls Site, site access will be restricted. Requirements for Construction Site Access are defined in the following document: ***Authorization Protocol for Access to Project Construction Sites.(LCP-PT-MD-0000-HS-PR-0001-01.) All personnel going to site must be familiar with this protocol prior to site entry.***

12.0 International Travel

All LCP employees travelling outside of Canada on Project related business shall comply with the requirements of the International Travel Policy. As a minimum, travellers shall:

- Complete the Security Plan Template from the International Travel Program
- Ensure travel authorization is obtained and travel is communicated to the appropriate supervisory personnel;
- Ensure that passport is current and in good, legible condition; with your number memorized and supporting documentation packed should your passport become lost or stolen;
- Ensure that all necessary health precautions are taken specific to the area you are travelling (i.e. immunizations/vaccinations) and that an adequate quantity of medication is taken with you (if applicable).
- Register with the Canadian Abroad Service, **as applicable.**
- Develop and keep on persons at all times, pertinent emergency numbers to call should an emergency situation arise.

13.0 Exclusions

This plan does not include supplier fabrication facilities and marine ports. Prior to the selection of other facilities and marine ports a security threat / risk assessment shall be conducted to define the level of security controls required. Construction on the Transition and Electrode Sites is currently excluded from this plan. Prior to the commencement of construction at these sites a security evaluation will be facilitated by the Security Coordinator to determine the appropriate level of security services to provide and how these services will be executed.

General public areas such as airports, highways, government medical facilities shall be excluded from this plan.

Nalcor Energy – Lower Churchill Project



Standard for Drug and Alcohol

LCP-PT-MD-0000-LR-SD-0001-01

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CONFIDENTIALITY NOTE:			This document contains intellectual property of the Nalcor Energy – Lower Churchill Project and shall not be copied, used or distributed in whole or in part without the prior written consent from the Nalcor Energy – Lower Churchill Project.				

Inter-Departmental / Discipline Approval (where required)

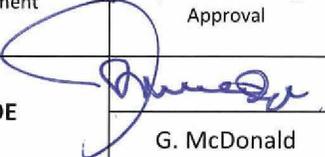
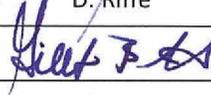
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1.0 PURPOSE

Nalcor Energy ("Nalcor") is the proponent of the Lower Churchill Hydroelectric Project which includes the construction of the Muskrat Falls generating facility, Muskrat Falls reservoir clearing, Muskrat Falls transmission line construction, other ancillary sites and staging areas (collectively referred to as "the Sites"). Nalcor is committed to providing a safe workplace for its employees and contractors. Industrial construction projects of this size and complexity are inherently hazardous places to work. While on the various sites, personnel will often be working in conditions and around equipment and materials that, if handled without proper care and attention, can pose a threat to the safety of those personnel and the surrounding workforce. The use of illicit drugs, inappropriate use of alcohol and the misuse of medications and other substances can have serious affects on workers' health, job safety and overall job performance through erratic behaviours and irresponsible actions. For these reasons, this Comprehensive Drug and Alcohol Standard ("Standard") has been established. This Standard recognizes the importance of an accommodation process for those persons who may have a drug or alcohol problem.

Guiding Principles

The Alcohol and Drug Standard has been developed based the following Guiding Principles:

- Nalcor is committed to providing a safe workplace for its employees and contractors;
- Recognizing the importance of an accommodation process for those persons who may have a drug or alcohol problem;
- The standard applies to all Nalcor employees, contractors, subcontractors, and their respective employees ("Workers");
- Ensuring that Workers are treated fairly and with respect;
- Workers accept responsibility for their own safety and the safety of others;
- Requiring alignment and commitment on the part of all levels of project management; and
- Zero tolerance for possession and/or use of drugs and alcohol.

2.0 SCOPE

This Standard applies to all Nalcor employees, contractors, subcontractors, and their respective employees ("Workers") working on the Sites and persons seeking a site pass required to access the various Sites ("Site Access"). The primary objectives of the Standard are to:

- a) Provide safe work Sites for all Workers and personnel whose safety may be adversely affected by the conduct of other Workers; and
- b) Ensure Workers are treated fairly and with respect.

We all share the responsibility to ensure that we, and the Workers around us, are all able to safely and reliably perform work duties and that everyone remains fit for duty throughout their work shift. In order to support this responsibility, Nalcor requires all contractors and subcontractors ("Contractors") to establish and fully implement their own Drug and Alcohol programs. All Contractors must commit to taking appropriate and responsible actions required maintaining a safe work place. This requires commitment on the part of all levels of project management, Contractor management, and all Workers to accept responsibility for their own safety and the safety of others. This commitment includes recognizing that conduct or behaviour off Site may adversely affect the ability to safely and reliably perform duties on the Sites. In developing this Standard, Nalcor has adopted the guidelines of the Canadian Model for Providing a Safe Workplace, Alcohol and Drug Guidelines and Rules (2010), or the most current version ("the Canadian Model"). The Canadian Model establishes a minimum industry standard for a safe workplace, is a part of an overall approach to employee health and safety. The standard provides a specific policy with respect to alcohol and drugs in the workplace and strives to establish a consistent industry practice.

As a condition of continued employment or contracting with Nalcor, employees, Contractors, and Workers must accept the terms of this Standard and comply with this Standard in their own drug and alcohol policy, which must also be at least equivalent to the requirements set out in the Canadian Model and this Standard.

This standard shall come into effect at the discretion of the Project Director, at a date no later than the commencement of work at the site.

3.0 DEFINITIONS

3.01 Zero Tolerance

Nalcor is committed to providing a safe workplace for Contractors, Workers, and persons seeking Site Access. In the interest of the safety of those persons or Workers on Site, there is zero tolerance for possession and/or use of drugs and alcohol.

- a) Persons or Workers on any Nalcor Site who use or are in the possession of alcohol, illegal drugs, or illegal drug paraphernalia shall be removed from the

Sites, Site Access shall be revoked, and such persons or Workers shall be prohibited from obtaining Site Access indefinitely;

- b) Persons or Workers on Sites found to be under the influence of alcohol or illegal drugs will be removed from Sites, Site Access shall be revoked, and such persons or Workers shall be prohibited from obtaining Site Access indefinitely;
- c) Persons on any Site who distribute, sell, or attempt to sell drugs or illegal drug paraphernalia, or engage in unauthorized distribution, offering, or sale of prescription medications, shall be removed from such site. Site Access shall be revoked and such person or Workers shall be prohibited from obtaining Site Access indefinitely;
- d) Persons or Workers on any Site under the influence of legal drugs or non-prescription medication which interfere with their judgment, coordination, or concentration are not to attend at any of the Sites and will be removed from such site. Site Access shall be revoked and such person or persons shall be prohibited from obtaining Site Access indefinitely; (in accordance with Appendix C)
- e) Every person, Worker, or Contractor working on any of the Sites is required to report to the EPC/EPCM site safety personnel, EPCM site labour relations representative, the contractor, any other EPCM management person, or Nalcor, any breach of this Standard which they have observed or have been made aware of immediately, and failure to report any breach of this Standard may result in revocation of Site Access; and
- f) Nalcor and/or the EPCM will not grant Site Access to any person who has tested non-negative for illegal or illicit drugs, alcohol, or any medication found to be causing impairment, as per this Standard.

3.02 Workplace Substance Abuse and Effects

Work site substance abuse is defined as:

The use of potentially impairing substances, to the point at which it has the potential to adversely affect performance and/or safety on any of the Sites.

The impairment may either be directly through intoxication and/or residual effects, or indirectly through social and/or health problems. Substance abuse is considered to occur when a drug is taken without medical reasons, or if a substance impairs and/or jeopardizes the health or safety of oneself or others. Abuse can occur by using a

substance too much, too often, for the wrong reasons, at the wrong time, or at the wrong place.

The range of substances that are abused is wide and can include (but is not limited to) alcohol, cocaine (including crack), marijuana, other illicit drugs, solvents, and misuse of prescription drugs or over-the-counter medications.

Category	Examples	Examples of General Effects
Alcohol	beer, wine, spirits	impaired judgment, slowed reflexes, impaired motor function, fatigue or drowsiness, coma, overdose may be fatal
Cannabis	marijuana, hashish	distorted sense of time, impaired memory, impaired coordination
Depressants	sleeping pills, sedatives, some tranquilizers	inattention, slowed reflexes, depression, impaired balance, drowsiness, coma, overdose may be fatal
Hallucinogens	Lysergic acid diethylamide (LSD), phencyclidine (PCP), mescaline	inattention, sensory illusions, hallucinations, disorientation, psychosis
Inhalants	hydrocarbons, solvents, gasoline	intoxication similar to alcohol, dizziness, headache
Opiates	morphine, heroin, codeine, some prescription pain medications	loss of interest, "nodding", overdose may be fatal. If used by injection, the sharing of needles may spread Hepatitis B or C and HIV/AIDS
Stimulants	cocaine, amphetamines	elevated mood, over activity, tension/anxiety, rapid heartbeat, constriction of blood vessels

3.03 Safety Sensitive Positions

The Canadian Human Rights Commission defines a Safety Sensitive Position as:

One in which incapacity due to drug or alcohol impairment could result in direct and significant risk of injury to a Worker, others, or the environment.

Whether a job can be categorized as safety sensitive must be considered within the context of the industry and the particular workplace.

All persons seeking Site Access, if granted, will be working in a safety sensitive position and accordingly, such person will submit to a drug and alcohol testing procedure.

All workers working on the Sites are considered to be working in safety sensitive positions and will submit to a drug and alcohol testing procedure, which meets this Standard in the following circumstances:

- a. Where there is reasonable grounds as per this Standard; and
- b. Post-incident as per this Standard.

Construction industry sites, particularly sites with this magnitude of construction work, are particularly high-risk areas. In keeping with this definition, Nalcor has identified specific duties and accountabilities as safety sensitive within the Sites, which includes, but is not limited to, the following:

- a. Where the duty requires operating or working with moving machinery, equipment, tools, or mobile equipment;
- b. Where the duty requires the Worker to handle hazardous chemicals (As identified by the WHMIS legislation), hazardous materials, dangerous materials, and any other materials identified as hazardous through WHMIS.
- c. Where the duty requires the Worker to work in an area where blasting activities may occur;
- d. Where the duty requires working knowledge of the lock-out procedures, confined space procedures, procedures for working at heights, or any other procedures required on the Sites;
- e. Where the duty requires a Worker to work periodically in an area where mobile equipment or other equipment is operating, or construction activities are occurring;
- f. Where the duty requires a Worker to travel in, on, or around the Sites;
- g. Where the duty requires the Worker to wear personal protective equipment (e.g. hard hat, protective eyewear, safety boots, respirator, etc.);

- h. Where the duty requires the Worker to work alone;
- i. Where the duty requires the Worker to work above normal elevation (e.g. use of fall protection, step ladder, scaffolding, step stool, etc.);
- j. Where the duty requires more than normal physical effort (e.g. lift more than 10 kg);
- k. Where the Worker is responsible for the welfare and safety of others;
- l. Where the Worker puts themselves or others at risk of injury or death;
- m. Where the Worker can put the environment at risk placing the employer at significant liability risk; and
- n. Where the duties require supervision or support of any of the above activities.

Delivery companies should be required to have alcohol and drug policies under Transportation Regulations. Any Executive personnel and other short term visitors will be made aware of the alcohol and drug policy prior to arrival at site. These personnel may, in fact, be subject to testing should circumstances dictate as referred to in this standard.

4.0 CAMP

At such time as camp rules are established, they shall be adhered to at all times.

5.0 ABBREVIATIONS AND ACRONYMS

Term	Definition
AMP	Amphetamines
BAT	Breath alcohol technician
Canadian Model	Canadian Model for providing a safe workplace, alcohol and drug guideline and rules (2010)
Certified Lab	A Lab certified by the Substance Abuse and Mental Health Services Administration

	under the National Laboratory Certification Program
COC	Cocaine
Contractors	Nalcor contractors and their subcontractors
DCR	Designated Contractor Representative
DNR	Designated Nalcor Representative
EPC	Engineering, Procurement, Construction
EPCM	Engineering, Procurement, Construction Management
MRO	Medical Review Officer
Nalcor	Nalcor Energy
NHTSA	National Highway Traffic Safety Administration
OPI	Opiates
PCP	Phencyclidine
POCT	A point of care testing procedure
Site Access	A Site pass required to access the Sites
SLI	SNC Lavalin Inc.
Standard	Comprehensive Drug and Alcohol Standard
STT	Screening test technician
THC	Marijuana
The Sites	Lower Churchill Hydro Electric Project including the construction of Muskrat Falls

Generating Facility, Muskrat Falls Reservoir clearing, Muskrat Falls transmission line construction, other ancillary sites and staging areas.

WHMIS

Workplace Hazardous Materials Information System

Workers

Nalcor employees, contractors, subcontractors and their respective employees

6.0 REFERENCE DOCUMENTS AND/OR ASSOCIATED FORMS

Nalcor Energy LCP Safety & Health Management Plan
 SLI Safety Management Plan
 Canadian Model

7.0 RESPONSIBILITIES

Nalcor Energy LCP Safety and Health Manager

 Labour Relations and Team Effectiveness Lead

8.0 TESTING PROCESS

Drug and alcohol testing as required by this Standard will be performed by an accredited drug and alcohol testing agency who will manage the process of taking test samples, having all non-negative test result samples sent for confirmation testing at a lab certified by the Substance Abuse and Mental Health Services administration under the National Laboratory Certification Program ("Certified Lab"), have the results assessed by a Medical Review Officer ("MRO") that will report non-negative test results to the Designated Contractor Representative ("DCR"), the Designated Nalcor Representative ("DNR"), and the designated EPCM Site Access Administrator ("Administrator"). This is laid out in the attached Drug and Alcohol Testing Procedures document, Appendix "A".

For reasonable grounds or post-incident drug and alcohol testing, as per this Standard, Contractors shall utilize the Sites accredited drug and alcohol testing agency. All non-negative test samples will be sent for confirmation to a Certified Lab.

The substances that will be tested for are contained in the following five panel process:

	TARGET DRUG	SCREENING CONCENTRATION	CONFIRMATION CONCENTRATION
THC	MARIJUANA	50 ng/ml	15 ng/ml
COC	COCAINE	300 ng/ml	150 ng/ml
OPI	OPIATES	2000 ng/ml	2000 ng/ml
PCP	PHENCYCLIDINE	25 ng/ml	25 ng/ml
AMP	AMPHETAMINE	1000 ng/ml	500 ng/ml

9.0 SITE ACCESS

All persons seeking site access shall undergo drug and alcohol testing as per this standard. The pre-access test must be completed before deployment on Sites and not more than thirty (30) days prior to the deployment from the Union or Contractor to the work Sites. The pre-access test will be valid for return access to Sites for

- a) A period of not more than thirty (30) days from the date the test was completed. Workers or persons will be required to provide proof of a negative pre-access test to the respective Contractor for each subsequent return to Sites, or;
- b) For as long as the Worker remains in continuous employment with the same Contractor. Continuous employment means without lay-off or termination of employment.

In the case of a non-negative test result for persons seeking Site Access, Site Access will not be issued to that person in the future except in accordance with Section 10, below. The DCR or DNR must inform the person of these consequences and their options, as described below. In addition to the DCR or DNR, the persons who have applied for Site Access who have tested non-negative will be provided to the Administrator and such persons will not be granted Site Access except in accordance with Section 10, below.

10.0 WAITING PERIOD FOR SECOND SITE ACCESS TEST

Site Access will not be granted to a person who has previously tested non-negative except as follows:

- a) At least thirty (30) days have elapsed since the non-negative test is confirmed as per Section 9 above, such person tests negative as per Section 9 above, such person agrees to return to work terms and conditions satisfactory to the administrator, DCR and DNR, which shall include professionally or medically

directed drug and alcohol testing; which must be reported to the Administrator and the DCR and DNR and such person is cleared as fit to work on the Site safely.

- b) Such person, through or by utilization of the public health care system (contact information is described below) or other means, meets all of the following conditions:
- (i) The person voluntarily meets with a substance abuse professional, who will determine whether the person requires treatment for a substance abuse problem, or such person is fit to work on Sites safely.
 - (ii) In the case where a substance abuse professional determines if the person is fit to work on the Sites, such substance abuse professional will provide a written report containing any restrictions, return to work conditions, and confirmation that the person is fit to work on the Sites safely to the Administrator and the DCR or the DNR. The report of the substance abuse professional must be in a form satisfactory to the Administrator, DCR and/or the DNR. Such person may be subject to a Return to Work Agreement in a form satisfactory to the Administrator, the DCR, or the DNR, which shall be based on the recommendations of the substance abuse professional in consultation with the Administrator, the DCR and/or the DNR, and which may include professionally or medically directed drug and alcohol testing.
 - (iii) In the case where a substance abuse professional determines the person has a substance abuse problem and requires treatment, such person shall provide to the Administrator and the DCR or DNR written confirmation from a substance abuse professional in a form satisfactory to the Administrator and the DCR or DNR when an assessment and/or treatment has been successfully completed, this report must contain any recommendations, work restrictions, and confirmation that the person is fit to work on Sites safely. Such a person who has successfully completed an assessment and/or treatment must sign a Return to Work Agreement in a form satisfactory to the Administrator and the DCR or DNR, which shall be based on the recommendations of the substance abuse professional in consultation with the Administrator, the DCR and/or the DNR, which may include professionally or medically directed drug and alcohol testing.
 - (iv) The person must execute a Substance Abuse Professional Release of Confidential Information, attached as Appendix "B".

- (v) The person must test negative as per Section 8 above and this must be reported to the Administrator and the DCR or DNR.

10.01 Providing Substance Abuse Support Information and Accommodation

The DCR or DNR must inform a person who has tested non-negative that if the person wishes to use the option to seek help and support, the Newfoundland and Labrador public health care system provides many options for support, which are covered by Medicare, such as outpatient counselling, adult residential treatment, detoxification services, and more. The DCR or DNR must tell the person that detailed information on services can be obtained online at

http://www.health.gov.nl.ca/health/commhlth_old/factlist/services_available.htm and by phoning 1-888-737-4668.

10.02 Confidentiality of Substance Abuse Professional Information

In order to preserve the confidentiality of information provided by a substance abuse professional, the Administrator, the DCR or DNR, and any person to whom disclosure is permitted under this Standard, must not disclose the information to any person other than a person who is required to know the test results to discharge an obligation under this Standard.

10.03 Testing Non-Negative More Than Once For Site Access

In the event that any person tests non-negative more than once when seeking Site Access, such person shall be prohibited from obtaining Site Access indefinitely.

11.0 REASONABLE GROUNDS TESTING

- a) In any situation when a Worker at work or within two hours prior to reporting to work appears, or is reported by another Worker to appear to be unfit for work, a supervisor or manager of that Worker must investigate the situation. If they, in consultation with the next level of management, (both levels must sign off) conclude there are reasonable grounds to believe the Worker is under the influence of drugs or alcohol, or that drugs or alcohol may be a contributing factor to the Workers condition, the Worker will be requested to submit to a drug and alcohol test. Factors to consider in deciding if reasonable grounds for testing exist include, but are not limited to:
 - (i) The odour of alcohol and/or drugs detected on the Worker;
 - (ii) The observed use of a substance by the Worker;

- (iii) Where the Worker's appearance, and/or performance, and/or behaviour strongly suggests that the individual is under the influence of drugs or alcohol; and
 - (iv) Where, after a fit for work assessment performed by a supervisor, the supervisor believes the Worker may be under the influence of drugs or alcohol.
 - b) A supervisor or manager of a Worker must provide the Worker with the reasons for requesting a drug and alcohol test, and those reasons must be documented. Documentation should include a reasonable grounds checklist, a copy of which is attached as Appendix "C".
 - c) Tests are to be conducted as soon as reasonably practicable following a reasonable grounds determination.
 - d) Where testing occurs more than four (4) hours from the time of the determination, the Contractor must provide to Nalcor or the designate of Nalcor, in writing, a reason for the delay.

12.0 POST-INCIDENT TESTING

- a) A supervisor or manager of a Worker must request the Worker to submit to a drug and alcohol test if the supervisor or manager and the next level of management present on the Worksite, have reasonable grounds to believe that the Worker was involved in a safety related incident, a significant near miss incident, which under different circumstances could have caused serious injury or property damage or other potentially dangerous incident/activity. The supervisor should request that the worker stop all work related activities prior to testing for reasonable grounds.
- b) Workers referred for drug and alcohol testing will also include those who are identified, with reasonable grounds, as having been directly involved in the chain of acts or omissions leading up to the event or incident.
- c) A drug and alcohol test is automatic after a significant incident, unless there is clear evidence that the acts or omissions of Worker(s) could not have been a contributing factor (e.g. structural or mechanical failure). A significant incident would include but not be limited to the following:
 - (i) A fatality or serious personal injury to any person;

- (ii) An environmental spill with significant implications;
 - (iii) Significant loss or damage to any property, equipment, or vehicles;
 - (iv) Significant financial loss; or
 - (v) A near-miss incident that had the potential for significant damage, or environmental harm.
- d) In any situation, whether the incident is significant or not, reasonable grounds testing may occur, subject to 11.0.
- e) Workers must not use alcohol for eight hours after the incident or until drug and alcohol testing has occurred, or the Worker is advised a test is not required.

13.0 TESTING REQUEST

The supervisor or manager must request that all workers concerned submit to drug and alcohol testing immediately in the event of reasonable grounds, or immediately following a significant accident, near miss, or other potentially dangerous incident, but if it is not practicable or reasonable to do so until a later time, collection shall not occur more than 8 hours after the incident for an alcohol test, and 32 hours after the incident for a drug test. Until the test is completed the employee shall remain in the care of his/her manager/supervisor and transferred to a medical professional during actual treatment for an incident.

14.0 FAIL TO TEST

Any Worker who fails to comply with a testing request, or delays a test pursuant to this Standard, or refuses to provide a sample for a test, will be considered to be in breach of this Standard and such Worker will be removed from the Sites, have their Site Access revoked, and shall be prohibited from obtaining Site Access indefinitely. If an attempt to tamper with a test sample is confirmed, the employer of such Worker shall remove such Worker from the Sites, shall not deploy such Worker to the Sites thereafter, and such Worker shall be prohibited from obtaining Site Access indefinitely.

15.0 POTENTIAL RETURN TO SITE AND REASONABLE GROUNDS POST-INCIDENT

Any Worker denied access to the Sites due to the results of drug and alcohol testing for reasonable grounds or post-incident may, subject to Nalcor's (EPCM) approval and the Contractor's approval, be permitted Site Access subject to the following conditions:

- a) The Worker voluntarily meets with a substance abuse professional, who will make a determination whether the Worker requires treatment for a substance abuse problem or such Worker does not have a substance abuse problem. If the substance abuse professional determines that the individual does not have a substance abuse problem or is a recreational drug or alcohol user, such individual shall not be permitted site access unless Nalcor's (EPCM) determines there are exceptional circumstances that warrant considering such individual be granted site access and such individual meets the conditions set out in Section 15 (b), (c), (d), and (e) below.
- b) In the case where a substance abuse professional determines the Worker is fit to work on the Sites, such substance abuse professional will provide a written report containing any restrictions, return to work conditions, and confirmation that the Worker is fit to work on the Sites safely to the Administrator and the DCR or the DNR. The report of the substance abuse professional must be in a form satisfactory to the Administrator, DCR and/or the DNR. Such Worker may be subject to a Return to Work Agreement in a form satisfactory to the Administrator and the DCR and/or the DNR, which shall be based on the recommendations of the substance abuse professional in consultation with the Administrator and the DCR and/or the DNR, and which may include professionally or medically directed drug and alcohol testing.
- c) In the case where a substance abuse professional determines the Worker has a substance abuse problem and requires treatment, such Worker shall provide to the Administrator and the DCR or DNR written confirmation from a substance abuse professional in a form satisfactory to the Administrator and the DCR or DNR when an assessment and/or treatment has been successfully completed. This report must contain any recommendations, work restrictions and confirmation that the Worker is fit to work on Sites safely. Such Worker who has successfully completed an assessment and/or treatment must sign a Return to Work Agreement in a form satisfactory to the Administrator and the DCR or DNR, which shall be based on the recommendations of the substance abuse professional in consultation with the Administrator and the DCR and/or the DNR, which may include professionally or medically directed drug and alcohol testing.
- d) The Worker must execute a Substance Abuse Professional Release of Confidential Information, attached as Appendix "B".
- e) The worker must test negative as per Section 8 above, and this must be reported to the Administrator and the DCR or DNR.

15.01 Providing Substance Abuse Support Information and Accommodation

The DCR or DNR must inform a Worker who has tested non-negative that if the Worker wishes to use the option to seek help and support, the Newfoundland and Labrador public health care system provides many options for support, which are covered by Medicare, such as outpatient counseling, adult residential treatment, detoxification services, and more. The DCR or DNR must tell the Worker that detailed information on services can be obtained online at

http://www.health.gov.nl.ca/health/commhlth_old/factlist/services_available.htm and by phoning 1-888-737-4668.

15.02 Confidentiality of Substance Abuse Professional Information

In order to preserve the confidentiality of information provided by a substance abuse professional, the Administrator, the DCR or DNR, and any Worker to whom disclosure is permitted under this standard, must not disclose the information to any Worker other than a Worker who needs to know the test results to discharge an obligation under this Standard or except as required by law.

15.03 Testing Non-Negative More Than Once

In the event that any Worker tests non-negative more than once, such Worker shall be prohibited from obtaining Site Access indefinitely.

16.0 CONSEQUENCES OF NON-COMPLIANCE WITH THIS STANDARD

Non-compliance by a Worker with this Standard will result in Site Access being temporarily revoked until the investigation of the reasons for non-compliance and the incident, including tests and results in a final determination of corrective action. Workers, who are found in non-compliance with this Standard may be removed from Sites and have their Site Access revoked by Nalcor or Nalcor's designate and may be prohibited from obtaining Site Access indefinitely. Persons who are found to be in non-compliance of this standard may be subject to discipline up to and including termination by the Contractor.

17.0 ALCOHOL AND DRUG TESTING REPORTS

The Contractors and each accredited drug and alcohol testing agency shall maintain the following:

- a) A report from each accredited drug and alcohol testing agency used by the Contractor that specifies the number of drug and alcohol tests performed, the number of positive or non-negative tests by each type of test requirement, and the number of tampered specimens. Test requirement types include those for pre-access, reasonable grounds, and post-incident. This report shall be provided by the EPCM to Nalcor quarterly or more often if required by Nalcor.
- b) Each Contractor shall maintain a report which identifies the total number of persons or Workers who have tested non-negative by specific trade, the number of persons or Workers tested by specific trade, but shall not provide the names of persons or Workers. A copy of this report shall be provided in hard copy and electronically by the Contractor to Nalcor quarterly or more often if required by Nalcor.

18.0 PROOF OF COMPLIANCE

Nalcor shall have the right to request proof of compliance to this Standard at any time.

19.0 SEARCH AND SEIZURE – POSSESSION OF DRUG AND ALCOHOL PARAPHERNALIA

Nalcor or its designate reserves the right to investigate, and/or require the Contractor or subcontractors to investigate, any situation when there are reasonable grounds to believe that alcohol, illicit drugs, or illicit drug paraphernalia are present on Site, in violation of this Standard or the Sites rules.

Nalcor or its designate, Contractors or subcontractors and their Workers are responsible for identifying situations where a search and seizure may be reasonable. Reasonable may be based on a combination of indicators which may include behaviour, odour, information received, or presence of paraphernalia. The supervisors will be responsible for advising their manager of the situation, who, in conjunction with onsite security, onsite Health and Safety Management (or their designates), and local police authorities, where appropriate, will make the decision as to whether or not to initiate a search.

On the Sites, Nalcor or Nalcor's designate may, for reasonable grounds, have Nalcor's supervision or the supervision of Nalcor's designate, Contractor supervisors and/or authorized search and inspection specialists, including scent-trained animals, conduct unannounced searches and inspections of Contractors, subcontractors, and/or Workers and their property. Property may include, but not limited to wallets, purses, lockers, baggage, offices, desks, tool boxes, clothing and vehicles. Where practical, such searches shall be in the presence of the affected Worker.

All Nalcor employees, contractors, sub-contractors and visitors and their property may be subject to search and seizure on arrival and departure from the Sites.

Seizure and future control of any alcohol, drugs, or drug paraphernalia will be directed by the Security personnel.

Nalcor or Nalcor’s designate, along with Contractor management (if Contractor personnel involved) may determine whether law enforcement agencies will be contacted.

In the event any Nalcor employee, contractor, sub-contractor and visitor refuses to submit to a search or is believed to be in violation of this Standard as a result of a search, such Worker or person’s Site Access will be temporarily revoked until an investigation of the refusal to submit to a search or violation of the Standard is completed. Workers or persons who are found in non-compliance with this Standard may be removed from Sites, have their Site Access revoked by Nalcor or its designate and may be prohibited from obtaining Site Access indefinitely. Persons found in violation of this Standard may be subject to discipline up to and including termination by the Contractor.

Approved By	Title: Project Director
Date	

20.0 ATTACHMENTS/APPENDICES

- Appendix A – Drug and Alcohol Testing Procedures
- Appendix B – Substance Abuse Professional Release of Confidential Information
- Appendix C – Reasonable Grounds Checklist

APPENDIX "A"
Drug and Alcohol Testing Procedures

The following procedures are a general overview only. More detailed information may be obtained from the approved accredited drug and alcohol testing agency. As an alternative to the drug and alcohol testing procedure contained herein, the approved accredited drug and alcohol testing agency may utilize a point of care testing procedure commonly referred to as a quick test ("POCT"). In the case of POCT, all non-negative tests must be confirmed by a Certified Lab.

I. Alcohol testing

General

1. The donor is the person or Worker from whom a breath or saliva sample is collected.
2. The donor is directed to go to a collection site in order to give a breath or saliva sample.
3. The breath alcohol technician ("BAT") or the screening test technician ("STT") as appropriate establishes the identity of the donor. Photo identification is preferable. Positive identification by a Contractor or company representative who holds a supervisory position is acceptable.
4. The BAT or STT as appropriate explains the testing procedure to the donor.
5. The Contractor or company must securely store information about alcohol test results to ensure that disclosure to unauthorized persons does not occur.
6. Breath testing and saliva testing devices are used to conduct alcohol screening tests and must be listed on the National Highway Traffic Safety Administrations ("NHTSA") conforming products list.

Breath testing

1. The BAT and the donor complete those parts of the alcohol testing form that is to be completed before the donor provides a breath sample.
2. The BAT opens an individually wrapped or a sealed mouthpiece in the presence of the donor and attaches it to the breath testing device in the prescribed manner.

3. The BAT explains to the donor how to provide a breath sample and asks the donor to provide a breath sample.
4. The BAT reads the test result and ensures that the test result is recorded on the alcohol testing form after showing the results to the donor.
5. The BAT completes the part of the alcohol testing form that is to be completed after the donor provides a breath sample and asks the donor to do so as well.
6. If the test result shows an alcohol level that is less than 0.020 grams/210 litres of breath, the BAT informs the donor that there is no need to conduct any further testing and reports the result in a confidential manner to the DCR or DNR. While the initial communication need not be in writing, the BAT must subsequently provide a written report of the test results to the DCR or DNR.
7. If the test result shows an alcohol level that is equal to or greater than 0.020 grams/210 litres of breath, the BAT informs the donor of the need to conduct a confirmation test.

Saliva testing

1. The STT and the donor complete those parts of the alcohol testing form that are to be completed before the donor provides a sample.
2. The STT checks the expiration date of the saliva testing device shows the date to the person or Worker and uses a saliva testing device only if the expiration date has not passed.
3. The STT opens an individually wrapped or a sealed package containing the saliva testing device in the presence of the donor.
4. The STT invites the donor to insert the saliva testing device into the donor's mouth for the time it takes to secure a proper specimen. If the donor does not wish to do this, the collection site person offers to do so.
5. The STT reads the result the saliva testing device produces and records the test result on the alcohol testing form after showing the results to the donor.
6. The STT completes the part of the alcohol testing form that is to be completed after the donor provides a saliva sample and asks the donor to do so as well.
7. If the test result shows an alcohol level that is less than 0.020 grams of alcohol in 100 millilitres of saliva or an equivalent concentration in other units, the STT informs the donor that there is no need to conduct any further testing and

reports the result in a confidential manner to the DCR or DNR. While the initial communication need not be in writing, the STT must subsequently provide a written report of the test results to the DCR or DNR.

8. If the test result shows an alcohol level that is equal to or greater than 0.020 grams of alcohol in 100 millilitres of saliva or an equivalent concentration in other units, the STT informs the donor of the need to conduct a confirmation test.

Confirmation test

1. If a breath alcohol testing device was used for the screening test, an evidential breath alcohol device must be used to conduct the alcohol confirmation test. If a saliva testing device was used for the screening test, the confirmation test will use an evidential breath alcohol testing device.
2. The BAT advises the donor not to eat, drink, put anything into his or her mouth or belch before the confirmation test is complete.
3. The confirmation test must start not less than fifteen minutes after the completion of the screening test and not more than thirty minutes after the completion of the screening test.
4. The BAT and the donor complete those parts of the alcohol testing form that are to be completed before the donor provides a breath sample.
5. The BAT opens a new individually wrapped or sealed mouthpiece in the presence of the donor and inserts it into the breath testing device in the prescribed manner.
6. The BAT explains to the donor how to provide a breath sample and asks the donor to provide a breath sample.
7. The BAT reads the test result on the device and shows the donor the result displayed. If the confirmation test result is equal to or in excess of 0.040 grams per 210 litres of breath, the BAT will do an external calibration check (accuracy check) to ensure the device is in working order. The BAT ensures that the test result is recorded on the alcohol testing form. The BAT verifies the printed results with the donor.
8. The BAT completes the part of the alcohol testing form that is to be completed after the donor provides a breath sample and asks the donor to do so as well.

9. The BAT immediately reports in a confidential manner the test results to the Administrator, DCR or DNR. While the initial communication need not be in writing, the BAT must subsequently provide a written report of the test results to the Administrator, DCR or DNR.

II. Drug testing

1. The donor is the person or Worker from whom a urine specimen is collected.
2. The donor is directed to go to a collection site in order to give a urine specimen.
3. The collection site person must establish the identity of the donor. Photo identification is preferable. Positive identification by a Contractor or company representative who holds a supervisory position is acceptable.
4. The donor must remove coveralls, jacket, coat, hat or any other outer clothing and leave these garments and any briefcase or purse with the collection site person.
5. The donor must remove any items from his or her pockets and allow the collection site person to inspect them to determine that no items are present which could be used to adulterate a specimen.
6. The donor must give up possession of any item which could be used to adulterate a specimen to the collection site person until the donor has completed the testing process.
7. The collection site person may set a reasonable time limit for providing a urine specimen.
8. The collection site person selects or allows the donor to select an individually wrapped or sealed specimen container. Either the collection site person or the donor, in the presence of the other, must unwrap or break the seal of the specimen container.
9. The donor may provide his or her urine specimen in private, in most circumstances. The specimen must contain at least forty-five millilitres.
10. The collection site person notes on the chain of custody form any unusual donor behaviour.
11. The collection site person determines the volume and temperature of the urine in the specimen container.

12. The collection site person inspects the specimen and notes on the chain of custody form any unusual findings. If the temperature of the specimen is outside the acceptable range or there is evidence that the specimen has been tampered with, the donor must provide another specimen under direct observation by the collection site person or another person if the collection site person is not the same gender as the donor.
13. The collection site person splits the urine specimen into two specimen bottles. One bottle is the primary specimen and the other is the split specimen.
14. The collection site person places a tamper-evident bottle seal on each of the specimen bottles and writes the date on the tamper-evident seals.
15. The donor must initial the tamper-evident bottle seals to certify that the bottles contain the urine specimen the donor provided.
16. The donor and the collection site person complete the chain of custody form and seal the specimen bottles and the laboratory copy of the chain of custody form in a plastic bag.
17. The collection site personnel arrange to ship the two specimen bottles to the laboratory as quickly as possible.
18. The laboratory must be the holder of a certificate issued by the Substance Abuse and Mental Health Services Administration of the United States Department of Health and Human Services under the National Laboratory Certification Program.
19. The laboratory must use chain of custody procedures to maintain control and accountability of urine specimens at all times.
20. Laboratory personnel inspect each package for evidence of possible tampering and note evidence of tampering on the specimen forms.
21. Laboratory personnel conduct validity testing to determine whether certain adulterants or foreign substances were added to the urine specimen.
22. Laboratory personnel conduct an initial screening test on the primary specimen for the drugs set out in Section 8 of the Standard using established immunoassay procedures. No further testing is conducted if the initial screening test produces a negative test result.
23. Laboratory personnel conduct a confirmatory test on specimens identified as positive by the initial screening test. The confirmatory test uses gas chromatography/mass spectrometry.

24. A certifying scientist reviews the test results before certifying the results as an accurate report.
25. The laboratory reports the test results on the primary specimen to the MRO in confidence.
26. The MRO, if satisfied that there is no legitimate medical explanation for a non-negative test result, will inform the Administrator, DCR or DNR in a confidential written report that a person tested positive. Prior to making a final decision on whether a test result is non-negative, the MRO must give the person an opportunity to discuss the results. The MRO shall report to the DCR or DNR whether the test result is negative, tampered, invalid or positive, or, if positive, whether or not there is a legitimate medical explanation. The MRO shall also report to the Administrator when the test is tampered, invalid or positive.
27. A person or Worker who has received notice from the MRO that he or she has tested non-negative may ask the MRO within 72 hours of receiving notice that he or she has tested positive to direct another laboratory to test the split specimen. The person or Worker is responsible for reimbursing the Contractor or company for the cost of the second test.
28. The laboratory reports the test results on the split specimen to the MRO in confidence.
29. The MRO will declare the test results negative if the test results for the split specimen are negative and the failure to reconfirm is not due to the presence of an interfering substance or adulterant.

APPENDIX "B"
SUBSTANCE ABUSE PROFESSIONAL
RELEASE OF CONFIDENTIAL INFORMATION

I (Person or Worker), _____, give permission to _____ to contact: _____ (Name) (Substance Abuse Professional Name)													
TO	<table style="width:100%; border: none;"> <tr> <td style="width: 50%; border: none;">Name: Insert Name</td> <td style="width: 50%; border: none;">Name: Insert Name</td> </tr> <tr> <td style="border: none;">Organization: Insert Name</td> <td style="border: none;">Organization: Contractor/Employer Name</td> </tr> <tr> <td style="border: none;">Title: Insert Name</td> <td style="border: none;">Title: Insert Title</td> </tr> <tr> <td style="border: none;">Address: Address Province: NL</td> <td style="border: none;">Address: Address Province: NL</td> </tr> <tr> <td style="border: none;">City: St. John's Postal Code: X#X #X#</td> <td style="border: none;">City: City Postal Code: X#X #X#</td> </tr> <tr> <td style="border: none;">Phone: (###) ###-#### Fax:(###) ###-####</td> <td style="border: none;">Phone: (###) ###-#### Fax:(###) ###-####</td> </tr> </table>	Name: Insert Name	Name: Insert Name	Organization: Insert Name	Organization: Contractor/Employer Name	Title: Insert Name	Title: Insert Title	Address: Address Province: NL	Address: Address Province: NL	City: St. John's Postal Code: X#X #X#	City: City Postal Code: X#X #X#	Phone: (###) ###-#### Fax: (###) ###-####	Phone: (###) ###-#### Fax: (###) ###-####
Name: Insert Name	Name: Insert Name												
Organization: Insert Name	Organization: Contractor/Employer Name												
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Phone: (###) ###-#### Fax: (###) ###-####	Phone: (###) ###-#### Fax: (###) ###-####												
WHAT INFO	<p>To release verbally or in writing:</p> <table style="width:100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Assessment</td> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Participation</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Attendance</td> <td style="border: none;"><input checked="" type="checkbox"/> Program Dates</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Relevant History</td> <td style="border: none;"><input checked="" type="checkbox"/> Progress Summary</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> End-Summary & Recommended Actions</td> <td style="border: none;"><input checked="" type="checkbox"/> Reason for Referral</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Other:</td> <td style="border: none;"><input checked="" type="checkbox"/> Treatment Plan</td> </tr> </table>	<input checked="" type="checkbox"/> Assessment	<input checked="" type="checkbox"/> Participation	<input checked="" type="checkbox"/> Attendance	<input checked="" type="checkbox"/> Program Dates	<input checked="" type="checkbox"/> Relevant History	<input checked="" type="checkbox"/> Progress Summary	<input checked="" type="checkbox"/> End-Summary & Recommended Actions	<input checked="" type="checkbox"/> Reason for Referral	<input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Treatment Plan		
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<input checked="" type="checkbox"/> End-Summary & Recommended Actions	<input checked="" type="checkbox"/> Reason for Referral												
<input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Treatment Plan												
PURPOSE	<p>The information I have consented to for purpose of disclosure shall only be used for the following reasons:</p> <ul style="list-style-type: none"> To enable the Contractor to develop a return to work plan aimed at assisting me to obtain Site Access and completing and maintaining rehabilitation while working on the Site. To assist Nalcor and the Contractor to determine whether or not I should be granted Site Access or my Site Access should be revoked. 												
CONSENT	<p>I understand that provision of treatment services is not dependent upon my decision to release information and that I may cancel this consent at any time. I also understand that some action may have been taken prior to cancellation.</p> <p>Person or Worker Signature: _____ Witness: _____ Date Signed: YYYY/MMM/DD Permission will Expire on: YYYY/MMM/DD</p>												
CANCEL	<p>I, _____, cancel this permission. I understand that some action may have been taken prior to this cancellation.</p> <p>Signature: _____ Witness: _____ Date Signed: YYYY/MMM/DD</p>												

**APPENDIX "C"
REASONABLE GROUNDS CHECKLIST**

Worker's Name: _____

Date: _____

Workplace/Project Name: _____

ID/Brass Number: _____

Put check marks against the phrases that best describe this worker's behaviour. **Add as much information as you can** that may assist in clarifying the situation, as well as any witnesses to the behaviour you are describing.

	Date(s)	Explanation
1. General Appearance <input type="checkbox"/> Sleepy <input type="checkbox"/> Tremors <input type="checkbox"/> Other (specify)		
2. Workplace Behaviour <input type="checkbox"/> Interrupts others work <input type="checkbox"/> Inflexible about procedures <input type="checkbox"/> Argumentative <input type="checkbox"/> Inappropriate emotional outbursts <input type="checkbox"/> Physically threatening <input type="checkbox"/> Alcohol or drug consumption observed		
3. Temperament at Work <input type="checkbox"/> Withdrawn much more than usual <input type="checkbox"/> Easily upset by everyday events <input type="checkbox"/> Agitated and on edge <input type="checkbox"/> Excessively worried or fearful <input type="checkbox"/> Extreme variations of mood		
4. Job Performance <input type="checkbox"/> Forgets instructions, abnormal <input type="checkbox"/> Procedures <input type="checkbox"/> Works abnormally slowly <input type="checkbox"/> Erratic productivity		

	Date(s)	Explanation
<input type="checkbox"/> Missed deadlines <input type="checkbox"/> Signs of intoxication (smell of alcohol or drugs, slurred speech, confusion, inarticulate speech, uncoordinated) <input type="checkbox"/> Poor judgment <input type="checkbox"/> Fails to wear safety equipment <input type="checkbox"/> Other (specify)		
5. Relationship with co-workers <input type="checkbox"/> Abnormal reaction to criticism <input type="checkbox"/> Imagines criticism where there is none <input type="checkbox"/> Complaint received from co-worker <input type="checkbox"/> Complaint from client		
6. Absenteeism <input type="checkbox"/> Excessive absence <input type="checkbox"/> Unlikely excuses for absence <input type="checkbox"/> Excuse for absence proven false <input type="checkbox"/> Absences follow a pattern <input type="checkbox"/> Frequently late returning from breaks <input type="checkbox"/> Excessive absence from workstation		
7. Further observations or comments: 		
Names of management or supervisory personnel trained in the Comprehensive Drug and Alcohol Work Standard or contractors policy who have completed this checklist:		
Do Reasonable Grounds for testing exist? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, explain above in section #7. Supervision: _____ _____ <div style="display: flex; justify-content: space-between;"> Name (print) Signature </div>		
Do Reasonable Grounds for testing exist? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, explain above in section #7. Supervisor/ Manager _____ <i>OR Designate</i> _____ <div style="display: flex; justify-content: space-between;"> Name (print) Signature </div>		

Nalcor Energy – Lower Churchill Project



Coding Standard

LCP-PT-MD-0000-IM-SD-0001-01

<p>Comments:</p> <ol style="list-style-type: none"> 1. All changes are indicated by horizontal line in the margin. 2. Figure 1 has been added. 3. Attachment 1 and 2 have been removed as the information is now contained within this and other standards. 	<p>Total number of Pages (Including Cover):</p> <p style="text-align: center;">11</p>
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B3	12-Mar-12	Issued for Use	<i>N. Collins</i>	<i>D. Green</i>	<i>G. Fleming</i>	<i>R. Power</i>	<i>P. Harrington</i>
			N. Collins	D. Green	G. Fleming	R. Power	P. Harrington
B2	17-Nov-11	Issued For Use					
			N. Collins	D. Green	G. Fleming	R. Power	P. Harrington
B1	01-Apr-11	Issued for Use					
			K. Greene	D. Green	G. Fleming	R. Power	P. Harrington
Status/ Revision	Date	Reason For Issue	Prepared By	Functional Manager Approval	Project Manager (Marine Crossings) Approval	Project Manager (Generation + Island Link) Approval	Project Director Approval

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Inter-Departmental / Discipline Approval (where required)

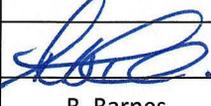
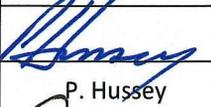
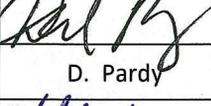
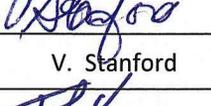
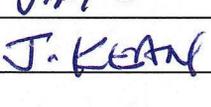
Department	Department Manager Approval	Date
Engineering	 B. Barnes	7-Mar-2012
Supply Chain	 P. Hussey	7 Mar 2012
Project Controls Lead	 D. Pardy	9-MAR-2012
Information Management Supervisor	 V. Stanford	05-Mar-2012
Deputy PM	 J. KEAN	6-MAR-2012

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1.0 Purpose

This document defines the coding formats and associated component codes to be utilized on the Nalcor Energy – Lower Churchill Project. NE-LCP will provide identification of information, activities and asset elements. The intent is to provide coding direction that will facilitate consistent capture, tracking and reporting throughout the life cycle of the asset.

2.0 Scope

The coding described in this document shall apply to all coding of revision controlled documents pertaining to NE-LCP.

3.0 Definitions

Coding Format: A combination of component codes that when logically presented together provide unique identification for a piece of information, an activity or an asset element.

Component Codes: The codes utilized to construct intelligent coding formats.

Engineering/Design Document: Document (including drawings) created to capture the conception, analysis, construction/fabrication, commissioning and/or ongoing maintenance criteria required to build, operate and/or maintain a physical product or electronic system.

Supplier Document: A document created in support of the manufacture preservation, installation, commissioning, operation and ongoing maintenance of purchased equipment.

Contractor Document: Document deliverables resulting from a service related contractual relationship.

Information Set: A named collection of interrelated data grouped together due to commonalities.

Management System Document: Document created to define and/or support a function or process. (I.e. policies, strategies, standards, procedures, etc.) Document belonging to Management System.

Metadata: Electronic Properties or Attribution used to describe the particulars of a document, drawing or other data.

Originator: The person determining a specific code to be used to uniquely identify a piece of information, activity or asset element.

Originator Code: The organization creating the document to which the code applies.

Revision Controlled Document: A document subject to revision in a “controlled” fashion through a review or approval process.

Structured Data: Information that resides in fixed fields within an electronic environment. The content in the fields of databases and spreadsheets are examples of structured data.

Unstructured Data: Information that is represented as free-form text, image or graphics which can be treated as a unit. A text document or a drawing would be examples of unstructured data.

4.0 Abbreviations and Acronyms

EDMS – Electronic Document Management System

LCPDCC - Lower Churchill Project Document Control Center

NE-LCP – Nalcor Energy – Lower Churchill Project

WBS – Work Breakdown Structure

5.0 Reference Documents

LCP-PT-MD-0000-PC-LS-0001-01 – *Project Work Breakdown Structure and Code of Accounts*

LCP-PT-MD-0000-IM-PR-0008-01 – *Directions to Contractors / Suppliers for Document Requirements*

6.0 Responsibilities

NE-LCP Information Management Group: As custodians of this document, shall be responsible for coordinating the creation, implementation, maintenance and distribution of this coding standard.

Originator: As the use of this document is mandatory, originators of documents and data are responsible to comply with the coding described for the creation and ongoing maintenance of all information, activities and asset elements.

7.0 Specific Field Input Directions

It is the goal of the NE-LCP to realize efficiencies by having consistent capture, tracking and reporting of project information, activities and asset elements. Standard coding is key to achieving this goal.

All information, activities and asset elements will require project codes that will be captured on documents and/or within electronic systems used to manage the Project.

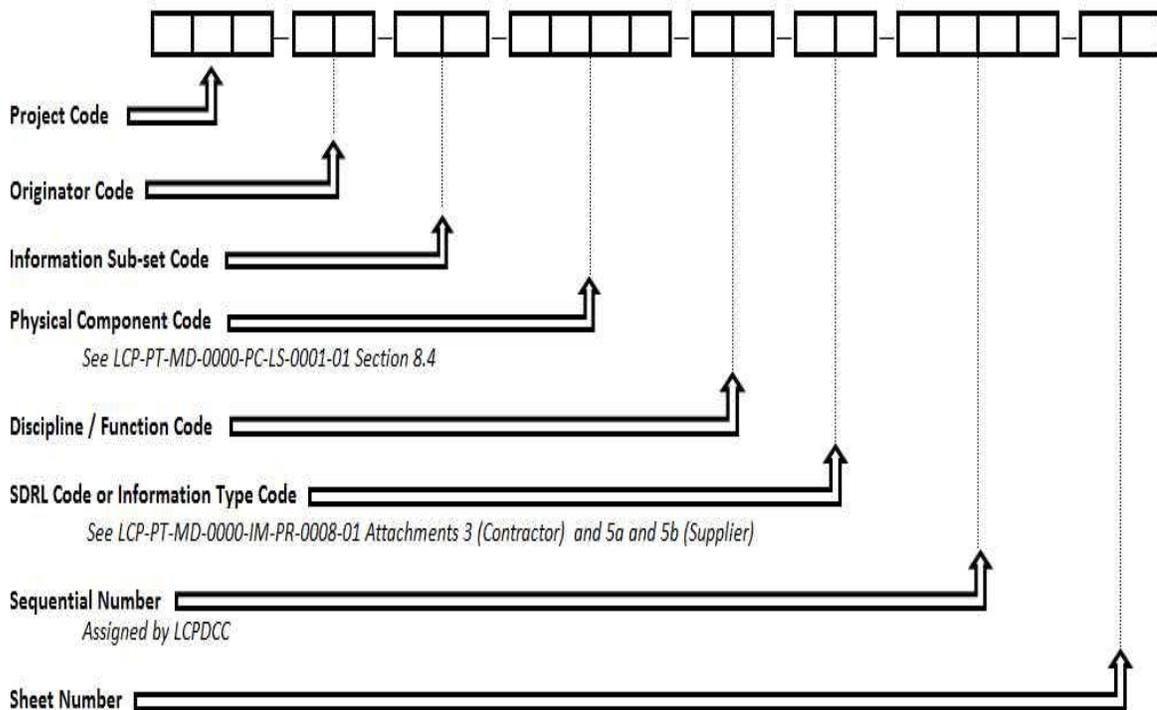
7.1 Document (Unstructured Data) Coding

Revision controlled documents are dynamic documents (including drawings) which are subject to revision control and that are required to go through a review or approval process. Revision controlled documents typically include Engineering/Design, Construction, Fabrication, Contractor and Management documentation.

The NE-LCP document number shall be applied to all LCP revision controlled documents and drawings and shall also be the reference document / drawing number when referring to other LCP revision controlled documents/drawings.

Intelligent document numbering is being implemented as shown in Figure 1.

Figure 1: Nalcor Energy – Lower Churchill Project Document Number Structure.



Document Format Sample:

Project Code:	LCP – Lower Churchill Project
Originator Code:	PT – Project Management Team
Information Sub-Set Codes:	ED – Engineering Drawing
Physical Component Codes:	1111 – Access Roads – Construction/Temporary
Discipline/Function Codes:	AR – Architectural
Information Type Code:	GA – General Arrangement
Sequence:	0001
Sheet Number:	01

Project Document Number: LCP-PT-ED-1111-AR-GA-0001-01

Note: When document numbers are being listed in a register/spreadsheet type format, dashes are to be used between each component without leaving spaces.

Component Code Descriptions:

Project Code: Three character alpha code, denoting project area to which the document pertains. (Included to provide potential for future use of this document coding structure by other areas of the parent organization and still maintain uniqueness in numbering.)

Project Code

LCP – General

GIL – Generation – Gull Island

MFA – Generation – Muskrat Falls

ILK – Island Link

MLK – Maritime Link

ETM – Export Transmission

Originator Code: Two character alpha code, denoting the specific part of the organization creating the document. It *does not* denote responsibility for design. Also, although inclusion of code may not provide full asset life-cycle value for identification purposes, it is included in document number to alleviate potential duplicate numbering across the project's multi-group document creation environment. Originator Codes are assigned by the NE-LCP Information Management Group upon Contract Award.

Information Sub-Set: Two character alpha code, denoting the *general* information set to which the document being created.

Information Sub-Set Codes

ED – Engineering / Design Document
MD – Management System Document
CD - Contractor Document
SD – Supplier Document

Physical Component: Four digit numeric code, denoting the structure/major work component of the asset to which the document relates, based on Work Breakdown Structure (WBS) as captured in project document LCP-PT-MD-0000-PC-LS-0001-01 - Project Work Breakdown Structure and Code of Accounts. For documents not related to a specific component (such as project management procedures) or for documents which relate to more than one component, use the code “0000”.

Discipline/Function: Two character alpha code, denoting the Engineering Discipline or Project Functional group responsible for the creation of the document and to which the information contained in the document relates. See below list of accepted Discipline/functional codes.

Discipline/Function Code

AB - ABORIGINAL AFFAIRS
AD - ADMINISTRATION
AM - ASSET MANAGEMENT
AR - ARCHITECTURAL
CA - CONTRACT ADMINISTRATION
CM - COMMISSIONING
CO - COMMUNICATIONS
CS - CONSTRUCTION
CT - CERTIFICATION
CV - CIVIL (Including - Hydraulics)
DR - DRILLING
EA - ENVIRONMENTAL ASSESSMENT
EL - ELECTRICAL
EN - ENGINEERING (GENERAL)
EP - ESTIMATING & PLANNING
EV - ENVIRONMENT
FI - FINANCE AND ACCOUNTING
GT - GEOTECHNICAL

HR - HUMAN RESOURCES
HS - HEALTH, SAFETY & SECURITY
IB - INDUSTRIAL BENEFITS
IE - INVESTMENT EVALUATION
IM - INFORMATION MANAGEMENT
IN - INSPECTION
IS - INFORMATION SYSTEMS
LC - LOSS CONTROL
LE - LEGAL
LR - LABOUR RELATIONS
MA - MARKET ACCESS
ME - MECHANICAL (Including - HVAC, Piping & Hydraulics)
MM - MATERIALS MANAGEMENT
MR - MARINE
MT - MAINTENANCE
OP - OPERATIONS
PC - PROJECT CONTROLS
PI - PIPING
PM - PROJECT MANAGEMENT
PO - PROCUREMENT
PP - PROPERTIES
PR - PUBLIC RELATIONS
PS - POWER SALES
PT - PROTECTION AND CONTROL
QA - QUALITY ASSURANCE
QC - QUALITY CONTROL
QM - QUALITY MANAGEMENT
RI - RISK MANAGEMENT
RT - REGULATORY
SC - SUPPLY CHAIN
SM - STAKEHOLDER MANAGEMENT
SS - SUBSEA
ST - STRUCTURAL
SU - SUB SURFACE

Information Type: Two character numeric code, denoting *specific* type of document being created.

Sequence Number: Four digit numeric code, denoting the sequence number unique to the specific prefixing document code combination. Starts at 001 each time any component of the prefix coding changes. (Assigned by Document Control - LCPDCC.)

Sheet Number: Two digit number, starting at 01. Used only for drawings. This will facilitate revision of individual documents without having to revise the associated sheets.

7.1.1 Revision Status Codes

Changes to a revision controlled document must be identified as a revision change. All documents must indicate the purpose for which it was issued, and the number of times it has been issued for that specific purpose.

Each document shall have a two character/digit alpha numeric code, comprised of the status and revision codes, applied to indicate each issue of the document.

Revision Status Code: Single character alpha code indicating the purpose for which the document was issued by the Originator. See table below for details.

Revision Status:
A - IDC - Issued for Review
B - Approved for Use / Implementation / Bid
C - Approved for Purchase /Construction / Fabrication
D - Approved for Design
L - As-built
N - Cancelled
S - Superseded
V - Void

7.2 Supplier / Contractor Coding

There are a number of contractual type documents. Documents produced as deliverables for a contract will follow the engineering/revision controlled number format.

The contract number will be cross referenced in the EDMS system in the Contract Number attribute ensuring the information is easily identified to a particular Contract or Supplier Package.

Format:**Supplier Document Coding Format Sample:**

Project Code:	MFA – Muskrat Falls
Originator Code:	XY – XYZ Inc.
Information Sub-Set Code:	SD – Supplier Document
Physical Component:	1550 – Buildings – Warehousing
Discipline/Function Code:	ST – Structural
SDRL Code:	B01 – General Arrangement
Sequence:	0001
Sheet Number:	01

Project Document Number: MFA-XY-SD-1550-ST-B01-0001-01

Note: Although Contractual documents are subject to review and acceptance, the revision history for Supplier Documentation shall be maintained using an amendment process, sequential numbering per submission. A status and revision code will not be applied.

8.0 Activity Flowchart (Excel Format)**8.1. N/A****9.0 Attachments/Appendices**



Worker Site Access Standard

Nalcor Doc. No. LCP-PT-MD-0000-HS-SD-0003-01

Comments:	Total # of Pages: (Including Cover):
	8

Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval	Approval	Project Manager (Generation + Island Link) Approval
B1	20-Dec-2013	Issue for Use	<i>D Riffe / D Clark</i> D Riffe / D Clark	<i>B Crawley / L Clarke</i> B Crawley / L Clarke	<i>J Kean / F Cornick</i> J Kean / F Cornick	<i>R Power</i> R Power

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Worker Site Access Standard		
Nalcor Doc. No.	Revision	Page
LCP-PT-MD-0000-HS-SD-0003-01	B1	1

Inter-Departmental / Discipline Approval (where required)

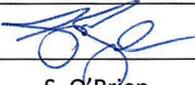
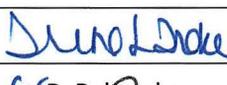
Department	Department Manager Approval	Date
Project Manager Muskrat Falls		14 Nov 2013
	S. O'Brien	
Manager, Health & Safety, Security and Emergency Response		21 Nov 2013
	D. Riffe	
Site Manager Muskrat Falls Generation		19-Dec-2013
	D. Tranquilla	
Project Manager HVdc Specialties		27-Nov-2013
	for D. Debourke	
Project Manager: TL Construction / Execution		5 Nov 2013
	R. Donica	

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1.0 Purpose

The Lower Churchill Project is committed to providing safe and secure construction sites. The purpose this Worker Site Access Standard is to create the parameters for the granting, denying or revoking access to Project Construction Sites at Muskrat Falls and any other LCP construction site designated by Nalcor as restricted and requiring proper authorization to access. This Standard will not be applicable to construction activities in the transmission right-of-ways, unless a specific area of the right-of-way has been designated.

2.0 Scope

Nalcor, as Owner, has the right to control access to all Project Construction Sites. As such, Nalcor may, at its absolute discretion, grant or deny access to any Project Construction Site.

This Standard applies to the following groups:

- Nalcor representatives primarily assigned to site
- Contractor site personnel and site personnel of associated sub-contractors
- All personnel primarily assigned to work at a LCP Project Construction Site

Nalcor reserves the right to amend or revoke this Standard at any time.

3.0 Definition

Committee	Site Access Review Committee which is chaired by the LCP Site Manager or their designate, which committee will have representation from Nalcor, HSSER and LR. This Committee will review site access appeals.
LCP	Lower Churchill Project
LCP Site Access Coordinator	A person designated by Nalcor, responsible for issuing, denying or revoking Project Construction Site access.
Project Construction Site(s)	LCP Generation Construction Site at Muskrat Falls and any other LCP Project Construction Site designated by Nalcor as restricted and requiring proper authorization to access.
Site Pass	ID card with a photo, issued by the LCP Site Access Coordinator or their designate.

Standard LCP Worker Site Access Standard.

4.0 Abbreviations and Acronyms

D&A	Nalcor Energy – Lower Churchill Project Standard for Drug and Alcohol
HSSER	Health, Safety, Security and Emergency Response
LCP	Lower Churchill Hydroelectric Project
LR	Labour Relations
Nalcor	Nalcor Energy

5.0 Responsibilities

LCP Site Manager	is responsible for the operation of this Standard
H&S Manager	is responsible for providing assistance to the LCP Site Manager for management of this Standard
LCP Site Access Coordinator	is responsible for issuing or revoking of Site Passes, working under the direction of the LCP Site Manager

6.0 Site Access Approval and Revocation

6.1 Site Access Approval

Nalcor reserves the right, as the Owner, to determine whether or not to grant access to any Project Construction Site. Any personnel primarily assigned to work at a Project Construction Site who have been granted access to a Project Construction Site, including but not limited to Contractor(s) and Nalcor personnel, shall be provided a Site Pass by the LCP Site Access Coordinator or their designate. Nalcor reserves the right, as Owner, to determine the conditions for granting a Site Pass, which are currently as follows:

1. Comply with the D&A;
2. Comply with the LCP Pre-Site Access Medical Standard;
3. Complete any required Project Construction Site orientation and/or training; and
4. Comply with any other terms and conditions Nalcor deems appropriate.

6.2 Site Access Denial / Revocation

Nalcor, as property Owner, reserves the right to deny access to any Project Construction Site or revoke a Site Pass at any time, for any reason, including but not limited to the following:

1. Failure to comply with any Project Construction Site safety absolute;

2. Breaches of any items listed in the Lower Churchill Project Site Handbook which result in the revocation of access to a Project Construction Site;
3. Failure to comply with the LCP Respectful Workplace Standard; or
4. Being informed by a Contractor that an employee has been terminated, suspended or has resigned.

Contractors, upon laying-off, terminating, suspending or receiving a resignation of an employee or receiving notification of revocation of an employee's site access, will obtain from such employee their Site Pass immediately and shall return the Site Pass to the LCP Site Access Coordinator, or their designate, as soon as possible and no later than forty-eight (48) hours of such person ceasing to be an employee or being suspended.

7.0 Notification and Reporting

All Contractors must report in writing the names of employees working on a Project Construction Site who have:

1. Been terminated;
2. Been suspended (including the start and final date of the suspension);
3. Resigned (including the date of resignation); or
4. Been laid off (including the date of layoff).

These notifications are to occur as soon as possible, or no later than forty-eight (48) hours, of the employee ceasing to be an employee or the date of the suspension.

The LCP Site Access Coordinator, or their designate, will provide notification of the revocation of Project Construction Site access to the following:

1. The Person whose Project Construction Site access has been revoked;
2. The Contractor employing the person whose Project Construction Site access has been revoked;
3. The Union representing the employee, in the event the employee is a Union member;
4. LCP Site Security;
5. LCP Site Manager;
6. LCP Site Labour Relations Manager;
7. LCP HSSER Manager;
8. LCP Site HSSER Manager; and
9. LCP Site H&S Coordinator.

8.0 Appeal Process

Thirty (30) days after the date of the written notice of revocation of Project Construction Site access, such person whose access has been revoked, or the Contractor that employed such person, may appeal the decision to revoke Project Construction Site access to the Site Access Review Committee as follows:

1. The appeal must be in writing and signed by the person setting out the reasons for appealing why, in the opinion of the person, access to the Project Construction Site should be reinstated and any other information such person believes is relevant;
2. The appeal to the Committee must be submitted to the LCP Site Manager;
3. The Committee will consider the appeal within thirty (30) days after the appeal has been received by the LCP Site Manager;
4. The Committee, when considering the appeal, may dispense the appeal as follows:
 - a. Reject the appeal;
 - b. Reinstatement Project Construction Site access;
 - c. Reinstatement Project Construction Site access with conditions;
 - d. Defer reinstatement of Project Construction Site access; or
 - e. In any other matter the Committee deems appropriate.

The Committee shall not issue reasons for its decisions. The decision of the Committee will be provided to the individual and those listed in paragraph two above within ten (10) days of the appeal being heard.

The decision of the Committee shall be final and shall not be subject to further review.

9.0 Example of No Access Letter

dd-mmm-yyyy

Street Address

City, Province, Postal Code

Attention: EMPLOYEE NAME / Union (if applicable)

Dear Sir/Madam:

Re: Name EMPLOYEE NAME
D. O. B. _____
File # _____

Your Site Access has been revoked TIME FRAME, commencing DATE OF REVOCATION.

Should you wish to appeal this decision, you may contact the LCP Site Manager, _____,
at xxxx@lowerchurchillproject.ca.

Yours truly,

LCP Site Manager

Cc: Employee File
Contractor of Employee
Union (if applicable)
LCP Site Access Coordinator
LCP HSSER Manager

Nalcor Energy – Lower Churchill Project



**Lower Churchill Project Transmission Construction Collective Agreement between
Lower Churchill Transmission Construction Employers' Association Inc. and
International Brotherhood of Electrical Workers and IBEW Local Union 1620**

Nalcor Doc. No. LCP-PT-MD-0000-LR-CT-0004-01

<p>Comments: This revision amends the RRSP wording ("Employee RRSP" to "Group RRSP"). As a result, Article 26 and Schedule C have been changed to reflect this amendment.</p>	<p>Total # of Pages: (Including Cover): 87</p>
---	--

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B3	16-Apr-2014	Issued for Use	David Clark	Lance Clarke
B2	20-Feb-2014	Issued for Use	David Clark	Lance Clarke
B1	20-Sep-2013	Issued for Use	David Clark	Lance Clarke

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May 1, 2012 – May 1, 2017

**LOWER CHURCHILL PROJECT TRANSMISSION CONSTRUCTION
COLLECTIVE AGREEMENT**

Between

**Lower Churchill Transmission
Construction Employers' Association Inc.**

- and -

International Brotherhood of Electrical Workers

- and -

IBEW Local Union 1620

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Article 1 – Purpose and Project Culture

1.01 The purpose of this Special Project Collective Agreement (“Agreement”) is to establish certain terms and conditions of employment for workers employed by Contractors for the construction of transmission, related infrastructure and related activities for the Labrador Island Link and Muskrat Falls to Churchill Falls Project. The Parties jointly recognize that this is Newfoundland and Labrador’s Project and is of immense importance to the Provincial Energy Plan in bringing clean, renewable energy to Atlantic Canada, under the following common vision.

“Our vision is to build a strong economic future for successive generations of Newfoundlanders and Labradorians.”

1.02 The Parties agree to work collaboratively, to support positive labour relations and to utilize the International Brotherhood of Electrical Workers Code of Excellence. The Parties will work to achieve high levels of labour productivity while embracing a respectful work environment, safety, quality, efficiency and respect for the environment.

1.03 This Agreement will facilitate the participation of qualified Labrador Innu, residents of Newfoundland and Labrador, women, and members of other underrepresented groups.

1.04 The Agreement and its constituent Appendices, Recitals, Schedules, Letters of Understanding and Memoranda of Agreement shall constitute a Collective Agreement for the purposes of a Special Project Order to be declared under Section 70 of the *Labour Relations Act R.S.N.L. 1990, c. L-1* when executed by the Parties and shall be administered as such. The terms of this Agreement, including all Appendices, Recitals, Schedules, Letters of Understanding and Memoranda of Agreement, shall take precedence over any existing or future union contracts or agreements entered into by the International Brotherhood of Electrical Workers or IBEW Local Union 1620. In the event that a conflict exists between Article 1 to Article 39 of this Agreement and the Appendices, Recitals, Schedules, Letters of Understanding and Memoranda of Agreement (the “Supplementary Attachments”) to this Agreement, the applicable Article in the Agreement shall prevail unless the IBEW and Association agree in writing otherwise.

1.05 The Union, its officers and representatives at all levels, and all employees are bound to observe the provisions of this Agreement. The Association, and all Contractors, their officers, directors, representatives and employees at all levels are bound to observe the provisions of this Agreement.

Article 2 – Parties

2.01 The Parties to this Agreement shall be as follows:

- a) Lower Churchill Transmission Construction Employers’ Association Inc.;
- b) International Brotherhood of Electrical Workers; and
- c) IBEW Local Union 1620.

Article 3 – Definitions

3.01 The following definitions apply to this Agreement:

- a) “Association” means the Lower Churchill Transmission Construction Employers’ Association Inc.
- b) “Benefits Strategy” means Lower Churchill Construction Project Benefits Strategy.
- c) “Commissioning” includes pre-commissioning, static commissioning, dynamic commissioning, including work required to calibrate, test, energize or partially energize or trial equipment, processes, systems, transmission infrastructure, transition compound(s), communication systems or related infrastructure including but not limited to substations, converter stations, electrodes, transformers and synchronous condensers prior to turning all or a portion of any of the aforementioned over to the operations team or any other group designated by the Owner or EPCM responsible for start-up and operating the transmission system or any of its components.
- d) “Contractor”, “Employer” or “employer” means any contractor engaged by the Owner, or any subcontractor engaged by a Contractor, to carry out construction work at the Project, but does not include the Owner or the Owner's agent carrying out engineering, procurement, purchasing and construction management work.
- e) “EPCM” means the Owner’s Engineering Procurement Construction Management Company.
- f) “Labrador Resident” means a Canadian or landed immigrant who has, as of the date determined by the Owner or the EPCM agent of the Owner or earlier, his/her principal residence in Labrador. Factors and/or current documents to be examined when determining who is a resident may include property tax assessment, lease agreement, driver’s licence, vehicle registration, income tax returns, voter’s list registration or MCP number.
- g) “Project” means the construction of transmission, related infrastructure and related activities for the Labrador Island Link and Muskrat Falls to Churchill Falls Link, more particularly described on Schedule “A”.
- h) “Owner” means Nalcor Energy or any successor or nominee entity.
- i) “Party” or “Parties” means the party or parties to this Agreement namely the Association and the International Brotherhood of Electrical Workers and IBEW Local Union 1620.
- j) “Province” means Newfoundland and Labrador.
- k) “Provincial Resident” means a Canadian or landed immigrant who has, as of the date determined by the Owner or the EPCM agent of the Owner or earlier, his/her Principal Residence in Newfoundland or Labrador. Factors and/or current

documents to be examined when determining who is a resident may include property tax assessment, lease agreement, driver's licence, vehicle registration, income tax returns, voter's list registration or MCP number.

- l) "TFW" means Temporary Foreign Workers being workers from outside Canada who have obtained the necessary regulatory permits to work on the Project.
- m) "Union" or "Unions" shall mean the International Brotherhood of Electrical Workers and IBEW Local Union 1620.

Article 4 – Scope and Recognition

- 4.01 The Association hereby recognizes the Union as the sole and exclusive bargaining agent for the employees of Contractors as described in the classifications set out and attached hereto in Schedules "C", "C.1", "E" and "F" engaged in construction work on the Project. The Union shall represent all employees in the bargaining unit working on the Project in all matters relative to this Agreement.
- 4.02 Where the Association and/or Contractor create a new classification to be included in Schedule "C" and "C.1", the Association shall establish the classification and wage rate of the new position and the Union shall be notified in writing within 14 calendar days. The classification and wage rate shall be subject to negotiation with the Union. If no agreement is reached within 30 calendar days, the matter may be submitted to arbitration.
- 4.03 The Union recognizes the Association as the sole and exclusive bargaining agent for all Contractors engaged in the construction of the Project. All Contractors engaged in construction of the Project and having employees working within the scope of this Agreement shall be required, as a condition of contract award, to become members of the Association and to observe the terms and conditions of this Agreement.
- 4.04 This Agreement is limited to the Project. Bargaining rights and commitments under this Agreement do not in any way create bargaining rights or obligations for Contractors or Contractor employees not working on the Project, nor shall such bargaining rights or commitments be the basis of support for the creation of any bargaining rights or obligations outside the Project.
- 4.05 This Agreement does not apply to:
 - a) construction trade supervisors above the rank of foreman, those excluded under the *Labour Relations Act* of Newfoundland and Labrador, office staff, engineering staff, technical and drafting personnel, engineering surveyors, document control persons, security personnel and quality control and visual inspectors;
 - b) employees of Nalcor Energy, Emera Inc. and NSP Maritime Link Inc. or any of their subsidiaries, performing work on the Project or any portion of the Project;
 - c) persons engaged in the supply, installation, termination and testing of the Marine HVDC cable system crossing the Strait of Belle Isle, including but not limited to associated work from the cable system components in the Transition Compound at Forteau, Labrador, to cable system components in the Transition Compound

at Shoal Cove, Newfoundland. This work includes but is not limited to persons engaged in the supply and installation of surge arrestors, terminations, fibre optic system, HVDC cable accessory and spares, land HVDC cable, engineered thermal backfill, transition joint bays, horizontally drilled cable conduits, HVDC marine cable, submarine berm, operation of rock quarry and transportation of materials from such rock quarry;

- d) work performed by any person within the scope of work which falls under a different Special Project Order issued pursuant to Section 70 of the *Labour Relations Act*.
- 4.06 It is understood and agreed by the Parties hereto that no bargaining relationship is created or will be created at any time during the term of this Agreement or any extension of the term of this Agreement by the Owner or the Owner's Engineering Procurement Construction Management ("EPCM"), or their subsidiaries and affiliates and their successors with the International Brotherhood of Electrical Workers or IBEW Local Union 1620 or any affiliates of either union, by voluntary recognition or by action of law pursuant to the *Labour Relations Act* of the Province of Newfoundland and Labrador or by any other means. Accordingly this Agreement does not apply to the Owner or EPCM, their subsidiaries, affiliates and their successors or to the employees of any of the aforementioned. Accordingly, an arbitrator shall have no authority or jurisdiction to make any order or award any remedy against the Owner or the EPCM, their subsidiaries, affiliates and their successors or to any employees of the aforementioned.
- 4.07 The Association shall designate, in writing, one or more Project representatives with full authority to administer the terms of this Agreement. The Union agrees to recognize said representatives and their authority to carry out those duties. There shall be at least one Association Project representative as an ex-officio member of all joint committees. Should the Association change any of its designated Project representatives, it shall inform the Union of such change in writing.
- 4.08 The Union shall designate one or more Project representatives, in writing, with full authority to administer the terms of this Agreement. The Association agrees to recognize said representatives and their authority to carry out their duties. There shall be at least one Union Project representative as an ex officio member of all joint committees. Should the Union change any of its designated Project representatives, it shall inform the Association of such change in writing.
- 4.09 The Contractor(s), the Union or any member of the bargaining unit shall not seek to agree, or agree on any matter, within the scope of this Agreement or as to the interpretation of this Agreement or application of this Agreement except as provided in this Article. Any agreement on any matter within the scope of this Agreement or any agreement as to the interpretation of this Agreement shall be null and void and not enforceable except as provided in the herein Article. Only the Association and the Union may, by written agreement signed by the duly authorized representative of each Party, amend the terms of this Agreement or enter into agreement as to the interpretation or application of this Agreement.
- 4.10 The International Brotherhood of Electrical Workers and IBEW Local Union 1620 jointly and severally agree with the Association and with each other that during the term of this Agreement, and any extension to the term of this Agreement, they will continue to be the

bargaining agent for all employees who come within the scope of this Agreement and they agree during the term and any extension to the term not to seek to bargain individually with any Contractor to be governed exclusively by the terms of this Agreement and by all lawful settlements of disputes, grievances and differences made pursuant to the terms of this Agreement.

- 4.11 The Parties agree that the Innu Liaison position is not a representative of the Union, Contractors, or Association and is not included in the bargaining unit.

Article 5 – Management Rights

- 5.01 The Contractors retain full and exclusive authority for the management of their business in all respects, subject to the provisions of this Agreement.
- 5.02 Without restricting the generality of the foregoing, it is agreed that it is the exclusive function of the Contractors:
- a) to determine qualifications, skills, abilities and competency of employees;
 - b) to determine the required number of employees;
 - c) to hire, transfer, select, assign work, monitor and manage productivity, promote, demote, lay-off, discipline and discharge employees for just cause and to increase or decrease the working force from time to time;
 - d) to determine productivity levels, job competence, materials to be used, design of products, facilities and equipment required, to prescribe tools, methods of performing work and the location of equipment, the location work is to occur, and the scheduling of work; and
 - e) to establish, implement, monitor and enforce policies, procedures, rules and regulations to be observed by employees, and non-compliance may involve discipline, including dismissal.

Article 6 – Union Security

- 6.01 The Association, Contractors and the Union agree that regardless of whether an employee applies for membership in the Union, the Union shall represent all employees in the bargaining unit working on the Project in all matters relative to this Agreement.
- 6.02 The Contractor agrees to deduct from the earnings of all employees covered by this Agreement union dues and assessments (“Union Dues and Assessments”) as a condition of employment, in an amount as directed by the Union from time to time.
- 6.03 The Contractor agrees to provide an authorization form furnished by the Union to the employee for signing, authorizing the Contractor to deduct and remit the Union Dues and Assessments to the Union. Any employee who refuses or neglects to sign the appropriate authorization form(s), or who revokes the authorization, will be deemed to have forfeited his/her right to employment on the Project and will be deemed to have voluntarily resigned.

- 6.04 The Contractor shall deduct the Union Dues and Assessments and forward such monies to the Union on or before the fifteenth (15th) day of the following month. When remitting Union Dues and Assessments the Contractor shall provide the name, address and classification of each employee from whose pay such deductions have been made.
- 6.05 The Union shall save the Association and Contractor harmless from any and all claims that may be made against the Contractor for amounts deducted and remitted to the Union in accordance with this Article 6.
- 6.06 Initiation fees for employees who apply for and are granted membership in the Union will be deducted from employee's first pay unless directed otherwise by the Union.
- 6.07 The Association, Contractors and the Union agree that initiation fees, union dues, assessments and other fees or costs related to union representation of bargaining unit employees and/or union membership must be reasonable.
- 6.08 The Contractor shall not discriminate against any employee by reason of membership in the Union.
- 6.09 The Parties agree that Local Union and International Representatives designated in writing to the Association may have reasonable access to work sites on the Project to conduct Union business. Local Union and International Representatives shall be subject to all Contractor and Association policies, procedures, standards and regulations applicable to site access. Prior arrangements for site access will be made with the Union and Association site representatives. The Contractor and Association shall be given reasonable notice of the site visit which shall in no way interfere with the progress of work.

Article 7 – Hiring Provisions

- 7.01 The Parties agree that creating a sustainable, flexible and scalable workforce will benefit the Union and ensure there is a significant workforce in Newfoundland and Labrador with the ability to obtain workers from Atlantic Canada and other parts of Canada to support Project needs.
- 7.02 The Parties agree to ensure compliance with the Gender Equity and Diversity obligations regarding hiring of females and persons from underrepresented groups, as specified by the Benefits Strategy or any employment equity plan that may be applicable to the hiring of qualified Labrador Innu, to hire in the following order of priority:
- a) Qualified Labrador Innu for construction of the Labrador portion of the Project that includes all transmission and associated work between Churchill Falls and the Labrador side of the Strait of Belle Isle (all Project work in Labrador).
 - b) Qualified residents of Labrador for construction and/or modification of the Labrador portion of the Project that includes HVac transmission system and associated infrastructure as determined by the Association in consultation with the Union between Muskrat Falls and Churchill Falls.
 - c) Qualified residents of Newfoundland and Labrador.

- 7.03 In order to meet the obligations applicable to the hiring and retention of qualified Labrador Innu and obligations contained within the Benefits Strategy, the Parties agree that all Project partners, including Contractors, the Union and the Association will work proactively and progressively to advance the participation and integration in the areas of employment, training and apprenticeship for all employees/groups under Article 7.02 above.
- 7.04 After employment priority is given to comply with the obligations contained in Articles 7.02 and 7.03, the Parties are committed to work cooperatively to identify, recruit, refer and hire workers in the following order of priority:
- a) Qualified Canadian workers who are members of IBEW affiliate locals
 - b) Qualified Canadian workers
 - c) Temporary Foreign workers being qualified non-Canadian workers that are members of IBEW affiliate Locals and who are authorized to enter and work in Canada.
 - d) Temporary Foreign Workers being other qualified non-Canadian workers who are authorized to enter and work in Canada.
- 7.05 All workers hired, pursuant to Article 7.02, 7.03 and 7.04, shall be represented by the Union and pay initiation fees, dues or other assessments upon and after hiring as per Article 6.
- 7.06 The Parties agree that should Temporary Foreign Workers be required for employment on the Project the following will apply:
- a) Temporary Foreign Workers will be initially accessed from the hiring halls of IBEW local affiliates of American Unions. If such unions cannot supply Temporary Foreign Workers within two (2) weeks from receipt of the request, such Temporary Foreign Workers may then be accessed from other sources.
 - b) Temporary Foreign Workers employed by Contractor(s) on the Project shall have a minimum period of employment of six (6) months, and shall be permitted mobility from one Contractor to another Contractor on the Project, subject to work availability and there are no qualified residents of Newfoundland and Labrador and other qualified citizens available to work at the time the Temporary Foreign Workers are hired.
 - c) Temporary Foreign Workers will be subject to the same financial and other terms and conditions of this Agreement as Canadian workers, with the exception of, if necessary, adjustment to the financial allocation of benefits, provided that there is no change to the gross hourly rate.
- 7.07 The International Brotherhood of Electrical Workers and/or IBEW Local Union 1620 will fully cooperate in the Temporary Foreign worker application process, including the execution of any documents that are reasonably necessary to support an application for utilization of Temporary Foreign Workers to Human Resource and Skills Development Canada or any other regulatory agency. All reasonable costs associated with

Temporary Foreign Worker applications will be paid by the Association and/or Contractor(s).

7.08 Except as provided in Schedules "E" and "F" attached hereto and forming part of this Agreement, the Parties agree that the Contractor(s) shall, per contract, adhere to the following hiring procedure:

- a) Name hire or select all working or non-working forepersons from the Union out-of-work list;
- b) The first worker shall be appointed by the Union as the Shop Steward, with the next six (6) workers being name hired or selected by the Contractor from the Union out-of-work list;
- c) Name hire or select new hires, with the Union referring the eighth worker, the Contractor name hiring or selecting the next worker, and so on thereafter. The Shop Steward(s) will be appointed from the Union referrals.
- d) All workers name hired, or selected by the Contractor(s) or referred by the Union to work on the Project must be in possession of a Union clearance card from the Union when reporting for work. The Union shall provide clearance cards in a timely and efficient manner.

7.09 a) The Parties agree that highly qualified supervision is fundamental to the success of the Project, therefore the following will apply:

- i. Forepersons will be selected or name hired after having received pre-employment multi-faceted training including, but not limited to, site and collective agreement orientation and training, safety, environment, IBEW Code of Excellence, cultural and gender sensitivity, mentoring and coaching, work scheduling and budgeting, respectful workplace, labour relations dispute resolution pursuant to the agreement, communication skills, productivity, leadership, team building, management and maintaining schedule in advance of coming to work so they have the skills and tools to succeed.
- ii. Forepersons may be hired without having received the training described in Article 7.09(a) (i) above in which case such forepersons shall receive the training within two (2) months after being hired.
- iii. The Contractor may promote a journeyman to the position of foreperson. Within two (2) months after the appointment, such foreperson shall receive the training set out in 7.09 (a) (i) above.
- iv. The designation and determination of the number of forepersons is the responsibility of the Contractor. The foreperson may be a working foreperson for crews of ten (10) or less workers and use the tools of the trade, taking into account safety, productivity and efficiency with the exception of safety sensitive hotline work and dressing tower work where the foreperson may be a working foreperson for crews of five (5) or less employees and use the tools of the trade.

- v. The selection of foremen must be in alignment with the Benefits Strategy and Gender Equity and Diversity objectives established in consultation with the Province.
- b) The Parties agree that it is fundamental to the success of the Project to have highly trained employees, and accordingly agree to the following:
- i. Workers will be selected or name hired by the Contractor and/or referred by the Union from a group of workers that have received pre-employment multifaceted orientation and training, including, site and collective agreement orientation, safety, environment, IBEW Code of Excellence, cultural and gender sensitivity, respectful workplace, dispute resolution pursuant to the Agreement and productivity, so that such employees have the skills and tools to succeed.
 - ii. In the event that no qualified workers described in 7.09 b) i) are available, workers may be selected or name hired from a group that have not received the pre-employment orientation and training. In which case, such workers shall receive the orientation and training prior to commencing work on the Project.
- c) The parties will collaborate to identify and access available funding for the purposes of developing and delivering pre-employment training as contemplated by 7.09(a)(i) and 7.09(b)(i). In the event that funding is not available to cover the full cost, any financial shortfall will be the responsibility of the Association and/or Contractor. The Union may contribute resources to assist in these important training initiatives and will be reimbursed on a cost basis.
- 7.10 a) The Parties hereto agree that the Union list of qualified workers referred to herein is reference to those forepersons and workers who have applied to the Union and/or the Association and have been approved by the Union and Association for employment opportunities on the Project and have received the pre-employment orientation and training pursuant to Article 7.09(a)(i) and/or Article 7.09(b)(i). If there is a dispute as to whether or not a person is approved to be on the Union list of qualified workers for purposes of this Agreement, the Union and the Association/Contractor agree to meet expeditiously to discuss and use reasonable good faith efforts to resolve the dispute. If the dispute is not resolved such dispute may be referred by either the Association or Union to a panel pursuant to Article 7.10(b), (c), and (d).
- b) This panel shall consist of three persons, who shall serve for the duration of the Project. In the event that any one of the panelists can no longer serve, for whatever cause, the Parties agree to forthwith replace their nominee or to agree to the independent third party (“ITP”). If the Parties cannot agree to an ITP, they shall apply to the Minister of Labour, Government of Newfoundland and Labrador, for the appointment of the ITP. The panel shall consist of three persons:
- i. One appointed by the Association;
 - ii. One appointed by the Union;

- iii. An ITP who is neither a lawyer nor an arbitrator under this Agreement.
 - c) Decisions of the Panel, by agreement of the Parties, shall be final, binding and not subject to the arbitration process herein, appeal, judicial review or any other form of judicial intervention.
 - d) Decisions of the Panel shall be made on an expedited basis:
 - i. Any dispute as to whether or not a person is approved to be on the Union list of qualified workers for the purposes of this Agreement will be referred in writing to the Panel within seven (7) days of the dispute arising. The referral must itemize the issues in dispute, including the reasons why the disputing party claims the person should be approved to be on the Union's list of qualified workers.
 - ii. All referrals to the Panel will be heard within seven (7) days of such written referral. Notice of the referral shall be provided to all affected Parties by the referring Party. Each Party shall have the right to present evidence and make representations to the Panel, which presentation of evidence and/or making of representation shall be limited to one (1) hour unless such period is extended by a majority of the Panel. The Panel will render its decision within forty-eight (48) hours of the completion of the hearing. All decisions must be by a majority of the Panel.
- 7.11 If the Union is unable to supply the workers required within four (4) days from the date requested, exclusive of Saturdays, Sundays and holidays, the Contractor may hire from other sources. Each worker hired from other sources will be governed by the terms and conditions of this Agreement.
- 7.12 The Union recognizes the Contractor's right to evaluate employees to determine their level of competency, skill, ability, level of productivity and efficiency and qualifications to perform the work required.
- 7.13 The Parties agree to the following:
- a) Employees shall be required to undergo a pre-employment medical examination or a pre-employment assessment to determine if such employee is fit to perform the applicable work. The Contractor and/or Association, in consultation with the Union, will determine the criteria for such medical examination or assessment to be performed by a physician or other qualified healthcare professional, as named by the Association.
 - b) Any employees, who have been laid off from the Project for a six (6) month period, or more, shall be required to undergo a pre-employment medical examination or pre-employment assessment to determine if such employee is fit to perform the applicable work.
 - c) Where it is not practical for a prospective worker to report to a physician or such other qualified healthcare professional named by the Association, the Association or Contractor may require the prospective worker to report to another physician

to receive a pre-employment medical examination, in accordance with the criteria determined pursuant to Article 7.13(a), above.

- d) The Association or Contractor shall pay the reasonable costs for the physician or such other qualified healthcare professional authorized by the Association or Contractor to perform the pre-employment medical examination or pre-employment assessment.
- 7.14 The Parties agree that employee(s) employed on the Project that is being laid off from one Contractor may be hired by another Contractor subject to the following:
- a) the Contractor has work available for the employee; and
 - b) the Union has no other qualified workers on the Union out-of-work list at the time of layoff who has received the pre-employment training and orientation required for the Project.
- 7.15 Once employed on the Project, an employee, subject to the Contractor's approval, shall be permitted mobility from one contract job to another contract job within the Project as long as they continue on the payroll of the same Contractor without interruption of earnings at or about the time of change.
- 7.16 Once an employee working on the Project resigns his or her employment with a Contractor, such employee will not be permitted to work on the Project for ninety (90) days from the date such employee ceased to be employed, unless the ninety (90) day period is waived by the Association after consultation with the Union.
- 7.17 In the event that an employee is terminated or suspended for cause, such employee will not be name hired, selected or referred to the Project, except by agreement of the Parties or in the event the termination is set aside and a lesser penalty is imposed or the suspension has been served. After any suspension imposed or upheld is served, such employee may be name hired, selected or referred to the Project.

Article 8 – Access to Site

- 8.01 Notwithstanding any provision herein, vehicles transporting or delivering materials, modules, goods and/or supplies to and from the Project, which are not operated by members of the bargaining unit, shall be permitted to drop off or pick up at multiple locations on the Project at or near the point of installation, use, marshaling or such other area(s) as directed by the Contractor. Any module, materials, goods or supplies transported to the Project requiring specialized delivery may be delivered from its point of deportation to its point of installation, use, marshaling or any other area(s) as directed by the Contractor by personnel who are not members of the bargaining unit. Vehicles picking up or delivering garbage containers, courier packages, mail, food or other materials at multiple locations on the Project may be operated by persons who are not members of the bargaining unit. No bargaining unit member will be required to accompany the driver of such vehicles or equipment.
- 8.02 Fueling of vehicles or equipment may occur or be done as required by the Contractor. Transportation of fuel, fueling of vehicles and/or fueling of equipment on the Project may be performed by persons who are not members of the bargaining unit.

- 8.03 Warranty work may, at the Contractor's discretion after consultation with the Union, be performed at any location on the Project by persons who are not members of the bargaining unit.
- 8.04 Specialized work or work requiring proprietary technology, as determined by the Association after consultation with the Union, to be performed on the Project, may at the Contractor's discretion, be performed at any location on the Project by persons who are not members of the bargaining unit.
- 8.05 Repair work or maintenance work on any vehicles or equipment on the Project may, at the Contractor's discretion, be performed at any location on the Project by persons who are not members of the bargaining unit. Maintenance preservation work on equipment and/or modules on the Project prior to commissioning may, at the discretion of the Association/Contractor, be performed at any location on the Project by persons who are not members of the bargaining unit.

Article 9 – Security and Site Regulations

- 9.01 The Association and Contractor(s) may initiate appropriate measures, including the establishment of rules, policies, procedures and regulations to safeguard the Project or any portion of the Project or the area of the Project controlled by the Contractor and to govern the behaviour and conduct of all persons therein. This right should not be interpreted in any way to restrict the Owner's ability to make rules, procedures, standards or regulations for the Project or any portion of the Project.

Article 10 – Health and Safety

- 10.01 The Parties acknowledge that health and safety is a shared responsibility for every person participating in the Project. The parties acknowledge that a "safety first" culture and a healthy work environment will be the foundation of a successful Project.
- 10.02 All work shall be performed in accordance with the *Occupational Health and Safety Act* and in compliance with all Project Health and Safety regulations, rules, policies, standards or procedures a copy of which shall be provided to the Union. The Parties recognize that it is the responsibility of everyone to cooperate in the reduction of risk and exposure with the objective of eliminating accidents, health and safety hazards and advocating observance of all safety rules, standards, procedures, regulations and policies.
- 10.03 The Parties acknowledge and recognize the mutual value of improving, by all proper and reasonable means, the health and safety of the employees and will co-operate to promote health and safety.
- 10.04 The Contractor(s) may provide, where appropriate, upon commencement of employment, specific articles or equipment for use by employee(s) during the course of employment on the Project.
- 10.05 Where the Contractor determines after an employee has been hired that the nature of the work for working conditions will require, employees shall be supplied, at the Contractor's expense, all necessary safety equipment and/or devices to enable the employee to safely perform his/her duties. Employees shall be required to use safety

equipment and/or devices in accordance with the intended use. Notwithstanding the foregoing, the Contractor shall provide to each employee upon commencement of employment, the following specific articles for use by the employee in the course of their employment on the Project:

- i. one (1) safety hat colour coded for identification together with a winter liner;
- ii. one (1) pair of non-prescription safety glasses;
- iii. one (1) safety vest;
- iv. appropriate work gloves;
- v. rain gear (jacket and pants) and protective clothing (including rubber boots) when the nature of the job requires such clothing; and
- vi. such equipment shall be of reasonable quality, fit and size for the employee.

- 10.06 All such equipment or articles provided under Article 10.04 and 10.05 hereof shall remain the property of the Contractor. It shall be the responsibility of the employee to care for the articles and equipment provided. Should the articles or equipment be rendered unsafe for use due to normal wear and tear during employment, the Contractor shall replace the articles by exchange upon return by the employee. The employee shall be responsible to return such equipment or articles in good working order (subject to reasonable wear and tear) at the end of an employee's employment. Failure to return such equipment or articles shall result in their cost being charged to the employee(s), which the Contractor may deduct from the employee's wages.
- 10.07 All personal protective equipment, whether employee or Contractor supplied, shall be Canadian Standards Association (CSA) approved.
- 10.08 The employee shall be responsible to provide his/her prescription safety eyeglasses; however, where an employee's prescription safety eyeglasses are accidentally damaged or broken, in the course of the performance of their duties, the Contractor agrees to pay up to a maximum cost of two hundred and fifty dollars (\$250.00) per employee for the life of the Agreement, to have prescription safety eyeglasses repaired or replaced, at the option of the Contractor (Subject to acceptable verification of the cost of repair or replacement being provided to the Contractor).
- 10.09 The employee, except as otherwise provided for in this Agreement, shall be responsible to provide his/her personal safety footwear which is suitable for their work environment. Safety footwear shall meet CSA standards and be a type appropriate for their normal work duties and conditions.
- 10.10 The Joint Occupational Health and Safety Committees shall be established at the Project or an area of the Project in accordance with the Occupational Health and Safety Regulations. The frequency of meetings will be determined by the Committee itself, but no fewer than the number required by the *Occupational Health and Safety Act*. All

employees on the Committee shall receive, without loss of earnings, all training necessary to carry out their duties.

10.11 The Parties agree to comply with the *Workplace Health, Safety and Compensation Act* of the Province of Newfoundland and Labrador.

10.12 The Contractors, IBEW and bargaining unit members agree to comply with the obligation to participate in job observations and investigations.

Article 11 – Human Rights

11.01 The Parties agree to comply by the Newfoundland and Labrador *Human Rights Act*.

11.02 The Parties agree that there will be no contravention of this Agreement by the Contractor, Association or Union as a result of the Contractor complying with all obligations that benefit the Labrador Innu in this Agreement including but not limited to hiring priority, retention priority, cultural leave benefit or any other benefits or provisions.

Article 12 – Diversity and Gender Equity on the Project

12.01 The Association, its Contractor members and the Union will promote and support Gender Equity Programs and Diversity Programs established in accordance with the Benefits Strategy and programs established in order to support the training, hiring and retention of Labrador Innu. The parties to this Agreement recognize and support the principles of diversity in employment and gender equity in the workplace, and will work cooperatively to create a respectful and inclusive work culture.

12.02 The Association, its Contractor members and the Union will support the Lower Churchill Project Gender Equity and Diversity Program and the participation goals for women and underrepresented groups established in consultation with the Province.

Article 13 – Strikes and Lockouts

13.01 The Association, its Contractor members, the Union and the bargaining unit members agree that maintaining a positive work environment based on trust, respect and accountability is essential to the Project success and there shall be no labour disputes. The Association, its Contractor members, the Union and the bargaining unit members agree to the following:

- a) During the life of this Agreement there shall be no lockout by the Association or Contractors and there shall be no strike on the part of the Union or bargaining unit members. Strikes and lockouts shall have the meaning defined in the Newfoundland and Labrador *Labour Relations Act* and shall include, but not be limited to, work slowdowns or any other concerted activity designed to restrict or limit productivity or to support, encourage, condone or engage in concerted activities such as strike, work stoppage, picketing or organized slow-downs intended to restrict or limit productivity that affects any aspect of the worksite.
- b) If after an investigation has been completed, which investigation shall include consultation with the Union, the Association or Contractor determines that an employee(s) has instigated an illegal strike contrary to Article 13.01(a), such

employee(s) shall be terminated and shall not be name hired, selected or referred by the Union, the Association or any of its Contractor members to the Project. Should such termination be grieved and subsequently arbitrated, the Parties agree that should an arbitrator determine that a violation of Article 13.01(a) has occurred, the arbitrator shall have no jurisdiction to substitute a lesser penalty.

- c) If after an investigation has been completed, which investigation shall include consultation with the Union, the Association or Contractor determines that an employee(s) has participated in an illegal strike contrary to Article 13.01(a) such employee(s) shall be subject to disciplinary action up to and including termination and, where terminated, shall not be referred by the Union, the Association or any of its Contractor members to the Project. Should such discipline be grieved and subsequently arbitrated, the Parties agree that should an arbitrator determine that a violation of Article 13.01(a) has occurred, the arbitrator shall have no jurisdiction to substitute a lesser penalty, except in the case of exceptional mitigating circumstances.

Article 14 – Liaison Committee

14.01 The Association, its Contractors and the IBEW agree to the following:

- a) Provide strong leadership in both the Association and IBEW in dealing with all work place issues and disputes.
- b) Commit to dealing with work related issues or disputes on the Project in a timely and collaborative manner with minimal impact to the working environment.
- c) Administering the grievance and arbitration process in a way that adheres to the above principles and ensures grievances and arbitrations are dealt with in a timely and collaborative manner with minimal impact on the progress of work.

14.02 Both the Association and IBEW agree to form a Liaison Committee to work collectively to achieve the following:

- a) Promote and maintain a safety first and healthy work environment;
- b) Adhere to Article 14.01 above;
- c) Promote and maintain open and respectful communication in regard to all matters pertaining to the Project or the Agreement;
- d) Maximize productivity to ensure completion on or ahead of schedule;
- e) Foster and maintain proactive and positive industrial relations;
- f) Speedy resolution of disputes or issues arising under the Agreement; and
- g) Address matters of mutual interest pertaining to the Project or this Agreement.

- 14.03 The Liaison Committee shall maintain a maximum of five (5) and a minimum of three (3) representatives of the Association and a maximum of five (5) and a minimum of three (3) representatives of the Union with the Chairperson alternating between a Union representative and Association representative. The Association shall appoint a designated Association Site Representative who shall be responsible for recording and distributing the minutes of all meetings. At any meeting of the Liaison Committee, each of the Association and the Union shall be entitled to cumulative representation equal to the number of representatives present from the other Party. Each Party shall notify the other in writing of its designated representatives on the Liaison Committee.
- 14.04 A meeting of the full Liaison Committee shall occur once every three (3) months or more often, if necessary, on written consent of the Parties. Each Chairperson shall submit to the designated Association Site Representative a list of agenda items to be discussed. The designated Association Site Representative shall prepare the agenda and distribute the agenda to the Committee members prior to the meeting.
- 14.05 The Liaison Committee may create a subcommittee for more frequent meetings for any specific geographical area of the Project or specific scope of work. The Union and the Association will appoint representatives to be members of the subcommittee. A meeting of the subcommittee of the Liaison Committee may occur monthly or more often if necessary on written consent of the Parties.
- 14.06 Any union representative appointed to serve on the Liaison Committee or Sub-Committee, who is an employee under this Agreement, will be given leave with pay, which leave shall be subject to Contractor approval, which approval will not be unreasonably withheld, to attend meetings which take place during the employee's regularly scheduled work hours.

Any employee / Union member not a representative of the Liaison Committee, required to attend a Liaison Committee or sub-committee meeting, will be given leave with pay, which leave shall be subject to Contractor approval, which approval will not be unreasonably withheld, to attend meetings which take place during the employee's regularly scheduled work hours.

Article 15 – Grievance and Arbitration

- 15.01 The purpose of this Article is to establish a procedure for the discussion and prompt resolution of grievances concerning a disciplinary measure for other than just and reasonable cause, or a dispute arising out of the interpretation, application, administration, or alleged violation of this Agreement.
- 15.02 All grievances shall be adjusted in accordance with the following procedures:
- a) **PRE-GRIEVANCE:** Complaints must be taken by the employee(s), accompanied by the shop steward if they so desire, to the employees non-union supervisor to discuss and, if possible, to resolve within two (2) days after the circumstances giving rise to the complaint have occurred or within two (2) days of the employee becoming aware of such circumstances. Such resolution of the complaint shall not contravene the terms and conditions of this Agreement but is solely for the purpose of resolving the matter and shall not be considered as precedential or binding in any other grievance dispute.

- b) **STEP 1:** Any complaint discussed under 15.02(a) that is not satisfactorily resolved by the employee, steward and supervisor may become a grievance and shall be reduced to writing and provided to the supervisor within five (5) days after the circumstances giving rise to the complaint have occurred or within five (5) days of the employee becoming aware of such circumstances. The supervisor shall render his/her decision, in writing, within three (3) days of his/her receiving the written grievance. The written grievance shall state the alleged violation, the date of the violation, the facts describing the alleged violation, the location of the violation, the person or entity committing the violation, the Article or Articles of the Agreement alleged to have been violated and the remedy sought.
 - c) **STEP 2:** Should the written decision rendered in Step 1 be unsatisfactory to the employee, or should no decision be rendered, the employee assisted by his/her steward, shall submit the written grievance within a further two (2) days to the Association and the Contractor's designated representative on the Project. The Association, Contractor, and Union representative(s) and the employee, assisted by the shop steward, shall meet within five (5) days to discuss the matter. Prior to the second step meeting, the Association and Union commit to engage in a joint fact finding exercise with a view of developing a common understanding of the facts surrounding the dispute, to better position the Parties to resolve such dispute. The Contractor shall render a decision in writing within one (1) day of the second step meeting. If such a meeting is not held the matter shall be referred to Step 3.
 - d) **STEP 3:** Should the decision rendered at Step 2 be unsatisfactory, within two (2) days of the decision, the Contractor, the Association and the Union representatives shall meet to discuss the matter. If no resolution can be achieved within two (2) days either the Union or the Association may, within five (5) days of the meeting, refer the matter to arbitration in accordance with the procedure contained herein. If such meeting is not held, the matter may be referred by either the Union or the Association to the next step, arbitration.
- 15.03 The Contractor shall provide the Union with a copy of any written disciplinary action taken against an employee.
- 15.04 In the case of discharge or suspension:
- a) An employee who is discharged shall be notified in writing by the Association/Contractor and a copy will be forwarded to the Union. Such notice will state the reasons for discharge. If the employee considers they have been discharged for other than just cause, they may, within three (3) days of receipt of the discharge notice, file a written grievance commencing at Step 3 of the grievance procedure.
 - b) An employee who receives a disciplinary suspension shall be notified in writing by the Association/ Contractor and a copy will be forwarded to the Union. Such notice will state the reasons for the discipline. If the employee considers that they have been disciplined for other than just cause, they may file a written grievance commencing at Step 2 of the grievance procedure.

- 15.05 The Association or Contractor may file a grievance, in writing, with the Union within five (5) days after the circumstances giving rise to the grievance have occurred or originated or within five (5) days of the Association or Contractor becoming aware of such circumstances. The Union may file a grievance, in writing, with the Association within five (5) days after the circumstances giving rise to the grievance have occurred or originated or within five (5) days of the Union becoming aware of such circumstances. If such grievances are not resolved within two (2) days, the grievance may be treated as a grievance commencing at Step 3, and may be referred to arbitration in the same manner as an employee's grievance.
- 15.06 The appointment of an arbitrator will be made within four (4) days of a referral to arbitration under Step 3. The arbitrator shall be selected in rotation from the list of six (6) arbitrators as set out in Schedule "D" attached to and forming part of this Agreement. The list shall be reviewed and may be updated by mutual agreement of the Parties once every year during the term of this Agreement. Should the arbitrator whose turn it is be unable to act within the time requirements delineated in this Article, he/she shall be passed over to the next person on the list, and so on.
- 15.07 The arbitrator shall, within twenty (20) days of his/her appointment, convene an arbitration hearing to hear the relevant evidence. All rulings will be given by the arbitrator within fifteen (15) days of the conclusion of the hearing. The decision of the arbitrator shall be final and binding on the Parties.
- 15.08 The arbitrator shall be governed by the following provisions. The arbitrator:
- a) Shall have jurisdiction and authority only to interpret and apply the provisions of this Agreement so far as shall be necessary for the determination of the grievance, including remedies, but shall not have the power to alter, add to or amend any of the provisions of this Agreement.
 - b) Shall have the authority to review and modify any penalty imposed by the employer and, in the case of discharge of an employee, substitute such other penalty as deemed just and reasonable in the circumstance, except as may otherwise be provided in this Agreement.
 - c) Shall determine whether a grievance is arbitrable.
 - d) Shall have access to the worksite to view site facilities, ongoing construction work, installation of equipment and/or machinery, and other working conditions, which may be relevant to the resolution of the grievance.
 - e) Shall determine the procedure and shall give full opportunity to both parties to present evidence and make representations.
 - f) Shall not dismiss any grievance on a technicality or error on the grievance form.
- 15.09 In the interest of providing speedy resolution to grievances, arbitration hearings may be conducted by video and/or telephone conference call unless mutually agreed otherwise, with the Association and the Union representatives or their designated respective legal counsel(s) acting as presenters.

- 15.10 The time limits specified in Article 15.02(a), (b), (c) and (d) above are mandatory. The Parties may, by mutual consent in writing, extend the time limits of this grievance and arbitration procedure. Failure of a party to file a grievance or failure of the grieving party to advance a grievance to the next step, within the time limits, shall constitute abandonment of the grievance.
- 15.11 The Contractor/Association and Union involved in arbitration agree that the fees and expense of the arbitrator will be paid in accordance with the following:
- a) In the event the arbitrator makes a determination that there is a losing party or parties, an arbitrator may order the losing party or parties to pay the arbitrator's fees and expenses.
 - b) In the event the arbitrator makes no order as to the payment of fees and expenses, each of the party or parties shall pay an equal share of the fees and expenses of the arbitrator.
- 15.12 Where an employee is required to attend an arbitration to give evidence on a day that they are scheduled to work, the Contractor shall provide the employee, upon request, with leave to attend the hearing and the party requiring the employee's attendance shall be responsible to pay the employee's lost wages.

Article 16 – Shop Stewards

- 16.01 Stewards shall be appointed by the Union Business Manager or his/her representative. Gender Equity and Diversity shall be considerations in the appointment of stewards. When a scheduled second and/or third shift occurs, stewards for such shift(s) may be appointed. Such appointments shall be confirmed in writing to the Contractor and the Association. Stewards assigned to represent a particular shift will not retain their status if that shift is cancelled.
- 16.02 This Article 16 does not affect a Contractor's right to determine where and when employees work or what shifts they work on.
- 16.03 Stewards shall not be discriminated against in the performance of union duties. The steward will notify and obtain permission from his/her immediate supervisor before leaving his/her work location to deal with any matter relating to this Agreement, which permission will not be unreasonably denied.
- 16.04 There shall be no non-working stewards. Subject to Article 16.03 above, stewards will be granted sufficient time to conduct their legitimate union duties during working hours. All union duties performed during working hours shall be at the steward's regular rate of pay. Stewards will not be paid for duties performed outside of their regularly scheduled work hours.
- 16.05 Stewards shall be the last employee laid off where the steward has the skill, ability and competency to perform the required work.
- 16.06 Stewards shall receive pre-employment training in the Code of Excellence.

16.07 When five (5) or more employees / union members are required to work overtime, a shop steward qualified to perform the work will be part of the five (5) or more overtime crew working the overtime.

Article 17 – Maximize Productivity

17.01 The Parties agree that obtaining high standards of labour productivity will be a key factor for the Project success. Accordingly, given the importance of the Project to the people of Newfoundland and Labrador, the Association, its Contractor members, the Union and the members of the bargaining unit will take affirmative steps to ensure productivity opportunities are identified and maximized. The Union and the members of the bargaining unit agree to cooperate in the implementation of productivity improvement initiatives.

Article 18 – Work Teams

18.01 The Association, Contractor(s), and the Union agree that the utilization of cross functional Work Teams and a team based approach is essential to the Project success, providing maximum productivity and flexibility for the efficient and effective performance of work completed on time and within budget.

18.02 The Association, Contractor(s) and the Union agree that Work Teams will be composed of different worker classifications, with the necessary skills and qualifications required to perform and complete the work assignment(s). The creation of any specific Work Team shall not prohibit or restrict a Contractor from creating a Work Team for the same, or different, type of work with a different composition of classifications or workers.

18.03 Work Teams will be under the direction of a foreman or supervisor, as determined by the Contractor, who shall have authority for the direction and control of the work of the Work Team and will act as a liaison between the Work Team and other aspects of the Project.

18.04 Employees are required to take ownership of the Work Team concept and team based approach and shall perform all work assignments provided they are qualified to perform such work safely.

Article 19 – Hours of Work, Work Schedules and Overtime Provisions

19.01 The Association, Contractors and Union agree that given the different types of work, the composition of the workforce, the variety of weather conditions and the varied geographical areas of the Project, work schedules and hours of work will require a high level of flexibility and will vary for different parts of the Project.

Regular Work Schedule and Overtime Provisions

19.02 This Article is intended to identify regular hours of work, Regular Work Schedules and overtime hours:

- a) The Regular Work Schedule shall consist of forty (40) hours of work divided into five (5) consecutive eight (8) hour work days from Monday to Friday, or four (4) consecutive ten (10) hour work days from Monday to Thursday, at the option of

the Contractor. The start time for the day shift for a regular work day will be between 5:00 a.m. and 9:00 a.m.

- b) Overtime shall be paid as follows for a work week consisting of five (5) consecutive eight (8) hour work days:
 - i. All hours worked in excess of eight (8) hours per day shall be paid at one and one half (1½) the straight time rate of pay;
 - ii. All hours worked on Saturday shall be paid at one and one half (1½) the straight time rate of pay;
 - iii. All hours worked on Sundays and recognized holidays under Article 23.02 shall be paid at double the straight time rate of pay.
- c) Overtime shall be paid as follows for a work week consisting of four (4) consecutive ten (10) hour work days:
 - i. All hours worked in excess of ten (10) hours per day at one and one half (1½) the straight time rate of pay;
 - ii. All hours worked on Friday and Saturday shall be paid at one and one half (1½) the straight time rate of pay;
 - iii. All hours worked on Sundays and recognized holidays under Article 23.02 shall be paid at double the straight time rate of pay.

Extended Work Schedule

19.03 Notwithstanding Article 19.02 of the Agreement, the parties understand and agree that given the different types of work, the composition of the workforce, the variety of weather conditions and the varied geographical areas of the Project, the Contractor(s), after consultation with the Union and approval of the Association, may utilize Extended Work Schedules as set out below. Such Extended Work Schedules shall consist of scheduled days of work followed by scheduled days of rest.

- a) 10 days on and 4 days off x 10 hours/day;
14 days on and 7 days off x 10 hours/day;
14 days on and 14 days off x 10 hours/day;
20 days on and 8 days off x 10 hours/day;
21 days on and 7 days off x 10 hours/day;
28 days on and 14 days off x 10 hours/day.
- b) These Extended Work Schedules allow for an any-day start. A work week during an Extended Work Schedule will consist of any seven (7) consecutive days as designated by the Association and/or Contractor. Examples of hours paid and hours worked for each Extended Work Schedule are contained in Schedule "H".

- c) Additional Extended Work Schedules may be implemented by the Association after consultation with the Union.
- d) Overtime for Extended Work Schedule shall be paid as follows:
 - i. All hours worked in excess of ten (10) hours per day at one and one half (1½) the straight time rate of pay;
 - ii. All hours worked on Friday and Saturday shall be paid at one and one half (1½) the straight time rate of pay;
 - iii. All hours worked on Sundays and recognized holidays under Article 23.02 shall be paid at double the straight time rate of pay.

General

- 19.04 There shall be no pyramiding of overtime and/or premiums, nor shall such overtime and/or premiums be in addition to any other overtime or premium pay provided pursuant to the Agreement, including but not limited to, call out under Article 22, pay for working a recognized holiday under Article 23, or any other premium (eg. when a Power Line Technician ("PLT") is working in Labrador on a Sunday, which falls on a recognized holiday, such employee shall be paid at double the employee's straight time rate of pay, plus the PLT Premium of six dollars (\$6.00) per hour worked and the Labrador Premium of three dollars and fifty cents (\$3.50) per hour worked).
- 19.05 Unpaid lunch breaks will normally be at mid-shift but may be staggered within one hour either side of mid-shift, at the Contractor's discretion, and shall be one half (½) hour. An employee who is required, by the Contractor, to work through the two (2) hour period shall be paid at the employee's applicable overtime rate for one half (½) hour and shall, as soon as practicable thereafter, be given sufficient time to consume his/her meal.
- 19.06 One paid rest break of ten (10) minutes will be allowed during each half shift in an eight (8) hour shift. One paid rest break of fifteen (15) minutes will be allowed during each half shift of a ten (10) hour shift. The scheduling of such rest breaks shall be at the discretion of the Contractor.
- 19.07 The Parties are committed to delivering value for pay, and with that in mind, the Parties agree as follows:
- a) Unless a reporting point is designated by the Contractor, employees shall be in attendance at their work location and prepared to commence work at the scheduled starting time for their respective work schedule(s) and shift(s). Employees shall only be paid when they start work at their designated work location, not the point when they enter the Project.
 - b) When employees are required to attend at a reporting point designated by the Contractor, the Contractor is responsible to provide transportation and compensation to the employee from the reporting point to the job site and back.
 - c) Article 19.07(b) does not apply to employees performing work on the converter station, switch yard or related work at the Muskrat Falls dam and generating facility. Employees working at these locations shall be transported by bus to and

from the designated pick-up location in Happy Valley-Goose Bay to a location near the Project. The Association will establish a daily commute busing system from the designated pick-up areas within the Free Zone, which designated pick-up areas will include a location in Sheshatshiu, North West River and Happy Valley-Goose Bay. Employees shall be paid when they start work at their designated work location, not at the point when they enter the Project.

- d) Employees shall be diligent in respecting start times, shift completion times and break times.
 - e) Employees, where appropriate, shall be permitted reasonable time for clean-up and store tools before leaving their work location at the end of each shift.
- 19.08 a) Absenteeism will not be tolerated and employees who are absent without a good and sufficient reason, acceptable to the Contractor, are subject to disciplinary action up to and including dismissal.
- b) Tardiness will not be tolerated and employees who fail to report to work, report to work late at the scheduled and designated check-in time and location, or leave their worksite early, without a good and sufficient reason, acceptable to the Contractor, are subject to disciplinary action up to and including dismissal.
- 19.09 When an employee is required to remain at work beyond their scheduled shift, after such employee works beyond two (2) unscheduled hours of overtime, such employee will be provided a fifteen (15) minute paid break and a meal. Where it is not practicable for the Contractor to provide a meal, the employee shall be paid twenty-five dollars (\$25.00) in lieu of a meal and paid fifteen (15) minutes at the applicable overtime rate. When an employee is required to remain at work beyond their scheduled shift, after such employee works beyond two (2) hours of scheduled overtime, such employee will be provided a fifteen (15) minute break within the next two (2) hours or paid fifteen (15) minutes at the applicable overtime rate. After each four (4) hours worked thereafter, the employee shall be provided with a meal and thirty (30) minutes, with pay, to consume his/her meal.
- 19.10 When an employee is required to extend his/her shift (early start and/or late quit) up to a maximum of one (1) hours, Article 19.09 will not apply. The employee shall be compensated at the applicable overtime rate of pay for the time worked.
- 19.11 The hours set forth in this Agreement do not constitute a guarantee of hours of work per day, per week or per work schedule.
- 19.12 A Contractor, after receiving written authorization from the Association, may change the work schedule(s) as provided for in Article 19, upon providing the Union twenty-four (24) hours written notice of the change.
- 19.13 The nature of the work on the Project shall, from time to time, require the interruption of work, which shall result in temporary layoff of employees for short periods of time. For those work interruptions not exceeding thirty (30) days, the Contractor shall advise the Union of its recall needs, and the Union shall issue a referral slip in the same order as those laid off.

- 19.14 All hours worked after a Regular Work Schedule or Extended Work Schedule has been completed and prior to the commencement of an employee's next Regular Work Schedule or Extended Work Schedule, shall be paid at the applicable overtime rate.

Article 20 – Shifts

- 20.01 The scheduling of the number of shifts in a day, hours of work in a shift, and the start and finish time of shifts shall be at the sole discretion of the Contractor.
- 20.02 A shift premium of three dollars (\$3.00) per hour shall be paid for all regularly scheduled hours worked, on other than the day shift. For the purposes of paying a shift premium, a day shift shall be defined as a shift commencing between the hours of 5:00 a.m. and 9:00 a.m. Overtime payment is calculated prior to the addition of any shift premium.
- 20.03 No employee shall be scheduled to work more than one (1) straight time shift in each consecutive twenty-four (24) hour period. However, if an employee continues to work past the end of their scheduled shift or commences a new shift prior to receiving a break of eight (8) consecutive hours, he/she shall receive the applicable overtime rate of pay for such shift continuation for each additional shift until a break of eight (8) consecutive hours occurs.
- 20.04 An employee whose shift schedule is changed (moved for one shift to another shift) shall receive twenty-four (24) hours' notice of the shift change. No employee shall suffer loss of regular earnings due to his/her shift change.
- 20.05 Split shifts may be utilized for accommodations classifications. Where an employee is scheduled to work a split shift, the employee shall receive a split shift premium of one dollar and fifty cents (\$1.50) per hour.

Article 21 – Reporting Time

- 21.01 Employees who are not residents of the Accommodation Complex and who are given two (2) hours' notice not to report to work shall not be entitled to reporting time. Employees who are residents of the Accommodation Complex and who are given one (1) hour notice not to report to work shall not be entitled to reporting time.

Notice may be given to employees who are not residents of the Accommodation Complex through local radio stations or by requiring employees to call a designated phone number, or by such other reasonable means as determined by the Association and/or Contractor. Notice may be given to residents of the Accommodation Complex by posting a notice in a common area of the Accommodation Complex or by any other reasonable means determined by the Association and/or Contractor.

Where employees are not provided with notice pursuant to this Article 21.01, the following shall apply:

Employees who are not residents of the Accommodation Complex who are given less than two (2) hours' notice not to report to work shall be entitled to be paid to the employee's scheduled mid-shift at the applicable rate.

Employees who are residents of the Accommodation Complex who are given less than one (1) hour notice not to report to work shall be entitled to be paid to the employee's scheduled mid-shift at the applicable rate.

- 21.02 If an employee reports to work as requested at the regular starting time and is not put to work, the so affected employee shall be entitled to be paid to the employee's scheduled mid-shift at the applicable rate.
- 21.03 If an employee reports to work as requested at the regular starting time and is put to work, the so affected employee shall be paid all hours worked at the employee's applicable rate of pay and in no case less than to the employee's scheduled mid-shift.
- 21.04 If an employee reports to work as requested at the regular starting time and is requested to standby, either at the workplace or another area designated by the Contractor, the so affected employee shall be paid for all hours he/she works and stands by at the request of the Contractor at the employee's applicable rate of pay and in no case less than to the employee's scheduled mid-shift.
- 21.05 The above payment scenarios are mutually exclusive and shall not be pyramided, however, the employee's applicable rate shall include all applicable premiums.
- 21.06 In order to qualify for reporting time the employee must remain on the job until otherwise directed by the Contractor.

Article 22 – Call Out

- 22.01 Employees who have completed their day's scheduled hours of work and have left the worksite or have returned to the accommodation site and are called out and return to work, shall receive no less than four (4) hours' pay at the employee's applicable overtime rate. Employees who work in excess of four (4) hours shall be paid for the actual hours worked at the employee's applicable overtime rate and applicable premiums until the commencement of their regularly scheduled shift.
- 22.02 A callout under this Agreement is not scheduled work.

Article 23 – Vacation and Recognized Holidays

- 23.01 Payment for annual vacations and pay in lieu of recognized holidays shall be thirteen (13%) percent of gross wages including overtime for all employees.
- 23.02 The following recognized holidays will be observed:
- a) New Year's Day
 - b) Good Friday
 - c) Canada Day
 - d) Civic Holiday
 - e) Labour Day

- f) Remembrance Day
- g) Christmas Eve
- h) Christmas Day
- i) Boxing Day
- j) Victoria Day
- k) Thanksgiving Day

- 23.03 All work performed on a recognized holiday shall be paid at double the straight time rate of pay.
- 23.04 The date of observance of recognized holidays shall be as gazetted by the Provincial Government or as designated by the Association or Contractor after consultation with the Union.
- 23.05 An employee who is eligible to take vacation may request vacation time off in writing to the Contractor. The vacation time is subject to the approval of the Contractor which approval will not be unreasonably withheld.

Article 24 – Accommodations

- 24.01 An Accommodation Complex shall be provided, maintained and operated in full compliance with all applicable laws and regulations. During the early work phase of the Project, a temporary Accommodation Complex may be provided to accommodate workers until the Accommodation Complex becomes available.
- 24.02 The Owner or his/her designee shall have the sole right to manage the Accommodation Complex, including the assignment of accommodations.
- 24.03 An Accommodation Complex committee composed of an equal number of representatives from the Association and Union shall be established for the purposes of providing input with respect to the development, implementation and administration of accommodation rules.
- 24.04 Workers living in the Accommodation Complex, who do not report for work on a regular work day due to causes other than legitimate illness and/or legitimate absences when they are physically able to do so, may be charged the full room and board rate for each regular day not worked.
- 24.05 Workers, failing to make use of Accommodation Complex on a repeated basis, may be charged at the full room and board rate for each day not used, and may forfeit their right to accommodations.
- 24.06 Accommodation Complex residents will be provided with sufficient and suitable food appropriate for the required breaks specified under this Agreement.
- 24.07 Accommodations will take into account the requirements of a diverse workforce.

Article 25 – Travel and Board

25.01 For the purpose of this article, the definition of “permanent residence” for a resident of Newfoundland and Labrador shall be the same as the definition of Provincial Resident in this Agreement and for those outside of Newfoundland and Labrador, as follows:

“An employee’s permanent residence is the place where he/she maintains a self-contained domestic establishment where he/she ordinarily resides such as a dwelling, house or similar place of residence where a person generally eats and sleeps. Factors and/or current documents to be examined when determining who is a resident may include property tax assessment, lease agreement, driver’s license, vehicle registration, income tax returns, voter’s list registration or proof of provincial health care coverage”

25.02 Free Zone: There shall be a Free Zone of sixty (60) road kilometres from the designated reporting point or work location as per Article 19, or from a designated pick-up location in Happy Valley-Goose Bay for work on the converter station, switch yard, and related activities at the Muskrat Falls dam and generating facility construction site, whichever is the case, to the city or town boundary of the employee’s permanent residence. Employees living within the Free Zone shall travel to and from the designated reporting point or work location as per Article 19, or from a designated pick-up location in Happy Valley-Goose Bay for work on the converter station, switch yard, and related activities at the Muskrat Falls dam and generating facility construction site, whichever is the case, at their own expense.

25.03 Travel Zone: Employees traveling to work who permanently reside a distance greater than sixty (60) kilometers but less than one hundred (100) kilometers from the designated reporting point or work location as per Article 19, or from a designated pick-up location in Happy Valley-Goose Bay for work on the converter station, switch yard, and related activities at the Muskrat Falls dam and generating facility construction site, whichever is the case, to the city or town boundary of the community of the employee’s permanent residence shall be paid travel allowance as set out in Article 25.06 per road kilometer one way between the above noted points.

25.04 Employees travelling to work who permanently reside at a distance of one hundred (100) kilometers or greater, from the designated reporting point or work location as per Article 19, or from a designated pick-up location in Happy Valley-Goose Bay for work on the converter station, switch yard, and related activities at the Muskrat Falls dam and generating facility construction site, whichever is the case, to the city or town boundary of the community of the employee’s permanent residence, using the most direct route, shall, at the Contractor’s discretion, be provided board allowance in accordance with Article 25.07 or accommodations at no cost to the employee, provided the Accommodations Complex or other accommodations are available.

25.05 When an employee is entitled to accommodations pursuant to this Article and accommodations are not available, such employee shall be provided a board allowance in accordance with Article 25.07.

If accommodation space becomes available, such employee, if requested by the Contractor, must commence residing at the accommodations within seven (7) days of being so notified. The employee shall cease being paid the board allowance once they

commence residing at the accommodations or upon the expiration of seven (7) days of being notified, whichever is first.

25.06 The travel allowance in accordance with Article 25.03 shall be as follows:

- a) \$0.72 per road kilometer effective date of signing;
- b) \$0.74 per road kilometre effective May 1, 2013;
- c) \$0.76 per road kilometer effective May 1, 2014;
- d) \$0.78 per road kilometer effective May 1, 2015;
- e) \$0.80 per road kilometer effective May 1, 2016;
- f) \$0.82 per road kilometer effective May 1, 2017.

25.07 The board allowance in accordance with Article 25.05 shall be as follows:

- a) \$100.00 per day effective date of signing;
- b) \$104.00 per day effective May 1, 2013;
- c) \$108.00 per day effective May 1, 2014;
- d) \$112.00 per day effective May 1, 2015;
- e) \$116.00 per day effective May 1, 2016;
- f) \$120.00 per day effective May 1, 2017.

25.08 Zone 1 through 5:

An employee, whose permanent residence is located in Zones 1 through 5 being the distance from the employee's accommodations or Accommodations Complex as set out below shall be provided a Travel Allowance when working an Extended Work Schedules of ten (10) consecutive days or more, provided the employee travels by road from their accommodations or the Accommodations Complex to the employee's permanent residence during the Extended Work Schedule turnaround and upon providing proof of travel expense in a form satisfactory to the Contractor. The Travel Allowance shall be payable as follows:

- a) Zone 1 (100 - 200 km) - \$90 (round trip);
- b) Zone 2 (201 - 300 km) - \$120 (round trip);
- c) Zone 3 (301 - 400 km) - \$150 (round trip);
- d) Zone 4 (401 - 500 km) - \$220 (round trip);
- e) Zone 5 (501+ km) - \$260 (round trip);

Work in Labrador

- 25.09 a) Employee's working an Extended Work Schedule for work in Labrador of ten (10) or more consecutive days, whose permanent residence is located outside of Labrador or in an area of Labrador only accessible by air, will be provided by the Contractor, during each Extended Work Schedule turnaround, the following:
- i. For employees whose permanent residence is on the Island of Newfoundland, air transportation to and from St. John's or such other designated hubs on the Island of Newfoundland to Happy Valley-Goose Bay or such other designated hubs in Labrador;
 - ii. For employees whose permanent residence is in Labrador, air transportation to and from designated hubs in Labrador to Happy Valley-Goose Bay or such other designated hubs in Labrador; and
 - iii. For employees whose permanent residence is outside Newfoundland and Labrador, air transportation to and from designated hubs in other parts of Canada to Happy Valley-Goose Bay or such other designated hubs in Labrador.

Work in Newfoundland

- b) Employee's working an Extended Work Schedule for work on the Island of Newfoundland of ten (10) or more consecutive days, whose permanent residence is located outside the Island of Newfoundland, will be provided by the Contractor, during each Extended Work Schedule turnaround, the following:
- i. For employees whose permanent residents is in Labrador, air transportation to and from Happy Valley-Goose Bay or such other designated hubs in Labrador to St. John's or such other designated hubs on the Island of Newfoundland; and
 - ii. For employees whose permanent residents is located outside Newfoundland and Labrador, air transportation to and from designated hubs in other parts of Canada or outside Canada to St. John's or such other designated hubs on the Island of Newfoundland.

In the event that an overnight stay is required, while in transit to the Project, because of a disruption in air travel, the Contractor shall provide board allowance for each day the employee is delayed provided such employees permanent residence is one hundred (100) km or more from the departing hub and the employee provides proof of a hotel expenditure in a form satisfactory to the Contractor.

In the event an overnight stay is required because an employee is unable to leave from the departing hub near the work location on the employee's scheduled turnaround because of a disruption in air travel, such employee may remain in the Accommodations Complex or other accommodations provided by the Contractor, at no cost, or at the Contractor's discretion, be provided board

allowance each day of the disruption until air transportation from the departing hub near the work location is available.

The Association and/or Contractor shall provide ground transportation to and from the work location to the designated hub.

Employees shall not be paid travel time.

25.10 When an employee is laid off, the Contractor shall provide air travel or a Travel Allowance consistent with Articles 25.08 and 25.09. Employees who quit or have their employment terminated for cause prior to the completion of the employee's Work Schedule may not be entitled to air travel or Travel Allowance consistent with Articles 25.08 and 25.09.

25.11 For the purposes of this Article, all distances will be determined by the Stats Canada Website (<http://www.stats.gov.nl.ca/DataTools/RoadDB/Distance/>).

Article 26 – Wages and Benefits

26.01 All employees covered by this Agreement shall receive wages and benefits effective the commencement of construction in accordance with the attached Schedule "C".

26.02 The work week for payday purposes shall end on Saturday at midnight and employees shall be paid on Thursday of the following week. The method of payment shall be by electronic deposit and a weekly Statement of Earnings and Deductions shall be issued to each employee on Thursday, including the following information:

- a) Wage rate;
- b) Number of hours paid at the straight time rate of pay;
- c) Number of hours paid at the overtime rate of pay;
- d) Amount of premium and allowances;
- e) Vacation pay;
- f) Holiday pay;
- g) The amount and purpose of each deduction;
- h) Name of the Contractor issuing the payment;
- i) The worker's name and payroll number;
- j) The pay period;
- k) Gross and net earnings; and

l) Pension or Group RRSP¹.

26.03 The Contractor shall remit contributions in an amount and manner as required by the attached Schedule "C". The remittance of these funds shall in no way require the Contractor to become or remain a member of any union, group or association as a condition for making such contributions.

26.04 Changes to benefit contributions may be made at the request of the Union, in writing, subject to the gross hourly package remaining unchanged. Such request to change the benefit contributions may be made annually between April 1st and April 30th and shall be implemented no later than June 1st.

26.05 The Contractor shall remit the amounts for all funds as specified in Article 27 and Schedule "C".

Article 27 – Project Funds

Designated Fund (NETCO Fund)

27.01 The parties recognize the importance of the promotion, advancement, training and growth in the Electrical Industry. Effective at the commencement of Project construction, the Contractor will remit to the International Brotherhood of Electrical Workers three cents (\$0.03) per hour worked as a contribution to the National Electrical Trades Council.

Project Administration Fund

27.02 The Contractor(s) shall remit ninety cents (\$0.90) per hour worked under this Agreement to the Project Administration Fund. These monies shall be remitted no later than the fifteenth (15th) day of the month following the month worked. The money shall be remitted to IBEW Local 1620 directly by the Contractor(s).

Employee Assistance Program

27.03 The Union shall provide for an Employee Assistance Program ("EAP Program"), acceptable to the Association, as part of the health and welfare benefits available to employees working on the Project. The cost of the EAP Program shall be equally shared by the Union and Contractor(s) to a maximum of three cents (\$0.03) per hour worked for the Union and three cents (\$0.03) per hour worked for the Contractor(s).

Article 28 – Labrador Premium, Island Premium and PLT Premium

Labrador and Island Premiums

28.01 In recognition of the uniqueness of the Project, its importance to the Province of Newfoundland and Labrador and the duration of the Project, workers shall receive the following:²

¹ Per Memorandum of Understanding – Pension and RRSP dated April 11, 2014

² Per Memorandum of Understanding – Payment of Premiums dated October 28, 2013

- a) For work performed in Labrador, a Labrador Premium payment of three dollars and fifty cents (\$3.50) per hour for all hours worked. Contractors shall pay the premium weekly. The premium is not part of the wage package and does not attract a vacation pay and recognized holiday pay.
- b) For work performed in Newfoundland, an Island Premium payment of three dollars (\$3.00) per hour for all hours worked. Contractors shall pay the premium weekly. The premium is not part of the wage package and does not attract a vacation pay and recognized holiday pay.

28.02 The dates for payment of the Labrador Premium and Island Premium shall be set by the Liaison Committee annually.

28.03 Upon layoff, workers shall receive their respective Labrador Premium or Island Premium in their final pay.

Power Line Technician Premium

28.04 The Parties agree that based upon a competitive labour market and the challenge of attracting skilled Power Line Technicians for the Project, and in recognition of the hazardous nature of the job inherent in working with electricity, in relation to the construction of the transmission system, including but not limited to the installation, maintenance, testing, repair and dismantling of electrical power generation, transmission and distribution system equipment, lines, apparatus and substations, Power Line Technicians employed and performing work on the Project shall receive a payment of six dollars (\$6.00) per hour for all hours worked, commencing with the commencement of construction and continuing for the duration of the Project (the "PLT Premium"). Contractors shall pay PLT Premium each pay period. The PLT Premium is not part of the wage package and does not attract payment of Vacation Pay and Recognized Holiday Pay.

Article 29 – Project Enhancement Programs

29.01 The Association may, at its discretion, implement a project enhancement program(s) for the Project or portions of the Project, after consultation with the Union.

Article 30 – Termination of Employment

30.01 When an employee has been terminated or laid off while away from the Project, any personal belongings shall be shipped to his/her last known address, at the Contractor's expense unless previous arrangements have been made.

30.02 Contractor(s) shall provide four (4) hours' notice or pay in lieu of notice to employees who are laid off. The employees shall be permitted reasonable time during these four (4) hours to pick up and return Contractor(s) tools, check out of accommodations, and/or prepare his/her own tools for the next job.

30.03 Layoffs shall occur in reverse order of hiring priority described in Article 7. For greater clarity, the last employees laid off shall be qualified residents of Newfoundland and Labrador and layoffs shall be in compliance with the Benefits Strategy and hiring priority for qualified Labrador Innu for the Labrador portion of the Project, subject to the retained

employees having the skills, abilities, competencies and qualifications necessary to complete the remaining work.

- 30.04 Employees who are being provided with accommodations by the Contractor and who are laid off and are being provided transportation by the Contractor shall be entitled to continue to receive accommodations until such time as transportation is made available by the Contractor.
- 30.05 In the event of a reduction of the workforce, anyone promoted from journeyman to forepersons or working foreperson may be demoted to journeyman. Anyone name hired as a foreperson or working foreperson shall be laid off as a foreperson or working foreperson.
- 30.06 Employees who are laid off or terminated for just cause shall receive all monies owing to them on the next payday in accordance with the Contractors normal payroll practices. The employee's Record of Employment shall be mailed to the employee's last known mailing address on file with the Contractor within five (5) calendar days after the end of the pay period in which the employee is laid off or terminated.
- 30.07 The Parties agree that in the case of layoffs, apprentices will be retained to the extent permitted by Project conditions as determined by the Contractor, Article 30.03 and the law.

Article 31 – Tools

- 31.01 Employees are to supply appropriate tools and equipment required to carry out the work to be performed as determined by the Association. Power Line Technicians, Power Line Technician Apprentices, Electricians and Electrician Apprentices shall supply the tools and equipment set out in Schedule "G" attached hereto and forming part of this Agreement. The tools and equipment are subject to verification by the Contractor upon commencement of employment. If the Contractor deems that other tools or equipment are necessary, they shall be supplied by the Contractor.
- 31.02 The employee's personal tools shall be in good condition when he/she is hired on the job and they shall be maintained and kept in good condition.
- 31.03 The Contractor(s) will provide the appropriate lock-fast facilities for storage of personal tools.
- 31.04 Employees will be held responsible for tools, special and/or protective clothing and safety apparatus supplied to them by the Contractor. If the employee fails to return the supplied items in good condition to the Contractor, with the exception of fair wear and tear, at the time of termination or on request prior to the employee's termination, the replacement cost of such items shall be deducted from any monies due to the employee.

Employees will not, however, be held responsible for loss or damage to tools, special and/or protective clothing and safety apparatus supplied to them by the Contractor as a result of fire, theft due to break-in or forcible entry of Contractor arranged lock-fast facilities, provided the loss or damage is immediately reported by the employee, in writing, to the Contractor.

- 31.05 The Contractor shall replace an employee's personal tools when:
- a) The tools are destroyed by fire, lost through theft by forced entry of a designated storage place provided by the Contractor, and provided that the loss or damage is immediately reported by the employee, in writing, to the Contractor.
 - b) In the course of the employee's work assignment, the tools are damaged beyond repair, provided the employee satisfies his/her Contractor that the damage was not intentional or caused by the employee's failure to exercise due care and attention.
- 31.06 Contractors will not be held responsible for personal tools which have not been identified on the employee's tool list by an authorized Representative of the Contractor. The employee shall provide an inventory list and the Contractor shall conduct an inventory check prior to the employee's commencement of work.
- 31.07 Employees, arriving at the Project or leaving the Project upon termination of employment, will be assisted in transporting their personal tools to or from the bus depot or parking lot.
- 31.08 An employee's tools which have to be replaced or sent off the job site for repair will be replaced and returned as soon as possible.

Article 32 – Welding Testing

- 32.01 When welders are hired on the project, the Contractor hiring the welder shall compensate the Union supplying the welder, five hundred dollars (\$500.00) for each welding ticket the welder is required to have to perform the work. The welder shall be reimbursed four (4) hours pay for each ticket to compensate for time involved in completing each test. In the event a Union member is laid off and rehired by the Contractor or another Contractor working on Site, the Contractor or the other Contractor shall not be required to pay the five hundred dollars (\$500.00) for each ticket and the welder shall not be reimbursed pay if the same welding tickets are required. The Contractor is responsible for the cost of Canadian Welding Bureau re-certifications if the certification expires more than one (1) year after the welder commences to work on Site. These re-certifications shall be without loss of pay to a maximum of one (1) regularly scheduled work day at straight time.

Article 33 – Lunch Room and Facilities

- 33.01 The Contractor shall provide and maintain clean, heated, sanitary facilities, which shall include modern flush toilets, urinals and wash basins. Where this is not practicable, chemical toilets and pump tank facilities will be provided.
- 33.02 Fresh, safe drinking water and sanitary cups shall be provided to the employees.
- 33.03 The Contractor shall, where practical, provide lunch rooms and determine their location, subject to restrictions of the work area in which the employees may take their breaks and meals.

33.04 When lunch rooms are used, they shall be kept heated and clean, with adequate size and seating capacity to accommodate the number of people using the facility. General lunch rooms shall be provided with reasonable amenities.

Article 34 – Apprenticeship and Training

34.01 The Association, the Contractors and the Union, in alignment with the Benefits Strategy and obligations to the Labrador Innu, agree to work cooperatively to create training, development and apprenticeship opportunities as part of their joint responsibility to maintain a supply of skilled tradespersons for the Project.

34.02 The Parties agree to cooperate to the fullest extent with any government instituted Apprenticeship Training Plan including layoff for yearly in-school training where requested by the employee.

34.03 The Association, the Contractors and the Union agree, to the extent permitted by Project conditions and law, to maximize placement and utilization of apprentices.

34.04 Gender equity and diversity shall be a consideration when hiring or referrals of apprentices to the Project as part of the Parties cooperative efforts to achieve, sustain and hopefully surpass participation goals for women and underrepresented groups established in consultation with the Province.

Article 35 – Leave of Absence

35.01 a) Employees shall be granted three (3) regularly scheduled work days leave with pay (the employee's regular rate times the number of hours the employee is scheduled to work on those days plus any applicable premium) commencing on the day after the date of death of the spouse, common law spouse, child (step child), parent (step parent), legal guardian, brother, sister, parent-in-law, grandparent, grandchild, daughter-in-law, son-in-law, sister-in-law, brother-in-law or other relative or dependant living in the employee's Permanent Residence.

b) Employees may request and be granted, subject to the approval of the Contractor, additional leave days without pay to cover extenuating circumstances associated with the bereavement leave.

35.02 Bereavement leave shall not be granted for time that would not normally have been worked and under no circumstances shall pay be granted for overtime missed as a result of an employee's absence.

35.03 Employees shall be entitled to pregnancy, parental and adoption leave in accordance with the provisions of the Newfoundland and Labrador *Labour Standards Act* in effect on of the date of this Agreement.

35.04 Employees summoned to attend upon a court of inquiry or any other judicial proceeding as a juror or prospective juror in accordance with the Newfoundland and Labrador *Jury Act, 1991* shall be paid the same as they would if they had been scheduled to work.

35.05 The Contractor may grant a leave of absence, without pay, to any employee for personal or cultural reasons. Requests for such leave shall be made in writing at least one week

in advance of the requested leave. Leave request shall be subject to Contractor needs and Project conditions but shall not be unreasonably denied by the Contractor.

Article 36 – Work Refusals

36.01 There shall be no work refusal by any member(s) of the bargaining unit during the life of this Agreement, including refusal to handle or install material, equipment, modules or components nor shall they refuse to perform work because other work was or will be performed or was not performed by persons or class of persons who were not or are not members of a trade union or a particular trade union.

Article 37 – Commissioning

37.01 Commissioning activities are important to the success of the Project. During the Commissioning process, the Owner, EPCM, commissioning contractor or vendor, carrying out Commissioning work, may utilize Union members, Owner employees, vendor employees, EPCM employees or commissioning contractor employees who are not members of the bargaining unit. Notwithstanding any other article in this Agreement, workers required for Commissioning may be selected by the Owner, EPCM, commissioning contractor or vendor from the Union and may be required to work on multi-disciplined Work Teams. Commissioning work executed by Union members shall fall within the scope of this Agreement. Commissioning work executed by Owner employees, vendor employees or representatives, EPCM employees or commissioning contractor employees who are not members of the bargaining unit shall fall outside the scope of this Agreement.

Article 38 – Saving

- 38.01 Should any provision of this Agreement be found by an arbitrator or court of competent jurisdiction to be in conflict with any law or regulation of Canada or Newfoundland and Labrador, such provision shall be superseded by such law or regulation. Notwithstanding such invalidation, the remaining provisions shall remain in full force and effect.
- 38.02 Unless prohibited from doing so by such law, regulation or court ruling, the Parties shall commence negotiations within fourteen (14) days to provide a valid replacement of such provision.
- 38.03 Notwithstanding Article 15.08 or any other Article in this Agreement, in the event that negotiations do not result in agreement on a legal replacement provision within fourteen (14) days of the commencement of negotiations, or such longer period as may be mutually agreed, the matter shall be resolved in accordance with the arbitration process in this Agreement.

Article 39 – Duration

39.01 This Agreement shall be for a term commencing on the later of (i) Date of its signing or (ii) Date the Lieutenant Governor-in-Council issues a Special Project Order respecting the Project, and continuing for the duration of the Project, including mobilization and demobilization by the Contractors, except as provided herein.

- 39.02 Without restricting the generality of the foregoing, this Agreement ceases to apply when Mechanical Completion of the work, or a part of components thereof is attained and is handed over to the Owner, or its designate.
- 39.03 Mechanical Completion occurs when construction is physically complete (manufactured, fabricated, installed and connected), safe (related systems necessary for protection of personnel and property are in place), clean (flushed, clean and dry), tight (bolt tensioned, hydro tested and re-instated), inspected, tested and documented.
- 39.04 Notwithstanding Article 39.02, a unit(s), component(s), system(s), equipment or area(s) of the Project may be deemed ready for acceptance by the Owner, or its designate, prior to Mechanical Completion. When unit(s), system(s), equipment or area(s) of the Project is deemed ready for acceptance by the Owner, or its designate, prior to Mechanical Completion, this Agreement ceases to apply to the unit(s), component(s), system(s), equipment or area(s) of the Project effective the date it is deemed ready for acceptance.

Subject to Articles 8.03, 8.04 and 8.05 of this Agreement, should the Owner, or its designate, require assistance from a Contractor in modifying, altering or fixing up any work performed by the Contractor pursuant to this Agreement, or part or components thereof, the work will normally be performed by members of the Union pursuant to this Agreement.

Signed at St. John's, Newfoundland and Labrador this 28th day of January, 2013.

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

(digital copy of signed agreement)
Phil Flemming

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, LOCAL 1620

(digital copy of signed agreement)
Terry Rose

(digital copy of signed agreement)
Don Murphy

LOWER CHURCHILL TRANSMISSION CONSTRUCTION EMPLOYERS' ASSOCIATION INC.

(digital copy of signed agreement)
Lance Clarke
Director

(digital copy of signed agreement)
David Clark
Director

SCHEDULE "A"
PROJECT DEFINITION

Schedule "A" - Project Definition

1. "Project" means the "scope of construction work" performed by Contractors engaged by the Owner or the EPCM agent of the Owner performing work within the geographical area designated on Schedule "B" or other geographical area designated in writing by the Owner or the EPCM agent of the Owner, or construction work described below performed outside the area delineated on Schedule "B" or outside the designated geographical area, which scope of construction work is defined as follows:
 - a) Construction activities include construction, dismantling and/or erection of transmission towers, related infrastructure, materials or equipment within the transmission right-of-way described on Schedule "B" or directly adjacent to the transmission right-of-way.
 - b) Construction of substations, switch yards, converter stations, electrodes, electrode lines, synchronous condensers, transition compounds and related construction activities at work sites designated by the Owner or the EPCM agent of the Owner, except as provided in paragraph 2 below.
 - c) Construction support activities being the operation of the designated lay-down, storage, staging and warehouse areas and the transportation of goods, equipment, materials or supplies between the designated area on Schedule "B" and/or geographical areas designated by the Owner or EPCM agent of the Owner. Construction of required access roads approved by the Owner or EPCM agent of Owner and any designated related activities to the construction of the required access roads.
 - d) Construction support activities being mobilization and demobilization of accommodations designated by the Owner or the EPCM agent of the Owner, the operation of the designated accommodations, food services in the designated accommodations or other designated activities in the accommodations.
 - e) The transportation of employees from the designated reporting point described in Article 19 to the work areas located within the geographical area delineated on Schedule "B" or any other geographical area designated by the Owner or EPCM agent of the Owner.
2. Project scope of construction work shall not include:
 - a) persons engaged in the supply, installation, termination and testing of the Marine HVDC cable system crossing the Strait of Belle Isle, including but not limited to associated work from the cable system components in the Transition Compound at Forteau, Labrador, to cable system components in the Transition Compound at Shoal Cove, Newfoundland. This work includes but is not limited to persons engaged in the supply and installation of surge arrestors, terminations, fibre optic system, HVDC cable accessory and spares, land HVDC cable, engineered thermal backfill, transition joint bays, horizontally drilled cable conduits, HVDC marine cable, submarine berm, operation of rock quarry and transportation of materials from such rock quarry;
 - b) employees of Nalcor Energy, Emera Inc. and NSP Maritime Link Inc. or any of their subsidiaries, performing work on the Project or any portion of the Project;

- c) Construction activities performed under another Special Project Order issued under Section 70 of the *Labour Relations Act* including but not limited to the construction of the switch yard at the Lower Churchill Hydro Electric Project at Muskrat Falls to the completion of the concrete pad and anchor bolts, and the construction of a converter station to the point the building is mechanically complete and ready to receive the installation of valve halls and related equipment for installation. The Owner or the EPCM agent of the Owner has the absolute discretion to determine when the converter station is mechanically complete and ready to receive the installation of valve halls and related equipment for installation. The Owner or the EPCM agent of the Owner has the absolute discretion to determine when the concrete pad and anchor bolts of the switch yard have been completed.
- d) Non-designated, laydown areas, staging areas or storage areas for materials fabricated for transmission construction or any other goods and materials.

SCHEDULE "B"
DESIGNATED GEOGRAPHICAL AREA

Schedule “B” – Designated Geographical Area

1. The geographical area of the Project for the construction activities described on Schedule “A” paragraph 1(a) shall include the area or areas designated by the Owner or the EPCM agent of the Owner as transmission right-of-ways for the following:
 - a) The Labrador Island Link, being a transmission right-of-way from Muskrat Falls Labrador to Soldier’s Pond Newfoundland; and
 - b) The Muskrat Falls to Churchill Falls Link, being a transmission right-of-way from Muskrat Falls Labrador to Churchill Falls Labrador.
2. The geographical area of the Project for the construction support activities described on Schedule “A” paragraphs 1(b), (c) and (d) shall include the area or areas designated by the Owner or the EPCM agent of the Owner.
3. The geographical areas of the Project designated by the Owner or the EPCM agent of the Owner in paragraphs 1 and 2 above may be deleted, modified or amended at any time by the Owner or the EPCM agent of the Owner upon providing notice to the Union.

SCHEDULE "C"
GROSS HOURLY PACKAGES
2013 – 2017

Schedule "C"
Wages and Benefits
Effective May 1, 2013

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Health & Welfare	Training	Project Admin Fund	Pension or Group RRSP	NETCO Fund	Retention & Promotion	Gross Hourly Rate
Journeyman Power Line Technician	\$ 31.33	\$ 3.13	\$ 0.94	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 44.38
Journeyman Electrician	\$ 34.86	\$ 3.49	\$ 1.05	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 48.37
Journeyman Civil	\$ 30.50	\$ 3.05	\$ 0.92	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 43.45
Journeyman Mechanical I	\$ 34.00	\$ 3.40	\$ 1.02	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 47.40
Journeyman Mechanical II	\$ 32.00	\$ 3.20	\$ 0.96	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 45.14
Heavy-Duty Mechanic Technician	\$ 32.00	\$ 3.20	\$ 0.96	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 45.14
Crane Operator	\$ 33.50	\$ 3.35	\$ 1.01	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 46.84
Heavy Equipment Operator	\$ 29.00	\$ 2.90	\$ 0.87	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 41.75
Light Equipment Operator	\$ 28.00	\$ 2.80	\$ 0.84	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 40.62
Blaster/Driller/Compressor Operator	\$ 29.00	\$ 2.90	\$ 0.87	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 41.75
Mechanic Helper	\$ 26.18	\$ 2.62	\$ 0.79	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 38.56
Accommodations Maintenance Person	\$ 26.18	\$ 2.62	\$ 0.79	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 38.56
Communications Installer	\$ 25.18	\$ 2.52	\$ 0.76	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 37.43
Utility Technician	\$ 26.18	\$ 2.62	\$ 0.79	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 38.56
Utility Person	\$ 25.18	\$ 2.52	\$ 0.76	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 37.43
Storekeeper	\$ 27.13	\$ 2.71	\$ 0.81	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 39.64
Arborist	\$ 25.73	\$ 2.57	\$ 0.77	\$ 2.00	\$ 0.25	\$ 0.90	\$ 4.80	\$ 0.03	\$ 1.00	\$ 38.05

**Amended per Letter of Understanding on page 76*

Schedule "C"
Wages and Benefits
Effective May 1, 2014

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Health & Welfare	Training	Project Admin Fund	Pension or Group RRSP	NETCO Fund	Retention & Promotion	Gross Hourly Rate
Journeyman Power Line Technician	\$ 33.54	\$ 3.35	\$ 1.01	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.13
Journeyman Electrician	\$ 37.07	\$ 3.71	\$ 1.11	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 52.12
Journeyman Civil	\$ 32.71	\$ 3.27	\$ 0.98	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.20
Journeyman Mechanical I	\$ 36.21	\$ 3.62	\$ 1.09	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 51.15
Journeyman Mechanical II	\$ 34.21	\$ 3.42	\$ 1.03	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.89
Heavy-Duty Mechanic Technician	\$ 34.21	\$ 3.42	\$ 1.03	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.89
Crane Operator	\$ 35.71	\$ 3.57	\$ 1.07	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.59
Heavy Equipment Operator	\$ 31.21	\$ 3.12	\$ 0.94	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 45.50
Light Equipment Operator	\$ 30.21	\$ 3.02	\$ 0.91	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 44.37
Blaster/Driller/Compressor Operator	\$ 31.21	\$ 3.12	\$ 0.94	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 45.50
Mechanic Helper	\$ 28.39	\$ 2.84	\$ 0.85	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 42.31
Accommodations Maintenance Person	\$ 28.39	\$ 2.84	\$ 0.85	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 42.31
Communications Installer	\$ 27.39	\$ 2.74	\$ 0.82	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 41.18
Utility Technician	\$ 28.39	\$ 2.84	\$ 0.85	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 42.31
Utility Person	\$ 27.39	\$ 2.74	\$ 0.82	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 41.18
Storekeeper	\$ 29.34	\$ 2.93	\$ 0.88	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 43.39
Arborist	\$ 27.94	\$ 2.79	\$ 0.84	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 41.80

Schedule "C"
Wages and Benefits
Effective May 1, 2015

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Health & Welfare	Training	Project Admin Fund	Pension or Group RRSP	NETCO Fund	Retention & Promotion	Gross Hourly Rate
Journeyman Power Line Technician	\$ 35.31	\$ 3.53	\$ 1.06	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.13
Journeyman Electrician	\$ 38.84	\$ 3.88	\$ 1.17	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 54.12
Journeyman Civil	\$ 34.48	\$ 3.45	\$ 1.03	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 49.20
Journeyman Mechanical I	\$ 37.98	\$ 3.80	\$ 1.14	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 53.15
Journeyman Mechanical II	\$ 35.98	\$ 3.60	\$ 1.08	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.89
Heavy-Duty Mechanic Technician	\$ 35.98	\$ 3.60	\$ 1.08	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.89
Crane Operator	\$ 37.48	\$ 3.75	\$ 1.12	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 52.59
Heavy Equipment Operator	\$ 32.98	\$ 3.30	\$ 0.99	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.50
Light Equipment Operator	\$ 31.98	\$ 3.20	\$ 0.96	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 46.37
Blaster/Driller/Compressor Operator	\$ 32.98	\$ 3.30	\$ 0.99	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.50
Mechanic Helper	\$ 30.16	\$ 3.02	\$ 0.90	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 44.31
Accommodations Maintenance Person	\$ 30.16	\$ 3.02	\$ 0.90	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 44.31
Communications Installer	\$ 29.16	\$ 2.92	\$ 0.87	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 43.18
Utility Technician	\$ 30.16	\$ 3.02	\$ 0.90	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 44.31
Utility Person	\$ 29.16	\$ 2.92	\$ 0.87	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 43.18
Storekeeper	\$ 31.11	\$ 3.11	\$ 0.93	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 45.39
Arborist	\$ 29.71	\$ 2.97	\$ 0.89	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 43.80

Schedule "C"
Wages and Benefits
Effective May 1, 2016

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Health & Welfare	Training	Project Admin Fund	Pension or Group RRSP	NETCO Fund	Retention & Promotion	Gross Hourly Rate
Journeyman Power Line Technician	\$ 37.52	\$ 3.75	\$ 1.13	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 52.63
Journeyman Electrician	\$ 41.05	\$ 4.11	\$ 1.23	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 56.62
Journeyman Civil	\$ 36.69	\$ 3.67	\$ 1.10	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 51.70
Journeyman Mechanical I	\$ 40.19	\$ 4.02	\$ 1.21	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 55.65
Journeyman Mechanical II	\$ 38.19	\$ 3.82	\$ 1.15	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 53.39
Heavy-Duty Mechanic Technician	\$ 38.19	\$ 3.82	\$ 1.15	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 53.39
Crane Operator	\$ 39.69	\$ 3.97	\$ 1.19	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 55.09
Heavy Equipment Operator	\$ 35.19	\$ 3.52	\$ 1.06	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.00
Light Equipment Operator	\$ 34.19	\$ 3.42	\$ 1.03	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.87
Blaster/Driller/Compressor Operator	\$ 35.19	\$ 3.52	\$ 1.06	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.00
Mechanic Helper	\$ 32.37	\$ 3.24	\$ 0.97	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 46.81
Accommodations Maintenance Person	\$ 32.37	\$ 3.24	\$ 0.97	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 46.81
Communications Installer	\$ 31.37	\$ 3.14	\$ 0.94	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 45.68
Utility Technician	\$ 32.37	\$ 3.24	\$ 0.97	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 46.81
Utility Person	\$ 31.37	\$ 3.14	\$ 0.94	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 45.68
Storekeeper	\$ 33.32	\$ 3.33	\$ 1.00	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.89
Arborist	\$ 31.92	\$ 3.19	\$ 0.96	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 46.30

Schedule "C"
Wages and Benefits
Effective May 1, 2017*

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Health & Welfare	Training	Project Admin Fund	Pension or Group RRSP	NETCO Fund	Retention & Promotion	Gross Hourly Rate
Journeyperson Power Line Technician	\$ 39.29	\$ 3.93	\$ 1.18	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 54.63
Journeyperson Electrician	\$ 42.82	\$ 4.28	\$ 1.28	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 58.62
Journeyperson Civil	\$ 38.46	\$ 3.85	\$ 1.15	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 53.70
Journeyperson Mechanical I	\$ 41.96	\$ 4.20	\$ 1.26	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 57.65
Journeyperson Mechanical II	\$ 39.96	\$ 4.00	\$ 1.20	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 55.39
Heavy-Duty Mechanic Technician	\$ 39.96	\$ 4.00	\$ 1.20	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 55.39
Crane Operator	\$ 41.46	\$ 4.15	\$ 1.24	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 57.09
Heavy Equipment Operator	\$ 36.96	\$ 3.70	\$ 1.11	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 52.00
Light Equipment Operator	\$ 35.96	\$ 3.60	\$ 1.08	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 50.87
Blaster/Driller/Compressor Operator	\$ 36.96	\$ 3.70	\$ 1.11	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 52.00
Mechanic Helper	\$ 34.14	\$ 3.41	\$ 1.02	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.81
Accommodations Maintenance Person	\$ 34.14	\$ 3.41	\$ 1.02	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.81
Communications Installer	\$ 33.14	\$ 3.31	\$ 0.99	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.68
Utility Technician	\$ 34.14	\$ 3.41	\$ 1.02	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.81
Utility Person	\$ 33.14	\$ 3.31	\$ 0.99	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 47.68
Storekeeper	\$ 35.09	\$ 3.51	\$ 1.05	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 49.89
Arborist	\$ 33.69	\$ 3.37	\$ 1.01	\$ 2.25	\$ 0.25	\$ 0.90	\$ 5.80	\$ 0.03	\$ 1.00	\$ 48.30

* If construction not complete by April 30, 2018, will negotiate new rate on or before that date and in the event the parties fail to reach an agreement, submit to arbitration

SCHEDULE "C"**CLASSIFICATIONS AND RATES OF PAY**

APPRENTICES	RATE
Apprentice 4 th Year	90% of JP Rate
Apprentice 3 rd Year	80% of JP Rate
Apprentice 2 nd Year	70% of JP Rate
Apprentice 1 st Year	60% of JP Rate

The working foreperson shall be paid a premium of two dollars (\$2.00) per hour worked, which premium will increase as follows:

May 1, 2014 - \$2.25
 May 1, 2016 - \$2.50

The non-working foreperson shall be paid a premium of three dollars and twenty-five cents (\$3.25) per hour worked, which premium will increase as follows:

May 1, 2014 - \$3.50
 May 1, 2016 - \$3.75

Note: The following outlines the funds specified in the above wage package.

1. Health and Welfare - two dollars (\$2.00) per hour worked, which shall increase to two dollars and twenty-five cents (\$2.25) per hour worked effective May 1, 2014 as per Article 26 and Letter of Understanding Re: Health and Welfare Fund Adjustment.
2. Training - twenty-five cents (\$0.25) per hour worked as per Article 26.
3. Pension or Group RRSP – four dollar and eighty cents (\$4.80) per hour worked for the period May 1, 2013 to 2014 as per the Letter of Understanding Re: Health and Welfare Fund Adjustment, increasing to five dollars and eighty cents (\$5.80) per hour worked as per Article 26.
4. Retention and Promotion Fund – one dollar (\$1.00) per hour worked as per Article 26.
5. NETCO Fund - three cents (\$0.03) per hour worked as per Article 27.01.
6. Project Administration Fund - ninety cents (\$0.90) per hour worked as per Article 27.02

Employee Registered Retirement Savings Plan Option

Any Employee who does not have vested Pension Contributions in the Union Pension Plan, or is not a member of IBEW Local 1620 or a member of IBEW Local 2330 immediately prior to being hired to work on the Project, will, upon being hired and prior to the first day of each month, have the option to direct the Pension or Group RRSP amount specified on Schedule C be paid into the Group RRSP for the benefit of such Employee, rather than into the Pension Plan. Once the Employee directs the Pension or Group RRSP amount specified on Schedule C be paid into the Group RRSP, such employee may not elect to participate in the Union Pension Plan in the future without the written approval of the Union.³

³ As Per Memorandum of Understanding – Pension and Registered Retirement Savings Plan

SCHEDULE "C.1"
DEFINITION OF CLASSIFICATIONS

Schedule “C.1” – Definition of Classifications

- a) **“Journeyman Power Line Technician”** refers to any employee who is certified and has completed apprenticeship and has the required trade knowledge to perform and does perform all work in connection with the installation, maintenance, testing and repair and dismantling of electrical power generation, transmission and distribution system equipment, lines, apparatus and substations.
- b) **“Journeyman Electrician”** refers to any employee who is certified and has completed apprenticeship as an electrician and who is qualified to layout, assemble, install, test, troubleshoot, maintain and repair industrial electrical equipment and associated electrical and electronic controls, electrical wiring, fixtures, control devices and related equipment in buildings and other structures.
- c) **“Journeyman Civil”** refers to any employee who is certified and has completed apprenticeship as a: carpenter; scaffolder; rod person (rebar); bricklayer; welder; plasterer, drywall installer and finisher; glazier and painter/decorator; cook.
- d) **“Journeyman Mechanical I”** refers to any employee who is certified and has completed apprenticeship as a: structural ironworker; sheet metal worker; steamfitter, pipefitter and sprinkler system installer; plumber; elevator constructor/mechanic.
- e) **“Journeyman Mechanical II”** refers to any employee who is certified and has completed apprenticeship as a: millwright; boilermaker; heat and frost insulator.
- f) **“Heavy-Duty Equipment Technician”** refers to any employee who is certified and completed apprenticeship and is qualified to diagnose, repair, adjust, overhaul, maintain and test mobile heavy-duty equipment.
- g) **“Crane Operator”** refers to any employee who is certified, has completed apprenticeship and is qualified to operate mobile and crawler cranes to lift, move, position or place machinery, equipment and other large objects at construction or industrial sites.
- h) **“Heavy Equipment Operator”** refers to any employee who is certified and/or has completed apprenticeship and is qualified to operate: boom trucks, excavators, bulldozers, loaders, backhoes, graders, tractors (with attachments), trenching machines, feller-buncher, harvester, delimeter / processor operator and mulcher.
- i) **“Light Equipment Operator”** refers to any employee who is certified and is qualified to operate: single-axle trucks, double-axle trucks, dump trucks, rock trucks, digger trucks, line trucks, buses, pickups, crewcabs, lowbed trucks, tandem trucks, cat trucks, fork lift, skidder operator, grapple skidder operator, muskeg, and forwarders.
- j) **“Blaster/Driller/Compressor Operator”** includes any employee who fill blast holes with explosives and detonate explosives to dislodge coal, ore and rock or to demolish structures and is certified and holds a valid blasters certificate for the class applicable for the work being performed and/or any employee who operates mobile drilling machines to bore holes in quarries and to bore holes for blasting and for building foundations at construction sites and/or manage, operate and maintain compression systems of different types and sizes.

- k) **“Mechanic Helper”** refers to any employee who is qualified to repair, troubleshoot, adjust, overhaul, maintain vehicles and equipment, and assist Heavy-Duty Equipment Technicians.
- l) **“Accommodations Maintenance Person”** refers to any employee who has the necessary skills and qualifications to provide maintenance services at the Accommodations Complex.
- m) **“Communications Installer”** refers to any employee who is skilled and has the required trade knowledge to perform all work in connection with the installation and maintenance of communications networks.
- n) **“Utility Technician”** refers to any employee who performs at ground level all work in connection with the construction, dismantling or maintenance of transmission and distribution lines and sub stations, and also performs general labour work when required.
- o) **“Utility Person”** refers to any employee who is employed as a general labourer; controls and directs vehicle traffic; smooths and finishes concrete; clearing and laydown labourer; housekeeping and accommodations attendant; catering server.
- p) **“Storekeeper”** refers to any employee who is qualified and responsible for the requisitioning, handling and dispatching of materials.
- q) **“Apprentice”** refers to any employee who is indentured into an accredited apprenticeship program which upon successful completion will be qualified as a Journeyman.
- r) **“Arborist”** means any employee who is certified for tree trimming from poles or aerial devices to provide clearances from distribution lines along highways, streets, roads, etc.
- s) **“Other Classifications”** The Association may create such other classifications as it deems necessary for the Project. Upon creating such classification the Association shall have consultation with the Union in regards to the new job classification. Within fourteen (14) days of such consultation, the Association and Union shall meet to negotiate a Gross Hourly Package for such classification. In the event the parties are unable to agree to the Gross Hourly Package for the new classification, such dispute shall be referred to the grievance and arbitration process contained herein for resolution. An arbitrator shall have no jurisdiction to award a Gross Hourly Package higher than the highest Gross Hourly Package specified on Schedule C for that year. All subsequent increases in the Gross Hourly Package for the new job classification shall be in accordance with the Agreement.

SCHEDULE "D"
LIST OF ARBITRATORS

Schedule "D" – List of Arbitrators

1. Morgan Cooper
2. John Roil
3. James Oakley
4. Wayne Thistle
5. Robert Andrews
6. John Clarke

SCHEDULE "E"
OWNER / OPERATOR

Schedule "E" – Owner / Operator

1. The purpose of this Schedule is to set out the terms and conditions for Contractor(s) to retain Owner/Operators of clearing machinery, trucks or other equipment (collectively referred to as "Equipment") to work on the Project. If there is a conflict between the terms and conditions contained in Articles 1 to 39 of the Agreement and the terms and conditions of this Schedule, the terms and conditions in this Schedule shall prevail.
2. Owner/Operator, for the purposes of the Agreement, shall mean any person who owns, leases or rents and operates equipment who has been retained by a Contractor to work on the Project. Person, for the purposes of this Schedule, shall include any individual, firm, business, partnership or corporate entity that owns, leases or rents the Equipment that has been retained by the Contractor, which individual, firm, business, partnership or corporate entity is controlled by the person who operates the Equipment.
3. Notwithstanding Article 7.08 of this Agreement or any other provision of the Agreement, the retention of Owner/Operators shall be done at the sole discretion of each Contractor. In exercising its discretion, each Contractor must be in compliance where required with the Benefits Strategy and where required shall give preference in hiring to qualified Innu Owner/Operators for the Labrador portion of the Project.
4. Notwithstanding Article 30 of the Agreement or any other Article, a Contractor may discontinue the services of an Owner/Operator at any time.
5. The total compensation and benefits, paid to Owner/Operators for Equipment shall be determined by the Contractor and subject to the prior written approval of the Association (the "Owner/Operator Compensation"). The Owner/Operator Compensation shall be determined prior to the commencement of work by Owner/Operators and may be changed at any time during the term of this Agreement, subject to the prior written approval of the Association. Owner/Operators shall not be entitled to any financial compensation and benefits as contained within the Agreement, except as provided for in this Schedule "E".
6. All Owner/Operators will be represented by the Union and shall pay a permit fee to the Union, which permit fee shall be one hundred dollars (\$100.00) per month.
7. Articles 7, 10, 19 - 35, 37, Schedule C, C.1, F, G and H of the Agreement shall not apply to Owner/Operators.
8. All work shall be performed and equipment operated in accordance with the *Occupational Health and Safety Act*.
9. The hours of operation of Equipment for Owner/Operators shall be determined by the Contractor and subject to the approval of the Association.
10. The Contractor shall save the Association and Union harmless from any and all causes of action, claims or demands of any nature or kind, including but not limited to expenses, costs, legal fees and disbursements, that may be made against the Union and/or Association for amounts due and owing by the Contractor to the Owner/Operator.

11. The Contractor may, subject to the prior written approval of the Association, develop policies, procedures, rules, regulations, working conditions, terms or standards in relation to the Equipment and the Owner/Operator's work on the Project (collectively referred to as the "Owner/Operator Regulations") which may be amended from time to time, subject to the prior written approval of the Association. The Owner/Operator Regulations shall include but are not limited to the following:
- a) Owner/Operators shall comply with all site standards, rules, regulations, policies and procedures as developed and amended by the Association from time to time.
 - b) Contractor(s) may provide fuel to Owner/Operators, which fuel and delivery costs may be deducted from the Owner/Operator Compensation.
 - c) The Contractor(s) shall have the right to require an inspection(s) of Equipment before Equipment comes onto a Project work site and/or an Owner/Operator commences work or at any time during the Project. Any Equipment not in good working condition will not be permitted on a work site and/or will not be permitted to commence work or continue to work. All Equipment must be equipped with back up alarms, flashing lights or any other equipment or device required by Occupational Health & Safety legislation or other applicable provincial legislation, the Contractor and/or Association.
 - d) Owner/Operators shall maintain, with each piece of Equipment, a fire extinguisher, first aid kit or any other safety devices required by Occupational Health & Safety legislation or other applicable provincial legislation, the Contractor and/or Association.
 - e) Owner/Operators can request the Contractor to do normal routine maintenance from any maintenance facility on the Project, (eg. belts, hoses, tires). Subject to available facilities and resources on the Project, the Contractor may provide these services to Owner/Operators. The labour and all other costs or expense associated with all repairs and/or maintenance will be charged to each Owner/Operator and deducted from the Owner/Operator Compensation. Owner/Operators are responsible for all repair and maintenance costs.
 - f) Owner/Operators will be required to obtain a medical assessment as determined by the Association from time to time, prior to commencing work on the Project and shall be required to comply with all Project safety standards, policies, procedures, rules and regulations as determined by the Association.
 - g) Owner/Operators will be required to participate in Project orientation developed for Owner/Operators, prior to commencing work on the Project.
 - h) Contractor(s) shall not be responsible to compensate Owner/Operators for any costs, expenses, charges, damages or lost compensation or benefits of any nature or kind as a result of downtime to Equipment caused by required maintenance or repairs or waiting for maintenance or repairs or any other reason.
 - i) Contractor(s) have the right to select or determine the nature, type, size or any other specifications of Equipment before the Owner/Operators commences work.

- j) Owner/Operators must provide to the Contractor and/or the Association, upon request, proof of Equipment registration, proof of registration and good standing with Workplace, Health, Safety & Compensation Commission, proof of Equipment insurance, proof of liability insurance in an amount to be determined by the Contractor and subject to the approval of the Association, and inspection certificates when requested.

SCHEDULE "F"
ACCOMMODATIONS, CLEARING OPERATIONS, DESIGNATED
LAYDOWN AREA, TRANSPORTATION, MEDICAL ATTENDANT
CLASSIFICATIONS AND ANY OTHER CLASSIFICATIONS AGREED BY
THE PARTIES

Schedule "F" – Accommodations, Clearing Operations, Designated Laydown Area, Transportation, Medical Attendant Classifications and Any Other Classifications Agreed by the Parties

1. This Schedule is applicable to accommodation classifications, clearing operations classifications, designated laydown area classifications, transportation classifications, medical attendant classifications, and any other classifications agreed to by the Association and the Union. The terms and conditions of the Agreement shall apply to the classifications set out in Paragraph 2 below unless otherwise specified in Schedule "F".
2. The classifications shall include:
 - a) Cook
 - b) 2nd Cook
 - c) Accommodations Attendant
 - d) Accommodations Maintenance Person
 - e) Truck Driver Tandem
 - f) Truck Driver Double Tandem
 - g) Bus Driver
 - h) Heavy Equipment Mechanic
 - i) Labourer Clearing
 - j) Labourer Laydown
 - k) Forestry Equipment Operator - refers to any employee who is certified and/or qualified to operate a feller-buncher, harvester, forwarder, mulcher, delimeter / processor and any other forestry equipment
 - l) Muskeg Operator
 - m) Skidder Operator / Grapple Skidder Operator
 - n) Crane Operator
 - o) Rigger (trade specific)
 - p) Fork Lift Operator
 - q) Storekeeper (Warehouse Person)

- r) Emergency Medical Attendants
 - s) Duty Nurse
 - t) Construction Surveyor / Instrument Technician
 - u) Such other classifications as are necessary for accommodation classifications, clearing operations classifications, designated laydown area classifications, transportation classifications, or medical attendant classifications or any classification created pursuant to Schedule C.1(s).
3. The gross hourly rate for each classification in Paragraph 2 is set out below with the exception of Emergency Medical Attendants, Duty Nurse and Construction Surveyor / Instrument Technician which shall be determined by the Association, upon considering market conditions and after consultation with the Union.
 4. Notwithstanding Article 7 in the Agreement, all hiring for classifications covered by Schedule "F" shall be done at the sole discretion of each Contractor(s). In exercising its discretion each Contractor must be in compliance with the Benefits Strategy and provide preference in hiring to qualified Labrador Innu for the Labrador portion of the Project.
 5. All workers hired pursuant to Schedule "F" must complete the pre-employment training and orientation as per Article 7.09(a)(i) for forepersons and 7.09(b)(i) for all other workers.
 6. All workers hired pursuant to Schedule "F", shall be represented by the Union and pay initiation fees, dues and other assessments after hiring as per Article 6 of the Agreement.

Gross Hourly Rate IBEW 1620 - May 1, 2013

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Add-Ons*	Gross Hourly Rate
Cook	\$ 30.50	\$ 3.05	\$ 0.92	\$ 8.98	\$ 43.45
Crane Operator	\$ 33.50	\$ 3.35	\$ 1.01	\$ 8.98	\$ 46.84
Heavy Equipment Mechanic	\$ 32.00	\$ 3.20	\$ 0.96	\$ 8.98	\$ 45.14
Feller-buncher, Mulcher, Harvester, Delimber / Processor	\$ 29.00	\$ 2.90	\$ 0.87	\$ 8.98	\$ 41.75
Fork-Lift, Muskeg, Skidder, Grapple Skidder, Forwarder, Truck Driver Tandem, Truck Driver Double Tandem, Bus Driver	\$ 28.00	\$ 2.80	\$ 0.84	\$ 8.98	\$ 40.62
Accommodations Maintenance Person	\$ 26.18	\$ 2.62	\$ 0.79	\$ 8.98	\$ 38.56
Labourer Clearing, Labourer Laydown, Accommodations Attendant, Server, Housekeeping	\$ 25.18	\$ 2.52	\$ 0.76	\$ 8.98	\$ 37.43
Storekeeper (Warehouse Person)	\$ 27.13	\$ 2.71	\$ 0.81	\$ 8.98	\$ 39.64

Gross Hourly IBEW 1620 - May 1, 2014

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Add-Ons*	Gross Hourly Rate
Cook	\$ 32.71	\$ 3.27	\$ 0.98	\$ 10.23	\$ 47.20
Crane Operator	\$ 35.71	\$ 3.57	\$ 1.07	\$ 10.23	\$ 50.59
Heavy Equipment Mechanic	\$ 34.21	\$ 3.42	\$ 1.03	\$ 10.23	\$ 48.89
Feller-buncher, Mulcher, Harvester, Delimber / Processor	\$ 31.21	\$ 3.12	\$ 0.94	\$ 10.23	\$ 45.50
Fork-Lift, Muskeg, Skidder, Grapple Skidder, Forwarder, Truck Driver Tandum, Truck Driver Double Tandum, Bus Driver	\$ 30.21	\$ 3.02	\$ 0.91	\$ 10.23	\$ 44.37
Accommodations Maintenance Person	\$ 28.39	\$ 2.84	\$ 0.85	\$ 10.23	\$ 42.31
Labourer Clearing, Labourer Laydown, Accommodations Attendant, Server, Housekeeping	\$ 27.39	\$ 2.74	\$ 0.82	\$ 10.23	\$ 41.18
Storekeeper (Warehouse Person)	\$ 29.34	\$ 2.93	\$ 0.88	\$ 10.23	\$ 43.39

Gross Hourly Rate IBEW 1620 - May 1, 2015

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Add-Ons*	Gross Hourly Rate
Cook	\$ 34.48	\$ 3.45	\$ 1.03	\$ 10.23	\$ 49.20
Crane Operator	\$ 37.48	\$ 3.75	\$ 1.12	\$ 10.23	\$ 52.59
Heavy Equipment Mechanic	\$ 35.98	\$ 3.60	\$ 1.08	\$ 10.23	\$ 50.89
Feller-buncher, Mulcher, Harvester, Delimber / Processor	\$ 32.98	\$ 3.30	\$ 0.99	\$ 10.23	\$ 47.50
Fork-Lift, Muskeg, Skidder, Grapple Skidder, Forwarder, Truck Driver Tandum, Truck Driver Double Tandum, Bus Driver	\$ 31.98	\$ 3.20	\$ 0.96	\$ 10.23	\$ 46.37
Accommodations Maintenance Person	\$ 30.16	\$ 3.02	\$ 0.90	\$ 10.23	\$ 44.31
Labourer Clearing, Labourer Laydown, Accommodations Attendant, Server, Housekeeping	\$ 29.16	\$ 2.92	\$ 0.87	\$ 10.23	\$ 43.18
Storekeeper (Warehouse Person)	\$ 31.11	\$ 3.11	\$ 0.93	\$ 10.23	\$ 45.39

Gross Hourly Rate IBEW 1620 - May 1, 2016

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Add-Ons*	Gross Hourly Rate
Cook	\$ 36.69	\$ 3.67	\$ 1.10	\$ 10.23	\$ 51.70
Crane Operator	\$ 39.69	\$ 3.97	\$ 1.19	\$ 10.23	\$ 55.09
Heavy Equipment Mechanic	\$ 38.19	\$ 3.82	\$ 1.15	\$ 10.23	\$ 53.39
Feller-buncher, Mulcher, Harvester, Delimber / Processor	\$ 35.19	\$ 3.52	\$ 1.06	\$ 10.23	\$ 50.00
Fork-Lift, Muskeg, Skidder, Grapple Skidder, Forwarder, Truck Driver Tandum, Truck Driver Double Tandum, Bus Driver	\$ 34.19	\$ 3.42	\$ 1.03	\$ 10.23	\$ 48.87
Accommodations Maintenance Person	\$ 32.37	\$ 3.24	\$ 0.97	\$ 10.23	\$ 46.81
Labourer Clearing, Labourer Laydown, Accommodations Attendant, Server, Housekeeping	\$ 31.37	\$ 3.14	\$ 0.94	\$ 10.23	\$ 45.68
Storekeeper (Warehouse Person)	\$ 33.32	\$ 3.33	\$ 1.00	\$ 10.23	\$ 47.89

Gross Hourly Rate IBEW 1620 - May 1, 2017

CLASSIFICATION	Base Rate	Vacation (10%)	Holiday (3%)	Add-Ons*	Gross Hourly Rate
Cook	\$ 38.46	\$ 3.85	\$ 1.15	\$ 10.23	\$ 53.70
Crane Operator	\$ 41.46	\$ 4.15	\$ 1.24	\$ 10.23	\$ 57.09
Heavy Equipment Mechanic	\$ 39.96	\$ 4.00	\$ 1.20	\$ 10.23	\$ 55.39
Feller-buncher, Mulcher, Harvester, Delimber / Processor	\$ 36.96	\$ 3.70	\$ 1.11	\$ 10.23	\$ 52.00
Fork-Lift, Muskeg, Skidder, Grapple Skidder, Forwarder, Truck Driver Tandum, Truck Driver Double Tandum, Bus Driver	\$ 35.96	\$ 3.60	\$ 1.08	\$ 10.23	\$ 50.87
Accommodations Maintenance Person	\$ 34.14	\$ 3.41	\$ 1.02	\$ 10.23	\$ 48.81
Labourer Clearing, Labourer Laydown, Accommodations Attendant, Server, Housekeeping	\$ 33.14	\$ 3.31	\$ 0.99	\$ 10.23	\$ 47.68
Storekeeper (Warehouse Person)	\$ 35.09	\$ 3.51	\$ 1.05	\$ 10.23	\$ 49.89

2nd Cook shall receive 90% of the Gross Hourly Rate applicable to the Cook

SCHEDULE "G"
TOOL LIST

Schedule "G" – Tool List**Power Line Technician/Apprentice**

- 1 Canvas Tool Bag
- 1 Pliers Pouch
- 1 Bolt Bag (Canvas)
- 1 10" Crescent/Adjustable Wrench
- 1 12" Crescent/Adjustable Wrench
- 1 Ratchet and Sockets (½" Drive)
- 1 Ball Peen Hammer (2 lbs.)
- 1 9" Linesman/Klien Pliers
- 1 Hand Line (other to be supplied by the Employer)
- 1 Straight End Screwdriver (14")
- 1 Screwdriver (10" or 12")
- 1 Skinning Knife
- 1 3' Wooden Rule (all others to be supplied by the Employer)
- 1 12' Non-Metallic Tape Measure (all others to be supplied by the Contractor)
- 1 Line Level
- 1 Spud Wrench (15/16")

Electrician/Apprentice

- 1 Tool Box
- 1 Belt and Pouch
- 1 Needle Nose Plier
- 1 8" Linesman Pliers
- 1 Side Cutting Pliers
- 1 Channel Locks
- 1 Hacksaw Frame
- 3 Straight Head Screwdrivers
- 3 Robertson Head Screwdrivers, #6, 8 and 10
- 3 Phillips Head Screwdrivers, #6, 8 and 10
- 1 Set Allen Key Wrenches up to ½"
- 1 Measuring Tape (12 feet)
- 1 Knife
- 1 Claw Hammer
- 1 Ball Peen Hammer
- 1 10" Pipe Wrench
- 1 Set Socket Head Drivers or Nut Drivers
- 1 Box End Wrenches or Adjustable Wrench
- 1 Flashlight
- 1 Meter A/C, Amps/Volts/Ohms
- 1 Metal Rule, 3 Meter Minimum

For all other trade classifications, employees shall provide the regular tools of the trade which are reasonably necessary to perform the required work, as specified by the Contractor.

SCHEDULE "H"
EXTENDED WORK SCHEDULES

WORK SCHEDULE A: TEN (10) DAYS ON / FOUR (4) DAYS OFF

The following terms and conditions apply to employees, who work this schedule:

- a) The Work Schedule may commence on any day of the week.
- b) The Work Schedule will consist of ten (10) consecutive scheduled days of work followed by four (4) scheduled days of rest. Each work day will consist of a shift of ten (10) regularly scheduled hours of work.
- c) The scheduled hours to be worked and the scheduled hours to be paid (straight time and overtime) are detailed in Table A.
- d) Work performed outside of the ten (10) regularly scheduled hours of work in a scheduled day of work or on a scheduled day of rest will be paid as per the provisions of this Agreement.
- e) An employee, who is transferred to a different Work Schedule, must be provided with notice as per the provisions of this Agreement. If an employee requests a transfer and it is approved, then overtime rates will not apply for days worked in the scheduled four (4) days of rest, unless any of the ensuing days worked in the new Work Schedule are a Friday, Saturday, Sunday or Recognized Holiday in which case the applicable over-time rate will apply. If the transfer is not as a result of an employee request, overtime provisions will apply for days worked on the scheduled days of rest that the employee would have been entitled to under his/her previous schedule.
- f) Overtime meals will be as per the provisions of this Agreement.
- g) The hours set forth in this Work Schedule do not constitute a guarantee of hours of work per day.

Table A: Ten and Four Work Schedule (Ten days of 10 hours worked, 4 days off)

DAY	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su
ST	10	10	10	10				10	10	10				
1.5 T					10	10								
2.0 T							10							

WORK SCHEDULE E: TWENTY-ONE (21) DAYS ON / SEVEN DAYS (7) DAYS OFF

The following terms and conditions apply to employees, who work this schedule:

- a) The Work Schedule may commence on any day of the week.
- b) The Work Schedule will consist of twenty-one (21) consecutive scheduled days of work followed by seven (7) scheduled days of rest. Each work day will consist of a shift of ten (10) regularly scheduled hours of work.
- c) The scheduled hours to be worked and the scheduled hours to be paid (straight time and overtime) are detailed in Table E.
- d) Work performed outside of the ten (10) regularly scheduled hours of work in a scheduled day of work or on a scheduled day of rest will be paid as per the provisions of this Agreement.
- e) An employee, who is transferred to a different Work Schedule, must be provided with notice as per the provisions of this Agreement. If an employee requests a transfer and it is approved, then overtime rates will not apply for days worked in the scheduled seven (7) days of rest, unless any of the ensuing days worked in the new Work Schedule are a Friday, Saturday, Sunday or Recognized Holiday in which case the applicable over-time rate will apply. If the transfer is not as a result of an employee request, overtime provisions will apply for days worked on the scheduled days of rest that the employee would have been entitled to under his/her previous schedule.
- f) Overtime meals will be as per the provisions of this Agreement.
- g) The hours set forth in this Work Schedule do not constitute a guarantee of hours of work per day.

Table E: Twenty-one and Seven Work Schedule (21 days of 10 hours worked, 7 days off)

Day	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	
ST	1 0	1 0	1 0	1 0				1 0	1 0	1 0	1 0				1 0	1 0	1 0	1 0											
1.5T					1 0	1 0						1 0	1 0						1 0	1 0									
2.0T							1 0							1 0							1 0								

LETTER OF UNDERSTANDING**UNION / ASSOCIATION SITE REPRESENTATIVES**

The Association, Contractors and the Union agree that the designated Union Site Representative and designated Association Site Representative (hereinafter the "Site Representatives") may be provided with accommodations at the Accommodations Complex, referred to in Article 24 (the "Accommodations Complex") when the Site Representative(s) is/are required to travel to and from the Project on Liaison Committee business and the Site Representative(s) permanently resides at a distance of one hundred (100) kilometers, or greater, from the designated reporting point or work location as per Article 19, whichever is the case, to the city or town boundary of the community of the Site Representative's permanent residence, using the most direct route. The provision of accommodations at the Accommodations Complex to the Site Representative(s) shall be subject to availability. Should there be no available accommodations at the Accommodations Complex, the Site Representative(s) shall not be entitled to board allowance as per Article 25.

In the event an overnight stay is required because the Site Representative(s) is/are unable to leave from the designated reporting point or work location due to weather or other circumstances beyond the control of the Site Representative(s), the Site Representative(s) may remain in the Accommodations Complex, subject to availability, until the Site Representative(s) is/are able to leave.

The Association and Union shall compensate the Owner, or its designee, in an amount of one hundred and fifty dollars (\$150.00) or such other reasonable amount as is approved by the Association in consultation with the Union, per Site Representative for each night the Site Representative(s) stay(s) at the Accommodation Complex. Should the Site Representative(s) fail to make use of the Accommodations Complex after a request for accommodation has been received and approved, the Union and/or Association, as the case may be, may be charged at the full rate of one hundred and fifty dollars (\$150.00) or such other reasonable amount as is approved by the Association in consultation with the Union, for each night not used and may forfeit their right to accommodations.

Signed at St. John's, Newfoundland and Labrador this 28th day of January, 2013.

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

(digital copy of signed agreement)
Phil Flemming

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, LOCAL 1620

(digital copy of signed agreement)
Terry Rose

(digital copy of signed agreement)
Don Murphy

LOWER CHURCHILL TRANSMISSION CONSTRUCTION EMPLOYERS' ASSOCIATION INC.

(digital copy of signed agreement)
Lance Clarke
Director

(digital copy of signed agreement)
David Clark
Director

LOWER CHURCHILL TRANSMISSION CONSTRUCTION
EMPLOYERS' ASSOCIATION INC.

MEMORANDUM OF UNDERSTANDING

Between:

Lower Churchill Transmission Construction
Employers' Association Inc.
("Association")

and

International Brotherhood of Electrical Workers and
IBEW Local Union 1620
("Union")

Re: Gender Equity and Diversity Implementation

The Association and IBEW agree as follows:

1. To support and promote initiatives and plans for employment diversity.
2. To provide full access to employment opportunities for and employment of qualified women and qualified members of underrepresented groups (aboriginals, persons with disabilities and members of visible minorities).
3. To implement proactive programs and practices that contribute to the creation of an inclusive work environment consistent with the policies established for the Project and commitments in the Gender Equity and Diversity Program.
4. To achieve diversity objectives, the Parties have agreed to the name hiring provisions set out in Article 7.08(b) & (c).
5. The Collective Agreement will not frustrate access to employment for underrepresented groups.

AGREED to this 17th day of May, 2013 in the City of St. John's, in the Province of Newfoundland and Labrador

(digital copy of signed agreement)
Lower Churchill Transmission Construction
Employers' Association Inc.

(digital copy of signed agreement)
International Brotherhood of Electrical
Workers

(digital copy of signed agreement)
IBEW Local Union 1620

67 LeMarchant Road, St. John's, NL A1C 2G9 * tel 1-800 or 709 753-6071 * fax 709-722-5203 * www.ibew1620.com

LETTER OF UNDERSTANDING

Between

Lower Churchill Employers Association ("Association")

And

International Brotherhood of Electrical Workers and Local 1620 ("IBEW and Local Union")

RE: Health and Welfare Fund Adjustment

IT IS HEREBY AGREED THAT the Association, the IBEW and the Local Union recognize based on an evaluation by the administrators of IBEW Local 1620 Benefit Funds that the Health and Welfare deductions as outlined in Schedule "C", Wages and Benefits, effective May 1, 2013, are underfunded by \$1.00 per hour.

THEREFORE the parties agree that to offset this shortage, \$1.00 per hour will be moved from the Pension Fund deduction which is currently at \$5.80 per hour and deposited with the Health and Welfare Fund to show a \$2.00 per hour total contribution, thus leaving the Pension Fund amount showing as \$4.80 per hour total contribution for the period of May 1, 2013 to April 30, 2014 only.

THE PARTIES FURTHER AGREE that Schedule "C", Wages and Benefits effective May 1, 2014 will continue as originally negotiated under the project agreement for each successive year thereafter.

July 18, 201

 DATE

(digital copy of signed agreement)

 Lower Churchill Transmission
 Construction Employers' Association
 Inc. ("Association")

 DATE

(digital copy of signed agreement)

 International Brotherhood of Electrical
 Workers

 DATE

(digital copy of signed agreement)

 International Brotherhood of Electrical
 Workers and Local 1620

LOWER CHURCHILL TRANSMISSION CONSTRUCTION
EMPLOYERS' ASSOCIATION INC.

MEMORANDUM OF UNDERSTANDING

Between:

Lower Churchill Transmission Construction
Employers' Association Inc.
("Association")

and

International Brotherhood of Electrical Workers and
IBEW Local Union 1620
("Union")

RE: Notice of Sub-Contractors and/or Owner/Operators to be given by Contractor

The Parties have agreed that any sub-contractor and/or Owner/Operator that is engaged by a Contractor to carry out construction work on the Project, such Contractor shall provide thirty (30) days' notice where practical to the Union prior to the sub-contractor and/or Owner/Operator commencing work.

The Association and Union agree as follows:

1. That when any sub-contractor and/or Owner/Operator is engaged by a Contractor to carry out construction work on the Project, such Contractor shall provide thirty (30) days' notice where practical to the Union of the utilization of such sub-contractor and/or Owner/Operator prior to the sub-contractor and/or Owner/Operator commencing work.

AGREED to this 10th day of September, 2013 in the City of St. John's, in the Province of Newfoundland and Labrador.

(digital copy of signed agreement)
Lower Churchill Transmission Construction
Employers' Association Inc.

(digital copy of signed agreement)
International Brotherhood of Electrical Workers

(digital copy of signed agreement)
International Brotherhood of Electrical Workers
Local 1620

LOWER CHURCHILL TRANSMISSION CONSTRUCTION
EMPLOYERS' ASSOCIATION INC.

MEMORANDUM OF UNDERSTANDING

Between:

Lower Churchill Transmission Construction
Employers' Association Inc.
("Association")

and

International Brotherhood of Electrical Workers and
IBEW Local Union 1620
("Union")

RE: Application of Article 28.01(a) Labrador and Island Premiums

The Parties have agreed that the Labrador and Island Premiums shall be paid weekly. The premiums are not part of the wage package and do not attract vacation pay and recognized holiday pay.

The Association and Union agree as follows:

1. That the Contractor shall pay the Labrador and Island Premiums as contained in Article 28.01(a) weekly.

AGREED to this 28th day of October, 2013 in the City of St. John's, in the Province of Newfoundland and Labrador.

(digital copy of signed agreement)
Lower Churchill Transmission Construction
Employers' Association Inc.

(digital copy of signed agreement)
International Brotherhood of Electrical Workers

(digital copy of signed agreement)
International Brotherhood of Electrical Workers
Local 1620

LOWER CHURCHILL TRANSMISSION CONSTRUCTION
EMPLOYERS' ASSOCIATION INC.

MEMORANDUM OF UNDERSTANDING

Between

Lower Churchill Transmission Construction
Employers' Association Inc.
("Association")

and

International Brotherhood of Electrical Workers
("IBEW")

and

IBEW Local Union 1620
("IBEW 1620")

RE: Health & Welfare

WHEREAS the parties hereto entered into a collective agreement as contemplated by Section 70 of the *Labour Relations Act RSNL 1990, c L-1*, dated the 28th day of January 2013 for work with respect to the Lower Churchill Project Transmission Construction Collective Agreement (the "Project Agreement");

AND WHEREAS Article 26 and Schedule C of the Project Agreement provide for the payment of Health and Welfare (the "Health and Welfare Payments");

AND WHEREAS the Parties recognize that some of the Contractors that will be carrying out work pursuant to the Project Agreement, may, at the time of commencing work under the Project Agreement, have in place a Health and Welfare Benefits Plan ("Contractor's Plan") for the benefit of bargaining unit employees;

AND WHEREAS the IBEW and IBEW 1620 have agreed to consider any reasonable request from Contractors to opt out of the Health and Welfare Payments required by the Project Agreement, provided the Contractor maintains the Contractor's Plan and continues to pay the premiums for the Contractor's Plan in the same manner it did immediately prior to commencing work under the Project Agreement. For example, if the premiums for the Contractor's Plan were paid 100% by the Contractor, this would continue or if the premiums were co-paid 50% by the Contractor and 50% by the employee or some other ratio, such ratio would continue.

NOW THEREFORE the Parties have agreed as follows:

1. Any Contractor who has a Contractor's Plan which would provide coverage to bargaining unit members and such plan is in place at the time the Contractor is awarded the work that is subject to the Project Agreement, may request, in writing, to the IBEW and IBEW 1620, with a copy to the Association, to have the Health and Welfare Payments paid directly to the bargaining unit employee, less any co-pay amount required to be paid by the bargaining unit employee pursuant to the Contractor's Plan. The Health and Welfare Payments paid directly to the bargaining unit employee shall not be part of the Base Rate as set out in the Project Agreement and shall not be subject to overtime, vacation pay, holiday pay or any other premium pursuant to the Project Agreement.
2. Upon making such request the Contractor shall provide the IBEW and IBEW 1620 with the following: written verification of the Contractor's Plan; written verification of the bargaining unit employee's enrolled in the Plan; coverage provided by the Contractor's Plan and the allocation of premium payments between the Contractor and the bargaining unit employee.
3. Where the IBEW and IBEW 1620 agree to the Contractor's request, the Contractor shall:
 - a. Maintain the Contractor's Plan or an equivalent plan with similar benefits for the duration of the Contractor's work on the Project;
 - b. Continue to pay the Contractor's contribution and employee's contributions in the same ratio as paid prior to commencing work on the Project pursuant to the Project Agreement; and
 - c. Identify the employee's contributions to the Contractor's Plan as per Article 26.02 of the Project Agreement "Statement of Earnings and Deductions".

AGREED to this 31st day of January, 2014 at the City of St. John's, Newfoundland and Labrador

(digital copy of signed agreement)
Lower Churchill Transmission Construction
Employers' Association Inc.

(digital copy of signed agreement)
International Brotherhood of Electrical
Workers

(digital copy of signed agreement)
IBEW Local 1620

LOWER CHURCHILL TRANSMISSION CONSTRUCTION
EMPLOYERS' ASSOCIATION INC.

MEMORANDUM OF UNDERSTANDING

Between

Lower Churchill Transmission Construction
Employers' Association Inc.
("Association")

and

International Brotherhood of Electrical Workers
("IBEW")

and

IBEW Local Union 1620
("IBEW 1620")

RE: Pension and Registered Retirement Savings Plan

WHEREAS the parties hereto entered into a collective agreement as contemplated by Section 70 of the *Labour Relations Act RSNL 1990, c L-1*, dated the 28th day of January 2013 for work with respect to the Lower Churchill Project Transmission Construction Collective Agreement (the "Project Agreement");

AND WHEREAS Article 26 and Schedule C of the Project Agreement provide for the payment of, among other things, pension contributions (the "Pension Contributions");

AND WHEREAS the Union and Association recognize and agree that some of the employees that will work as bargaining unit members under the Project Agreement will not, as a result of their circumstances and duration of employment, meet the conditions in the Union Pension Plan required to provide for the vesting of pension benefits resulting from the Pension Contributions made in accordance with Article 26 Wages and Benefits, and Schedule C (the "Non-Vesting Employees");

AND WHEREAS the Parties have agreed, subject to the conditions contained in this MOU, that the Non-Vesting Employees shall have the option to have the amounts specified on Schedule C for Pension Contributions to be paid into a Registered Retirement Savings Plan sponsored by the Union as a Group RRSP (the "Group RRSP") for the benefit of such Non-Vesting Employee(s).

NOW THEREFORE the Parties agree as follows:

1. Any Employee who does not have vested Pension Contributions in the Union Pension Plan, or is not a member of IBEW Local 1620 or a member of IBEW Local 2330 immediately prior to being hired to work on the Project, will, upon being hired and prior to the first day of each month, have the option to direct the Pension or Group RRSP amount specified on Schedule C be paid into the Group RRSP for the benefit of such Employee, rather than into the Union Pension Plan. Once the Employee directs the Pension or Group RRSP amount specified on Schedule C be paid into the Group RRSP, such employee may not elect to participate in the Union Pension Plan in the future without the written approval of the Union;
2. Amend Article 26.02(l) of the Project Agreement by inserting the words “or RRSP contributions” immediately after the words “Pension contributions”; and
3. Amend Schedule C Gross Hourly Packages which is attached to the Project Agreement by including the underlined amendments as set out in the Schedule C attached hereto.

AGREED to this 11th day of April, 2014 at the City of St. John’s, Newfoundland and Labrador

(digital copy of signed agreement)
Lower Churchill Transmission Construction
Employers’ Association Inc.

(digital copy of signed agreement)
International Brotherhood of Electrical
Workers and IBEW Local 1620

Nalcor Energy – Lower Churchill Project



CODE OF CONDUCT AND BUSINESS ETHICS HANDBOOK

Nalcor Doc. No. LCP-PT-MD-0000-HR-SD-0003-01

Comments:	Total # of Pages: (Including Cover): 29
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B1	06-Jun-2014	Issued for use				
Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval	Quality Assurance Approval	Project Manager (Generation + Island Link) Approval

CONFIDENTIALITY NOTE:
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CODE OF CONDUCT AND BUSINESS ETHICS HANDBOOK		
Nalcor Doc. No.	Revision	Page
LCP-PT-MD-0000-HR-SD-0003-01	B1	1

Inter-Departmental / Discipline Approval (where required)

Department	Department Manager Approval	Date
	 B. Crawley	

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1 PURPOSE

This handbook should be used as a guide to practice responsible and ethical behaviour. The Code outlines Nalcor's commitment to professional and ethical business practices.

2 SCOPE

The code defines the standards of conduct expected of our employees at all Nalcor Energy companies- including any contractors, suppliers, agents, officers or directors and anyone else who may represent the views or interests of our company.

3 DEFINITIONS

n/a

4 RESPONSIBILITIES

n/a

5 REFERENCES

n/a

6 MANAGEMENT PLAN / PROCEDURE / WORK INSTRUCTION

n/a

7 RECORDS

n/a

8 ATTACHMENTS

Code of Conduct and Business Ethics Handbook

ATTACHMENT 8.1

Code of Conduct and Business Ethics Handbook



Code of Conduct and Business Ethics Handbook



Vision

Our vision is to build a strong economic future for successive generations of Newfoundlanders and Labradorians.

Values

At Nalcor Energy, our employees share a set of values that shape how we do business every day. Our core values set common direction on how to make decisions with a sense of pride and leadership. We recognize that it is not only what we achieve, but how we achieve it that truly makes us proud of our accomplishments.

Open Communication – Fostering an environment where information moves freely in a timely manner.

Accountability – Holding ourselves responsible for our actions and performance.

Safety – Relentless commitment to protecting ourselves, our colleagues and our community.

Honest and Trust – Being sincere in everything we say and do.

Teamwork – Sharing our ideas in an open and supportive manner to achieve excellence.

Respect and Dignity – Appreciating the individuality of others by our words and actions.

Leadership – Empowering individuals to help guide and inspire others.

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As President and CEO of Nalcor Energy, one of my most important duties is to ensure a work environment based on trust and respect, which enables employees to work without fear of intimidation, discrimination and retaliation. Enjoying our jobs is the first step. However, all of us should also have the comfort of knowing we work in a safe, secure and ethical workplace. Only then can we all feel proud to work here, feel good about our jobs, and work productively. Every person, regardless of position, shares in the responsibility for promoting a positive work environment.

To support this type of workplace, the Board of Directors adopted the *Code of Business Conduct and Ethics* (Code) for employees of all Nalcor Energy companies to reinforce the company's commitment to professional and ethical business practices. Nalcor Energy is growing and employees are increasingly dealing with more sensitive information. This Code provides general guidance and principles for the more complex business reality. The purpose of this policy is to provide guidelines on conflict of interest and ethical business practices and conduct and to promote expected standards of conduct. It also provides general guidance on how to avoid and report potential conflicts of interest and unethical business conduct.

This code links together many existing policies and legislation like our harassment policy, conflict of interest and Occupational Health and Safety legislation. It also addresses Nalcor's safety programs like the Internal Responsibility System. The content of the Code should be familiar to you. You'll also notice, the Code is supported by our values:

accountability, respect and dignity, safety, leadership, teamwork, open communications and honesty and trust.

Nalcor is committed to professional and ethical business practices. As you review the Code, if you have any questions or concerns, please take the opportunity to discuss these with your manager or feel free to contact me as well. Your cooperation is essential to ensure that we maintain a positive, productive workplace.

Regards,



Ed Martin

President and CEO





1. What the Code Means to Nalcor Employees

Our organizational goals are what define Nalcor Energy as a company dedicated to safety, the environment, business excellence, our people and our community. To ensure all Nalcor Energy companies meet our goals, we must practice the highest standards of business conduct and ethics.

This handbook should be used as a guide to practice responsible and ethical behaviour. The complete Code outlines Nalcor's commitment to professional and ethical business practices, and can be found in the policies and procedures section of the GRID. The Code defines the standards of conduct expected of our employees at all Nalcor Energy companies – including any contractors, suppliers, agents, officers or directors and anyone else who may represent the views or interests of our company.

Everyday, in everything we do, we must behave ethically, honestly and with credibility. When we apply this Code to the work we do, we become an organization that is a corporate leader not only in Newfoundland and Labrador, but around the world.

2. Purpose and Responsibilities

The Code identifies a standard for all our employees to follow when confronted with a situation that may cause us to question our ethics and principles at work. The Code defines what Nalcor considers conflicts of interest and potential conflicts of interest, as well as unethical business practices and conduct. Guidance is also provided through the Code to handle, and avoid, these situations all together.

When we follow the values and spirit of this Code, we ensure Nalcor is an organization with a reputation of integrity and sound business practices and conduct.

We all carry an individual responsibility to apply the principles of the Code to our work. The Code explains what accountabilities exist for Nalcor employees, Supervisors and Managers.

Employees

The first responsibility for Nalcor employees is to ensure we read and understand the Code. Following that, as employees, we must always conduct ourselves in a manner that reflects the principles of ethical behaviour, and avoid situations which may present a conflict of interest.

To protect the reputation of our company, employees have a responsibility to ensure everyone we work with complies with the standards and requirements of the Code. To respect our colleagues, customers, and Shareholder, we have a duty to immediately disclose any situation that may go against the principles or spirit of the Code.

Supervisors and Managers

Supervisors and Managers should always demonstrate the principles of the Code. Our Supervisors and Managers must be aware of any conduct that contradicts the Code and follow proper procedure to manage any issue. You also have a responsibility to provide guidance to employees about the Code, and address any concerns employees may raise about ethics and conduct in the workplace. Supervisors and Managers must also ensure that all Nalcor employees are provided with a copy of the Code and understand its requirements.



3. Key Principles

Four key principles guide how we should apply the Code in our day-to-day work. By understanding and following these principles, we can ensure respectable and consistent behaviour across the company.

- The commercial, reputational and other interests of Nalcor Energy must always take precedence over personal interests and those of third parties.
- We must always avoid any act or conduct – intentional or not – that may support the private interests of a third party or an individual over those of Nalcor Energy.
- Any conflict of interest – real or perceived – has the potential to impair the company’s credibility, reputation and commercial interests.
- We have an obligation to perform our duties and responsibilities in a conscientious manner, and never allow our personal interests to conflict with Nalcor’s.

All parties with whom we conduct business have the right to expect the highest standards of respect, professionalism and business ethics in their dealings with us.

We must demonstrate our commitment to business conduct and ethics in every interaction with our external stakeholders. Customers, suppliers, partners, competitors, shareholder representatives and regulators are among the external stakeholders with whom we regularly carry out business.

We are guided by our organizational values in the things we do and the decisions we make.

We must consider Nalcor's organizational values, standards and principles whenever we represent the company. Nalcor is committed to being an ethical and honest organization, this commitment should be considered in all Nalcor's strategies, plans and decisions.



4. Standards of Business Conduct

The Standards of Business Conduct is the corporate commitment to comply with applicable laws and established sound corporate business standards and practices. When our company fails to meet these standards, we risk damaging our reputation.

Compliance with Laws

In addition to following the Code and other corporate policy and procedures, all Nalcor Energy employees must comply with the applicable laws and regulations of the provinces and countries where we operate. Nalcor employees must never engage in, condone, or encourage any behaviour that is illegal or is not compliant with the Code. We all have an individual responsibility to understand the laws that apply to our work, recognize potential noncompliance and know when to ask for help to report on activity that is illegal or is contrary to the Code.



Safety and Health

Nalcor is committed to being a safety leader. This means ensuring we implement effective safety policies and procedures. To be a safety leader, we must also ensure organization-wide compliance with all applicable laws and standards to protect the health, safety and well being of our employees, contractors, customers and the public.

Employees must take all steps required to work safely. We all have a duty to support a working environment without injury and to foster a culture where everyone is committed to safety.

When working with each other or external parties, we must observe and actively promote Nalcor's core safety rules, which are central to our safety credo.

1. I always follow safety requirements and best practices.
2. I always take the time to complete my work safely.
3. I always take action when I see unsafe acts or conditions.



Environmental Protection

Being an environmental leader is an important goal for Nalcor Energy. Our *Environmental Policy and Guiding Principles* ensures the company sustains a diverse and healthy environment now and in the future. Nalcor's environmental principles maintain a high standard of environmental responsibility and performance. To ensure our environment is sustainable, we should all take time to understand our environmental policy and our commitment to meet and exceed environmental laws and regulations. Nalcor is working to prevent pollution and continually improve our own environmental performance. The goal of environmental protection cannot be achieved without the support and dedication of our employees and contractors.

If you observe someone endangering the environment, your legal and ethical responsibility is to report the situation to a Supervisor. When we take time to work in an environmentally-responsible manner and report environmental non-compliance, we ensure Nalcor builds its reputation as a company with sound environmental principles and actions.







5. Respecting Each Other

Each and every Nalcor employee contributes to the success of our company. We must respect one another and value each other for the different perspectives and experiences we all bring to the company. Mutual respect across divisions and lines of business will result in collaboration and new ideas to ensure Nalcor not only grows, but flourishes into the future and we achieve our vision.

Respect and Dignity

Nalcor employees deserve to work in an environment where they are treated fairly and with respect. We must all take steps to ensure we are respectful of others, supportive of the dignity and self-esteem of every person and promote an environment that is free of harassment. The importance of treating each other with respect applies to all Nalcor employees, regardless of their role or position.

Behaviours considered disrespectful and not supported by Nalcor include:

Harassment – Any behaviour directed at a person that is unwelcome and/or offensive will not be tolerated. Examples of behaviour that is considered harassment includes:

- threats
- unwelcome remarks
- derogatory comments or innuendo which may humiliate, insult or intimidate a person
- personal or sexual harassment
- abuse of authority
- any other conduct which denies a person their dignity and respect in any other way

Discrimination – We all deserve, and should expect, a workplace free of discrimination. Discrimination can be based on an individual's race, religion, religious creed, political opinion, color or ethic, national or social origin, sex, sexual orientation, marital or family status, physical or mental disability or age. The Newfoundland and Labrador Human Rights Code and the Canadian Charter of Rights and Freedoms provide basic protections against discrimination. We are all expected to apply those same standards in all our interactions as Nalcor employees.

Personal dignity and mutual respect – We are all responsible to encourage a work environment where a diversity of views, opinions and backgrounds is valued. The diversity of views and opinions of employees is a key factor in Nalcor's vitality and success. Any behaviour which denies individuals their dignity and respect is out-of-line with the Code, and the company's organizational values and principles, and will not be tolerated.

Offensive material – The posting or use of offensive, sexist, sexually explicit, racist or other discriminatory material in the work environment is never acceptable. At Nalcor, the work environment is considered the physical location where an employee performs their duties. Offensive material is prohibited on all Nalcor equipment and property, including its e-mail and intranet/internet systems and any other location that offends others.

“The importance of treating each other with respect applies to all Nalcor employees, regardless of their role or position.”



6. Protecting Our Business

Nalcor Energy's vision is to build a strong economic future for successive generations of Newfoundlanders and Labradorians. We are all responsible to contribute to the company's mandate to lead the development of the province's energy resources. To be successful, elements of Nalcor's business must be valued and protected. To protect the company and our stakeholders, we must ensure the effective management of our corporate assets, financial information and respect confidentiality and privacy requirements.

Protection of Corporate Assets

Nalcor Energy has an internal system of controls, policies and procedures designed to prevent fraud, misappropriation and other financial irregularities. To ensure the system is effective, we must all make an effort to protect Nalcor's assets against loss, damage, unauthorized use, theft and disposal. Assets may be tangible, including facilities, equipment, supplies, vehicles and property, or intangible, such as intellectual property, trade secrets and customer, business and confidential data and information.

Unless information has been produced specifically for external consumption, all Nalcor information – including records, data, project specifications and plans and processes, policies and procedures – are considered proprietary corporate information and must not be shared without proper authorization.

When circumstances arise where it is advisable or required for employees to share confidential information with external parties, we must work with management to ensure all parties must agree to, and sign, a Non-Disclosure Agreement. At any time that a contract or employment with Nalcor ends, any information or documents related to the company must also be returned.

Privacy and Confidentiality

Protecting the privacy and confidentiality of personal, business, employee, customer and contractor information is critical to maintaining Nalcor's credibility. We must all be diligent about protecting the privacy and confidentiality of our colleagues, our Shareholder, partners and customers. As a general rule, confidential information should never be released to external parties unless required by law or authorized by the affected party. To ensure we comply with privacy requirements, we should always appropriately secure any information considered confidential.

Nalcor employees who utilize the company's electronic databases or mail systems should familiarize themselves with the corporate policies and procedures regarding the storage, use and transmission of all confidential information.

Financial Information

Nalcor is dedicated to maintaining a reputation of being a financially accountable organization. All of the company's financial information, data and records are accurate, reliable, factual and complete, and are retained to meet the requirements of applicable laws and standards. Nalcor discloses its financial information in compliance with Canadian generally accepted accounting principles and all applicable laws. The company also makes full, accurate and plain disclosure in any report provided to regulatory authorities.

Security and Emergency Measures

The protection of life and property at Nalcor is committed through the development and implementation of corporate security and emergency measures, policies and processes. An example of security measures at Nalcor is the requirement for visitors to be made aware of facility safety policies and procedures.

Intellectual Property

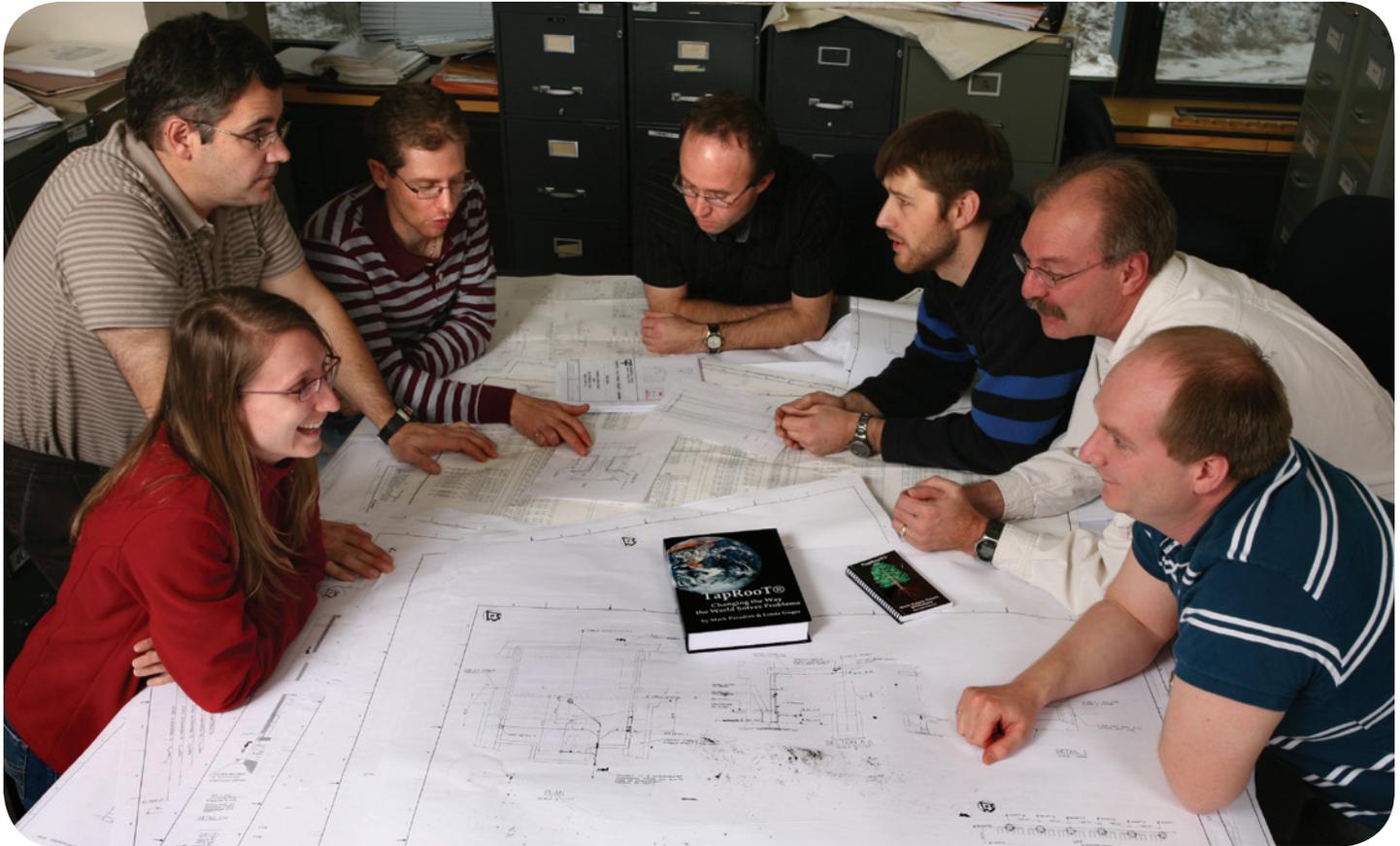
In the performance of their duties and responsibilities, Nalcor Energy representatives may develop an innovative product that is tangible or intangible – known as intellectual property. All employees must understand that any intellectual property created while an individual is employed by, or on contract with Nalcor, belongs to the company. Because intellectual property is owned by Nalcor, the company has the rights to the intellectual property, unless otherwise authorized.

Competitors

Nalcor Energy will never support any information gathering on a competitor that is illegal or unethical. Anytime a Nalcor employee gathers information about a competitor, it must be done in a manner that is both legal and ethical. Employees should never directly or indirectly solicit proprietary or confidential information about competitors. Information that may be considered proprietary or confidential must never be solicited from any colleague who may have once worked for, or who is currently employed by, a competitor.



“Nalcor Energy will never support any information gathering on a competitor that is illegal or unethical.”





7. Conflict of Interest

At all times, employees must avoid any conflict of interest – potential or real. Agents of the Province of Newfoundland and Labrador, including Nalcor and Newfoundland and Labrador Hydro, are governed by the Conflict of Interest Act (Act). Although not all Nalcor Energy lines of business are considered Crown corporations, this Code requires that all employees comply with the spirit and intent of the Act. The Act outlines responsibilities and behaviours we should always practice to avoid any potential conflict of interest. Any employee of an outside organization or contractor working with Nalcor must also follow the spirit and intent of the Act.

We should consider the implications of an activity that adversely affects, or could affect, our performance as a Nalcor employee to be a potential conflict of interest. Employees should refrain from any activity that could offer a personal advantage because of their employment at Nalcor.

Avoiding Conflict of Interest

To avoid any potential conflict of interest, we should exercise best personal judgment at all times. If there is any question if a situation could be a conflict, it is recommended to disclose the matter to a Supervisor or Manager. Guidelines are offered in the Code to help avoid conflict of interest.

Tips to avoid conflict of interest

- Do not participate in making a decision where there may be an opportunity to improperly benefit an individual or family member – directly or indirectly.
- We are not to use our positions to influence decisions that could result in a personal benefit for ourselves or family members.
- Confidential information that is not available to the general public cannot be used for personal gain, or the benefit of family members or anyone else.
- Other than compensation provided by Nalcor, we must never accept a fee, gift or personal benefit, unless a gift is given as a matter of business custom. Cash gifts are never acceptable.
- Employees must not let offers of future employment influence their duties or decisions as a Nalcor representative.
- Insider trading is the buying and selling of securities on the basis of insider knowledge – this means knowledge that is not available to the public. Any Nalcor employee who violates provincial or Canadian insider trading laws will be subject to both legal penalties and termination of employment.
- Price-fixing, bid-rigging, kickbacks or any other similar activity related to competitions are never acceptable. Any employee who engages in these sort of activities will be subject to immediate termination and any applicable legal recourse.
- Nalcor Employees cannot personally enter a contract with an outside company or vendor, except under the following circumstances:
 - the contract existed before the individual became a Nalcor employee
 - the contract was awarded by public tender
 - the contract was made in an emergency
 - the contract is for goods and services which cannot be provided by any other vendor
 - the individual is an employee of Churchill Falls (Labrador) Corporation Limited, and the circumstances of the contract fall under the provisions of Site Administration Regulation No. 5.6

Entertainment, Gifts and Favours

When we accept any sort of invitation, gift or other benefit, we must be mindful to avoid any situation that could be perceived as a conflict of interest. Gifts may only be accepted as a gesture of appreciation, hospitality or civility and be part of routine business relationships. Gifts and benefits should never be accepted if preferential treatment could be perceived.

Business meals and entertainment are acceptable when they are consistent with accepted business practices. They should only be accepted to further normal business relations, and should never be extravagant. All business meals or entertainment, received or provided, must be approved by a Supervisor or Manager.

“Employees are always expected to exercise good judgement in evaluating a donor’s reason or reasons for offering a gift.”

Gifts must never be accepted when the offering party is in a Request for Proposal or contractor selection process with Nalcor, or if the party has a relationship with a bid or another company making a bid.

Nominal Value

When accepting any gift, entertainment or other favour, the value of the gift must not exceed \$150 CDN. If a gift is offered above this value, the gift must be disclosed to a Supervisor or Manager.

A Supervisor or Manager may approve the acceptance of any such offer when circumstances justify it as an appropriate gesture of appreciation, hospitality or civility. When receiving an offer above the acceptable nominal value, alternatives such as donating the gift to a charitable organization or sharing the benefit with the department rather than an individual should be considered.

Employee Judgement

Employees are always expected to exercise good judgement in evaluating a donor’s reason or reasons for offering a gift. Prior to accepting a gift, we should always consider the effect a gift may have on our actions and how others may perceive the gift. If there are any questions or doubts about whether a gift, entertainment or other benefit should be accepted, the gift should be politely refused.

Outside Business Interests

Any outside business interest should never interfere with our employment at Nalcor. To ensure we always influence our best judgement as Nalcor employees, employees cannot be employed by an outside business during the employee's regular working hours for Nalcor. The company's real property, intellectual property, equipment or supplies must also never be used for outside business purposes.

To avoid any perception of conflict of interest, employees cannot promote or advertise outside business interests to co-workers during work hours. Employees should not be contacted at Nalcor offices by customers or partners outside of the employee's role at Nalcor.

Outside companies in which a Nalcor employee has an interest cannot enter into a contract with Nalcor unless the following provisions are met:

- a) the shareholding or interest of the employee is 10 per cent or less; or,
- b) Nalcor's Chief Executive Officer (CEO) agrees the employee is not in a position to influence the awarding of the contract, and that there is no conflict with the individual's public duties; or,

- c) the CEO decides the employee's shareholding or interest in the outside company will not interfere with the individual's duties and responsibilities as a Nalcor representative; or
- d) the CEO is satisfied that the employee's shareholding or interest has been placed in a trust which will prevent the individual from exercising authority or control over the affairs of the outside corporation or partnership.

Disclosure

Whenever we find ourselves in a situation we reasonably believe is, or could be, a potential conflict of interest, we must disclose the nature of the conflict to our Supervisor, Manager or Vice President. After a conflict has been disclosed, we must immediately remove ourselves from the situation.

8. References Related to the Code

- The **Code of Conduct and Business Ethics** provides additional information on Nalcor's standards of business conduct and ethics.
- For more information on Nalcor's **Safety and Health** policies, consult the *General Policy Statement – Health and Safety* and *Safety and Health Program* documents.
- Nalcor Energy's *Environmental Policy and Guiding Principles* provides additional direction about the company's **environmental protection guidelines**.
- Additional corporate policies provide requirements and guidelines about **respect and dignity** of others at Nalcor Energy.
 - Corporate policy EMR 14 *Respectful Workplace*
 - Corporate policy COR 16 *Internet Access*
 - Corporate policy COR 17 *Electronic Mail System Usage*
- The *Dishonest or Fraudulent Activities Policy* (Corporate standard EMR-18) provides additional requirements and guidelines about the protection of Nalcor assets.
- The corporate policy *EMR 8: Conflict of Interest* provides additional requirements and guidelines on **conflicts of interest** that apply to Nalcor employees.



Nalcor Energy – Lower Churchill Project



LCP SITE HANDBOOK

Nalcor Doc. No. LCP-PT-MD-0000-HR-MN-0001-01

Comments: Supersedes LCP-PT-MD-0000-HR-PY-0001-01	Total # of Pages: (Including Cover): 101
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Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval	Quality Assurance Approval	Project Manager (Generation + Island Link) Approval

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LCP SITE HANDBOOK		
Nalcor Doc. No.	Revision	Page
LCP-PT-MD-0000-HR-MN-0001-01	B1	1

Inter-Departmental Approval (where

/ Discipline required)

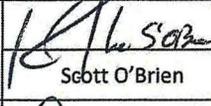
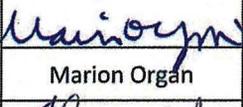
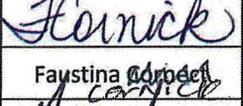
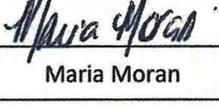
Department	Department Manager Approval	Date
Deputy Manager Project Manager	 Jason Kean	24-Apr-2014
Project Manager Muskrat Falls	 Scott O'Brien	24-Apr-2014
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Human Resources Lead	 Faustina Cornick	24-Apr-2014
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1 PURPOSE

This Handbook provides background information about the Lower Churchill Project (LCP), general health and safety information, as well as information about employment and labour relations.

2 SCOPE

This handbook applies to the construction of Phase One of the LCP; the Muskrat Falls Project. It is applicable to all workers that travel to and work on any of the project sites (outlined in the Project Description Section) including members of the Nalcor owner's team, contractors, suppliers and union members.

3 DEFINITIONS

Not applicable.

4 RESPONSIBILITIES

All workers that travel to and work on any of the project sites (outlined in the Project Description Section) including members of the Nalcor owner's team, contractors, suppliers and union members are required to sign an acknowledgement form that stipulates that they have received a copy of the handbook and that they are required to read the handbook and comply with the safety absolutes, rules and other requirements contained in the handbook.

5 REFERENCES

Not applicable.

6 MANAGEMENT PLAN / PROCEDURE / WORK INSTRUCTION

The step by step "how to" in very simple language; with any required graphics to help the user visualize what they are required to do. The instruction should include a readily available contact (Name and telephone number) that can help the user, if they cannot comply with the instruction. This would be especially important for HSE instructions at a construction site.

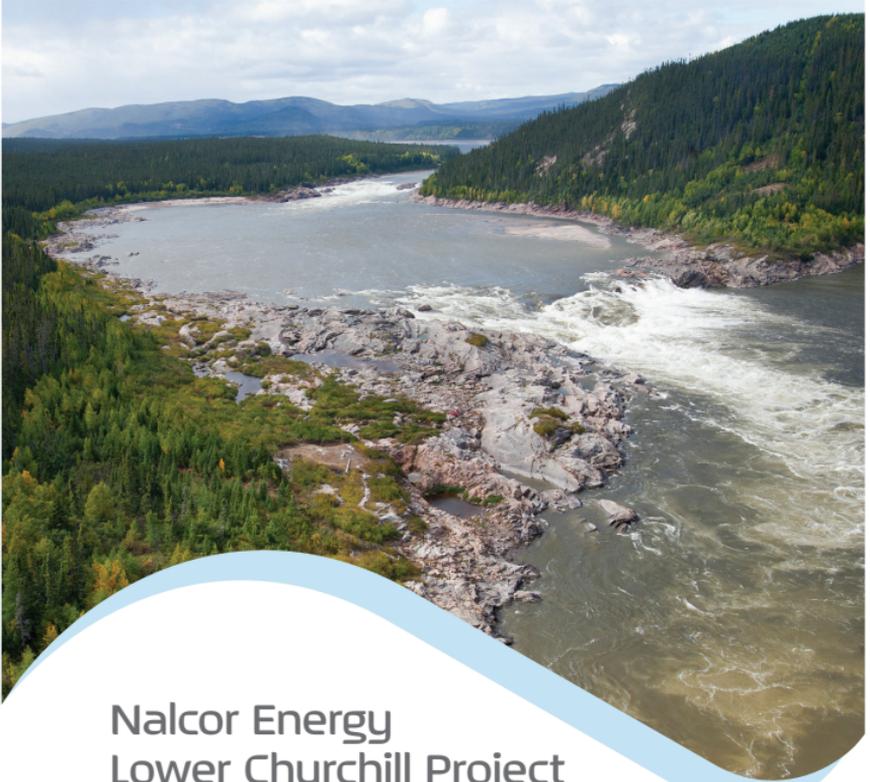
7 RECORDS

Not applicable.

8 ATTACHMENTS

8.1 LOWER CHURCHILL PROJECT HANDBOOK PDF FILE

8.2 LOWER CHURCHILL PROJECT HANDBOOK NATIVE FILE



Nalcor Energy Lower Churchill Project

LCP Site Handbook

LCP-PT-MD-0000-HR-MN-0001-01

Revision: B1

Last Updated: February 2014



**LOWER CHURCHILL PROJECT
SITE HANDBOOK**

Information in this Site Handbook is proprietary to Nalcor Energy – Lower Churchill Project (LCP). Hard copies of this handbook are not reissued for every update.

Emergency Response

Medical Centre _____

Emergency Response _____

Radio Channels _____

Contact Numbers

Main _____

Security _____

Supervisor Name _____

Supervisor Phone _____

Local Safety Advisor _____

Location of Closest Medical Provider

Location of Emergency Muster Station

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Welcome to the Lower Churchill Project

On behalf of Nalcor Energy, I would like to welcome you to the Muskrat Falls, Lower Churchill Project (LCP). As part of the LCP, you are a valued member of our team.

Nalcor is committed to promoting and maintaining a positive project culture throughout the various phases of the LCP. The pages of this Handbook set out the standards of conduct to be followed by all personnel. It outlines practices to maintain a work environment that is safe, healthy and environmentally friendly, as well as addressing issues associated with ensuring a respectful and productive workplace.

The LCP will set the standard for execution of major project work in Newfoundland & Labrador. Our priorities are our people, and we will lead the industry in labor relations, safety and productivity.

You have been provided with a copy of the LCP Site Handbook and are required to read and comply with the safety absolutes, rules and other requirements contained in the Handbook.

Thank you and again, welcome to the Muskrat Falls Lower Churchill Project.



Paul Harrington
Project Director, Lower Churchill Project



Occupational Health and Safety Policy

The safety of our employees, contractors, visitors and the public is our first and most important priority. Our goal is a workplace where nobody gets hurt – zero harm – and a working environment where each and every employee is always concerned for their own safety and the safety of others. In support of this goal, Nalcor Energy and its employees are committed to the following guiding principles:

- 1) Employees will govern their actions in accordance with Nalcor Energy's Internal Responsibility System for safety. This includes adherence to the principles of employee and role related responsibilities for their personal safety and the safety of their co-workers, contractors, visitors, and members of the public.
- 2) Nalcor Energy shall establish and maintain an Occupational Health & Safety Management System (HSMS) which:

- a. meets or exceeds legislated requirements and is compliant with accepted industry standards and practice; and
- b. documents health and safety objectives for Nalcor Energy; and
- c. contains a mechanism for performance measurement and continuous improvement; and
- d. facilitates both the formal and informal involvement of employees in the development, maintenance, and improvement of occupational health and safety within the organization.



President and CEO
Nalcor Energy

Environmental Policy and Guiding Principles



All Nalcor Energy companies will help sustain a diverse and healthy environment for present and future Newfoundlanders and Labradorians by maintaining a high standard of environmental responsibility and performance through the implementation of a comprehensive environmental management system.

The environmental principles that follow guide Nalcor Energy companies' environmental actions and decision-making:

Prevention of Pollution

- implement reasonable actions for prevention of pollution of air, water, and soil and minimize the impact of any pollution which is accidental or unavoidable;
- use the Province's natural resources in a wise and efficient manner;
- use energy as efficiently as possible during the generation, transmission, and distribution of electricity, and the operation of its facilities, and promote efficient use of electricity by stakeholders;

- maintain an adequate level of emergency preparedness in order to respond quickly and effectively to environmental emergencies; and
- recover, reduce, reuse and recycle waste materials whenever feasible.

Improve Continually

- audit facilities to assess potential environmental risks and to identify opportunities for continual improvement of environmental performance;
- establish environmental objectives and targets, and monitor environmental performance;
- integrate environmental considerations into decision-making processes at all levels; and
- empower employees to be responsible for the environmental aspects of their jobs and ensure that they have the skills and knowledge necessary to conduct their work in an environmentally responsible manner.

Comply with Legislation

- comply with all applicable environmental laws and regulations, and participate in the Canadian Electricity Association's Sustainable Electricity Program;
- periodically report to the Board of Directors, Leadership Team, employees, government agencies, and the general public on environmental performance, commitments and activities;

- monitor compliance with environmental laws and regulations, and quantify predicted environmental impacts of selected activities on the environment; and
- respect the cultural heritage of the people of the Province and strive to minimize the potential impact of Corporate activities on heritage resources.

Approved by:



Date: February 3, 2010

Version: 3



About this Handbook

This Handbook provides background information about the Lower Churchill Project (LCP), general health and safety information, as well as information about human resources and labour relations. Please read the Handbook carefully and if you have any questions, ask your supervisor or a member of the management team.

This Handbook is not intended to address all of the LCP's policies, procedures, standards and operating practices. Personnel should confer with their supervisor if guidance or assistance is required for matters that are not addressed in this Handbook.

Written guidelines assist the efficient operation of an organization and support the fair treatment of all personnel. *While this Handbook attempts to set out guidelines for personnel practices on the project, business circumstances, revisions in the law and other factors may make revisions necessary.* In such cases, efforts will be made to communicate the change to those affected. By accepting or continuing their employment, personnel of Nalcor and Nalcor's contractors agree to conform to these guidelines, policies, procedures and standards. This Handbook is not intended to be and does not constitute a contract of employment. It is published for

informational purposes only. The guidelines, policies, procedures outlined in this Handbook may be changed, modified, superseded, suspended or cancelled at any time at the sole discretion of Nalcor with or without prior notice. From time to time specific locations, divisions and organizations may implement guidelines more appropriate to their working environment, industry practices or special needs than the general guidelines contained in this Handbook.

Despite the geographical locations under which the project is being constructed, good management principles dictate fair, equitable and consistent application of policies. While this is always considered, it is not possible in every instance because of the nature and the variety of work situations and location requirements.

As a prerequisite to starting work on the Project, potential employees and new hires must attend an LCP pre-employment orientation session that includes but is not limited to, health, safety and environmental obligations, human resources policies, including respectful workplace; cultural sensitivity, Innu cross-cultural training; gender equity and diversity; labour relations, including an overview of the collective agreement, site standards, rules, corrective action and dispute resolution. Upon successful completion of the LCP pre-employment orientation, new hires will then complete a job site specific orientation facilitated by their respective contractor.

Scope

This Handbook applies to the construction of Phase One of the LCP, the Muskrat Falls Project. It is applicable to all workers that travel to and work on any of the project sites (outlined in the Project Description Section) including members of the Nalcor owner's team, contractors, suppliers and union members.

Who We Are and What We Are Committed to Achieving

Nalcor Energy

Nalcor Energy is Newfoundland and Labrador's energy company. Headquartered in St. John's, the company's business includes the development, generation, transmission and sale of electricity; the exploration, development, production and sale of oil and gas; industrial fabrication; and energy marketing.

Focused on sustainable growth, the company is leading the development of the province's energy resources and has a corporate-wide framework which facilitates the prudent management of its assets while continuing an unwavering focus on the safety of its workers and the public.

Nalcor currently has six lines of business:
Newfoundland and Labrador Hydro, Churchill

Falls, Oil and Gas, the Lower Churchill Project, Bull Arm Fabrication and Energy Marketing.

Nalcor's vision is to build a strong economic future for successive generations of Newfoundlanders and Labradorians.

Five goals drive Nalcor's business:

- 1) Safety: to be a safety leader;
- 2) Environment: to be an environmental leader;
- 3) Business Excellence: through operational excellence, provide exceptional value to all consumers of our energy;
- 4) People: to ensure a highly skilled and motivated team of employees who are committed to Nalcor Energy's success and future direction;
- 5) Community: to be a valued corporate citizen in Newfoundland and Labrador.

The Lower Churchill Project

The LCP is one of the most attractive undeveloped hydroelectric sites in North America and is a key component of the province's energy warehouse. The LCP's two sites at Gull Island and Muskrat Falls have a combined energy capacity of over 3,000 megawatts (MW). The clean, stable, renewable electricity provides an opportunity for the province to meet its own domestic and industrial needs in an

environmentally-sustainable way, and also export electricity to other jurisdictions where the demand for clean, renewable energy continues to grow.

Nalcor is developing Phase One of the LCP which includes an 824 MW hydroelectric generating facility at Muskrat Falls and associated transmission links to Newfoundland and Nova Scotia.

Project Description

LCP Phase One development includes the following key components:

The **Muskrat Falls Generation** will consist of the construction of an 824 MW generating station with a powerhouse that will contain four turbines. A 59km long, 101 km² reservoir will be contained by a concrete dam on the north side of the river and a rock filled dam on the south side.

The 900MW, 350 kilovolt (kV) bi-pole **Labrador-Island Transmission Link** is a 1,100km long High Voltage direct current (HVdc) interconnection that will run from the Muskrat Falls generating station to Soldiers Pond near Holyrood, Newfoundland. Each end of the line energy will be connected from AC to DC and vice versa through converter stations and switchyards.

The **Labrador Transmission Assets** includes two 247km, 315kV High Voltage alternating current (HVac) transmission lines connecting Muskrat Falls generation station and Churchill Falls generation station, along with switchyards at both Muskrat Falls and Churchill Falls to facilitate the connection of the 315kV feed.

In addition, Emera Newfoundland & Labrador Inc. will construct a 500 MW, 250kV 480km HVdc **Maritime Transmission Link** from Cape Ray in western Newfoundland to Lingan, Nova Scotia.

Nalcor's Core Values

Nalcor aspires to be a proud, diverse energy company, whose people are committed to building a bright future for Newfoundland and Labrador, unified by its core values:

Open Communication: Fostering an environment where information moves freely in a timely manner.

Accountability: Holding ourselves responsible for our actions and performance.

Safety: Relentless commitment to protecting ourselves, our colleagues and our community.

Honesty and Trust: Being sincere in everything we say and do.

Team Work: Sharing our ideas in an open and supportive manner to achieve excellence.

Respect and Dignity: Appreciating the individuality of others by our words and actions.

Leadership: Empowering individuals to help guide and inspire others.

Nalcor's Code

Nalcor's Code of Business Conduct and Ethics (Code) reinforces the company's commitment to professional and ethical business practices. All Nalcor employees, contractors and unions should adhere to the Code.

Four key principles guide how we should apply the Code in our day-to-day work:

- The commercial, reputational and other interests of Nalcor must always take precedence over personal interests and those of third parties;
- We must always avoid any act or conduct – intentional or not – that may support the private interests of a third party or an individual over those of Nalcor;
- Any conflict of interest – real or perceived – has the potential to impair the company's credibility, reputation and commercial interests;

- We have an obligation to perform our duties and responsibilities in a conscientious manner, and never allow our personal interests to conflict with those of Nalcor.

**Health
and Safety**

Health and Safety

The health and safety portion of this Handbook is based on the Lower Churchill Project Health and Safety Management Plan. The Health, Safety and Security practices outlined in this Handbook are not a substitute for the required safety training and safe work practices and procedures.

Nalcor Energy's Safety Credo

The safety of employees, consultants, contractors, visitors and the public is our core value. Our goal is a workplace where nobody gets hurt – zero harm – and a working environment where each and every employee and contractor is continuously concerned for their own safety, and the safety of others.

Nalcor's Safety Credo states three basic rules that must be applied to the workplace:

- ***I always follow safety requirements and best practices;***
- ***I always take time to complete my work safely;***
- ***I always take action when I see unsafe acts or conditions.***

Safety Absolutes

In an effort to achieve our “Zero Harm” target, a number of safety absolutes have been established. Close attention should be paid to the violations listed below, which will lead to the denial or revocation of site access and termination of your employment by your employer, unless there are exceptional mitigating circumstances:

- Tampering with safety devices or emergency response equipment;
- Operating equipment or vehicles without the proper licensing, authority, training or qualifications;
- Willful damage to property and/or equipment;
- Blatant disregard of properly marked zones of imminent danger (e.g. flagging);
 - Falsification of reports, statements, or records;
 - Non-compliance of the information contained in the two day Fall Protection standard prescribed by WHSCC, NL including training, proper selection of fall protection equipment and anchorage points for any work above six feet or less if there is an unusual possibility of risk or danger;
- Any violation of energy isolation procedures (e.g. mechanical, electrical, pneumatic);

- Unauthorized modification of scaffolding or other work platform leading edges;
- Working without a construction permit as specified on the StepBack card;
- Failure to conduct a StepBack Field Level Hazard Assessment **prior** to starting every assigned task and/or task change;
- Refusal to submit to requested searches (e.g. vehicle, toolbox, lunchbox);
- Non-compliance with the Lower Churchill Project Standard for Drug and Alcohol, including but not limited to:
 - Reporting for work under the influence of alcohol or illegal drugs;
 - Possession of alcohol, illegal drugs or illegal drug paraphernalia;
 - Distribute, sell or attempt to sell drugs or illegal drug paraphernalia, or engage in unauthorized distribution, offering, or sale of prescription medication;
 - Refusing to submit to a requested just cause or post incident drug and alcohol test;
- Physical harassment of other site personnel;
- Operating mobile machinery and equipment while using cellular devices or without the use of a seatbelt;
- Walking or working under a suspended load;
- Serious violation of safety policies, procedures or standards (ex. lock-out violation or confined space violation).

Project Personal Protective Equipment (PPE) Standard

All personnel entering a LCP work site must adhere to the PPE Standard at all times.

- Class E or G CSA Type II approved hardhat at all times. Unless otherwise approved for trade specific, the bill of the hard hat must face forward unless a safety device, like a welding shield, is attached. Hardhat hood combinations are mandatory for all welders on site;
- Wear CSA approved safety glasses with approved side shields during work hours. No dark glasses inside dark buildings or in poor light;
- Cut resistant gloves must be worn at all time when handling knives or other tools with exposed blades as well as material with sharp surfaces;
- Gloves are required for all tasks. Hand protection appropriate for the hazard must be worn;
- Reflective apparel, when required, must meet minimum CSA Class 2, level 2 requirements;
- Safety boots (steel toe and a minimum 6" boot height).

Any requirements for additional task-specific PPE will be determined through a risk assessment. (TBRA- Task Based Risk Assessment)

Project Safety Orientation

The project Safety Orientation is a prerequisite to entering any LCP site, except for those persons entering the site as a visitor (visitors must be accompanied by a designated, orientated Project person at all times and will abide by the LCP Health & Safety Management Plan and will receive a Visitor Safety Orientation).

Drug and Alcohol Standard

The Project team has developed a Drug and Alcohol Standard based on the Canadian Model for Providing a Safe Workplace. Contractors must ensure that all workers deployed to any project site are fit to safely and reliably perform their work duties, and that these workers must remain fit for duty throughout their work shift, and free from impairment due to alcohol and/or drugs. Workers will submit to a drug and alcohol testing procedure in the following circumstances: pre-access; reasonable cause and post-incident. Contractors must have a drug and alcohol policy that is at least equivalent to the requirements set out in the Canadian Model and this standard.

Nalcor has declared the LCP worksites as “Dry Sites”, whereby the possession, use and sale of alcohol are strictly prohibited.

Non-compliance of this standard will result in denial or revocation of site access and

termination of your employment by your employer, unless there are exceptional mitigating circumstances.

Incident Notifications Requirements

All incidents must be reported verbally **within two hours of occurrence** through the safety management organization. The severity of the incident or the severity potential determines the reporting/notification requirements for each incident. A written (preliminary) report is required to be prepared by the employee's employer within 24 hours of occurrence. All Near Miss situations and Hazardous Conditions/Behaviors will be reported promptly using the same incident report process described above. These situations will be looked upon as a learning opportunity and will be treated seriously.

Near Miss Incidents having serious potential (an incident where, under other/different circumstances, could have resulted in serious injury or fatality) will be included in Nalcor's Safe Workplace Observation Program (SWOP) database and will be fully investigated and have mitigating measures identified and tracked to completion. Other Near Miss Incidents will be recorded and, as appropriate, investigated, to derive any lessons learned (as noted above). All incidents will be communicated to affected and

potentially affected personnel and addressed in tool box talks and safety meetings as a means to increase overall awareness in an effort to prevent similar incidents from recurrence.

Case Management

All incidents resulting in personal injury will be effectively managed in order to:

- Prevent further injury;
- Aid in the recovery of the injured person;
- Reduce the possibility of an incident classification escalation (i.e. from a first aid incident to a medical aid or lost time, etc.);
- Ensure adherence to all applicable Workplace, Health, Safety and Compensation Commission requirements;
- All LCP contractors will have an effective modified duty program;
- All injured persons will be offered meaningful modified work if approved by the attending physician, and where appropriate an independent physician;
- These modified duties will meet all restrictions placed on the injured person by the attending physician.

Security

LCP security management may include, but is not limited to the following procedures that:

- Control access of all personnel, vehicles and material through the use of swipe cards, vehicle permits, material lists and passes, camera passes, visual vehicle inspections, and property searches;
- Ensure visitors are properly registered, equipped with the suitable PPE for the area they are visiting, given an appropriate orientation, and accompanied by a responsible person;
- Prevent unauthorized entry and removal of materials and equipment using video surveillance and inspection of personal property including brief cases, back packs, lunch boxes, tool boxes, vehicles and any other item at the discretion of security management.

Joint Occupational Health and Safety Committee (JOHSC)

It is the policy of Nalcor as well as a regulatory requirement to ensure that all personnel are provided an opportunity to be involved in health and safety program development and improvement efforts. Formal health and safety committees provide leadership and direction for the project and allow for participation and input at all levels. The Health and Safety Committee structure is designed to establish positive, two-way communication throughout the organization and facility. The organization and function of the

Health and Safety Committee shall be designed to meet the intent of applicable Newfoundland and Labrador legislation.

Safe Work Practices and Procedures

The LCP team will ensure there is adequate and appropriate development and implementation of safe work practices by project contractors, based on the contractors' scopes of work. All contractors and workers are responsible to ensure they have sufficient and correct training to use these practices and procedures. Quarterly inspections are required on the project.

Housekeeping

Keeping your work area tidy encourages safe work habits. Good housekeeping is a basic requirement in all construction areas and shall be maintained at all times. The following general housekeeping requirements apply:

- Clean up regularly as the job progresses;
- Ensure equipment and tools are stable and secure, cannot fall over or from the work area, and are stored appropriately;
- Ensure that all stored hoses, cords and cables are neatly coiled and hung on appropriately designed hangers off the ground;
- Keep the floor, ground and gratings clear of tools, welding materials and waste, metal shavings, etc.

- Store or contain material in such a way that prevents a potential fire from starting.

Access and Egress

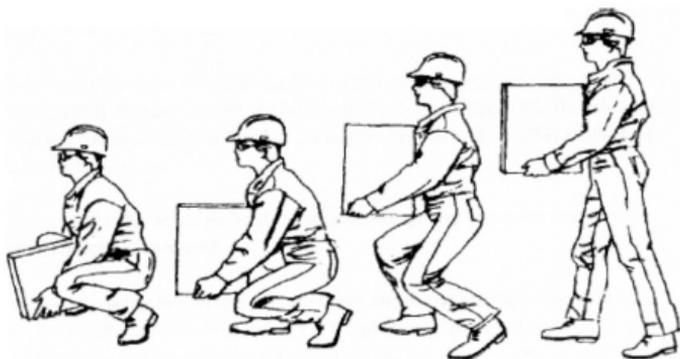
- Routes leading to and from all work locations shall be kept free and clear of obstructions and be well lit;
- Walkways and stairways shall be clear, ladders shall not be blocked, and emergency exits shall be easily identified and clear of all obstructions. Stairs, landings and platforms shall have proper handrails;
- Never block the access to any emergency equipment, fire extinguisher or electrical disconnect switch.

Avoiding Slips and Trips

- Keep work areas well lit and organized;
- Clean up any spills immediately;
- Keep snow and ice off walkways;
- Practice safe walking skills by taking shorter steps and paying continuous attention to your path;
- Practice three point ascent and descent on ladders;
- Walk at a steady pace and do not run;
- Use the walkways and accesses provided;
- Always use handrails on stairways.

Material Handling - Save Your Back

Improper lifting and handling may lead to serious back injuries. Mechanical handling is required and shall be utilized for lifting all items over 25 kg (55 lb.). When lifting by hand, abide by the 25 kg limit and use the following lifting techniques:



- Always wear gloves;
- Know the weight of any object to be handled;
- Plan your lift, test the load and ask for help when needed (e.g., awkward or slippery packaging);
- Get a firm footing, bend your knees and tighten your stomach muscles;
- Lift with your legs and keep your back straight;
- Keep the load close to your body;
- Keep your back upright and do not twist when moving and carrying the load;
- Avoid stairs and inclines when carrying heavy objects;

- Manual lifting of tools or equipment when using a ladder is prohibited (three-point contact must be maintained on the ladder at all times).

Welding and Cutting

During any welding or cutting procedures the worker shall:

- Inspect all leads, grounds, clamps, welding machines, hoses, gauges, torches, and cylinders each day before use and ensure that all fittings, couplings and connections are tight;
- Only use cutting torch, welding and oxygen/fuel gas systems equipped with anti-flashback arrestors at the regulator and at the torch;
- Keep welding leads and oxy/acetylene hoses clear of passageways and protect them from damage;
- Erect proper barriers or screens to protect other workers from exposure to welding flash;
- A trained fire watch is required in areas where there is a potential for fire;
- Ensure that a 9kg/20lb ABC dry-chemical fire extinguisher is immediately available in the work area.

Ladder Safety

Ladders shall be commercially manufactured and comply with CSA Standard CAN3-Z11-M81 (R2001), *Portable Ladders*. All ladders shall only be utilized within the safe working load and conditions that are listed on the ladder. No “job built” or other similar type ladders shall be used.

Inspect the ladder before each use for signs of damage and ensure the following safe ladder procedures are used:

- Face the ladder when climbing up or down, and always maintain 3-point contact;
- Change the position of the ladder if required to avoid overreaching (“rule of thumb”: keep your belt buckle within the rails of the ladder);
- Tag and remove damaged ladders from service;
- Use a rope and canvas tool bag or bucket to move tools and material to working heights. Do not carry tools or materials when using a ladder;
- Always fully open a stepladder and set it level on all four feet, with spreaders locked in place;
- Never use a stepladder like a straight ladder;
- Do not use the top two steps of the stepladder;

- Always place ladders against solid surfaces;
- The vertical distance must be four times the horizontal distance and the top of the ladder shall extend a minimum of 1m (3 ft.) beyond the supporting object;
- The ladder shall be adequately tied off at the top and bottom;
- Do not use extension ladder sections separately.

Scaffolds

Scaffolds shall only be erected and dismantled by qualified scaffold erectors. Do not combine parts and sections of scaffolding made by one manufacturer with those made by another manufacturer.

Scaffold Tagging

The tagging color code to be used is:

Red: *“Danger – Do Not Use”* – Scaffold is incomplete

Yellow: *“Caution”* – Special requirements for use (e.g., fall arrest equipment is required)

Green: *“Safe for Use”*

A worker shall not use a scaffold if it has:

- A red tag;

- A green or yellow tag that has expired;
- No tag at all.

Flagging and Hazard Signs

Flagging is used to warn of hazards that exist in work areas. When flagging an area:

- Flag off only the areas where the hazard exists;
- Use the appropriate type of flagging for the hazard and completely fill out the flagging tag;
- Remove the flagging promptly when complete;
- Tagging should be included and kept current on all flagging for the purpose of identifying the person who has erected the flagging, the purpose of the flagging, and contact information in the event entry is required.

Red Flagging:

“Danger – Do Not Enter” flagging is to be used where the risk factor to personnel working in the immediate area is high. No access is allowed, except for the crew doing the work.

Yellow Flagging:

“Caution” flagging is to provide a warning that hazards exist in an area and you should look for

an alternate route. If no alternate route is available, read the flagging tag, look for and plan to avoid the hazard, ask permission of the workers inside and proceed with caution.

Radiation Flagging:

Radiation barriers are yellow and magenta colored flagging, or ropes and radiation signs.

Warning Signs:

Warning signs are used to indicate specific hazards (e.g., *“Danger – High Voltage”* *“Caution – Overhead Work”* etc.).

Excavations

All excavations shall comply with the following rules:

- All excavations must be identified to other workers through flagging, marking; safeguards, or other appropriate and effective means;
- All excavation walls shall be checked before entering, especially after a heavy rain or thaw;
- Shoring shall be checked daily or more often in extremely wet weather;
- No worker shall be in an excavation when any equipment is working next to the edge – keep all heavy equipment away from trench edges;

- Test for low oxygen, hazardous fumes, and toxic gases – the excavation may be a confined space. ie: Excavations deeper than 4 feet;
- Ensure there are safe and adequate ladders for access/egress.

Vehicle Requirements

Workers shall not use LCP vehicles unless assigned by their supervisor. Any worker who operates a vehicle shall comply with the following requirements:

- Possess a valid driver's license for the class of vehicle being used;
- Inspect the vehicle at the beginning of each shift before use by completing a thorough walk-around and doing operational/functional checks;
- All vehicles shall be equipped with a 9kg/20lb ABC dry-chemical fire extinguisher, a first aid kit – minimum Class 2 and flares;
- "Buggy whips" (minimum 3.6m in height) are required in and around the Muskrat Falls generating station construction area. 3.6m Buggy Whips are not required to be the lighted type;
- Ensure that all tools and materials are transported in a safe and secure manner;
- Wear a seatbelt at all times while driving, both on and off site, and ensure that seat

- belts are worn by all passengers;
- Always give pedestrians the right of way;
- Observe posted speed limits and other regulatory signs and practice safe driving at all times;
- Do not use cellular phones or mobile devices unless the vehicle is stopped and parked in a safe location;
- Practice safe refuelling procedures;
- Do not ride in the bed of any vehicle;
- In winter, ensure that all windows and hood and roof are clear of snow, ice and condensation before moving;
- Immediately report all vehicle incidents;
- All site vehicles are required to have back-up alarms, sounding the horn twice before backing up is not necessary;
- Strictly comply with project parking regulations and back into parking areas;
- Use a spotter when backing a vehicle into a congested area or under circumstances with limited clearance or visibility;
- Heavy haul vehicles have the right of way on work site locations;
- All site light vehicles are required to have a rotating/revolving amber coloured beacon mounted on the top of the cab and must be fully operational when driving on the site. Amber light should be turned off after the vehicle has left the project footprint.

Pedestrian Safety

- Walk on the left side of site roads unless directed to do otherwise;
- Do not take shortcuts through other construction areas or buildings;
- Wherever there exists potential interaction between pedestrians, vehicles and heavy equipment designated walkways will be established and well-marked. It is mandatory that all pedestrians utilize these walkways;
- Scan ahead for potential hazards in the work site;
- When walking to a location be aware of your surroundings, always observing for any potential hazards.

Fire Protection

- Fire extinguishers are located where they can be readily accessed in case of fire and are inspected monthly;
- Storage areas for flammable liquids, gas cylinders, explosives, etc., shall be located well away from worksites, field offices and sources of ignition;
- Fire extinguishers and appropriate signage shall be located in the immediate storage area;
- Flammable or combustible liquids shall be stored only in approved metal safety cans and portable tanks. No plastic containers to be used;

- Fire extinguishers required for emergency service shall not be used for construction use;
- Adequate firefighting tools and water will be readily available at all sites in forested areas during forest fire season. Every reasonable effort will be made to ensure that LCP activities do not result in forest fires.

Working at Heights

The Project is committed to providing a safe work environment for its employees and preventing occupational injuries due to falls. Fall Protection is an integral part of our commitment to a safe work environment. Any time a worker is exposed to a fall hazard in excess of two (2) meters, or where there is an unusual possibility of danger, Fall Protection will be required or a procedure and equipment to reduce and/or eliminate the hazard of working at height. Fall Protection shall be achieved through a hierarchy of controls that will involve all levels of management, supervisory and field personnel. This hierarchy shall be: elimination of hazards through engineering (design) and procedural practices; control and mitigation of hazards through passive fall protection; travel restraint systems; the use of fall arrest systems; and finally the use of administrative controls. Supervisors and workers shall be expected to assess the risks associated with a task and ensure that proper mitigation is in place to protect them while

climbing and working at heights. Where a worker is unsure of the methods, equipment or procedures to reduce the risk they are to seek direction from their supervisor.

Energy Isolation (Lock-out/Tag-out)

The purpose of having an energy isolation standard is to eliminate or minimize the risk of fatalities, injuries and incidents arising from the uncontrolled and unexpected release of energy or hazardous materials. The standard applies to all sources of energy including: electrical, mechanical, hydraulic, chemical, gravitational, pneumatic, kinetic and stored energy.

The failure to isolate an energy source can create an immediate danger to life and health situation. A high portion of energy related incidents are caused by inadequate or improper isolation of the energy sources. The causes or contributing factors to these incidents have been:

- Failure to identify or recognize a source of potential or stored energy;
- Inadequate training or competence;
- Inadequate energy isolation systems;
- Complacency;
- Working on, or isolation of wrong equipment;
- Inadequate design and/or maintenance of isolators.

The requirements of the Lower Churchill Project for Energy Isolation include the following:

- Purchase and design of equipment shall be given due consideration to meeting energy isolation standards;
- Isolation shall provide positive protection and be achieved by use of locking devices or the establishment of a physical barrier or separation. All separations or barriers shall be provided by either a permanent or temporary fitted locking device;
- Personal locking devices shall be 1) uniquely keyed, 2) not be of the combination lock type, 3) not have an unauthorized second-party master over-ride key, 4) be kept under the exclusive control of the owning individual and key shall not be transferred from one person to another during the course of the work;
- Designated isolation points shall be clearly labeled at all times to identify the circuit or system over which they have direct control. These labels shall be applied following a process of pre-isolation identification using isolation lists, load verification, marked drawings, etc.;
- Energy Isolation boxes, stations or equivalent shall be provided when required;
- All designated isolations points must be fitted with personal locking devices and shall be tagged. The tags must include the name of the person locking out, the reason for the isolation, the date and time the locking

device was applied and must be highly visible to prevent inadvertent operation.

General Procedures for Energy Isolation include:

- Full compliance with relevant OHS Legislation, regulations and standards;
- A documented Energy Isolation System;
- No work can be carried out on any equipment or system unless it has been established and confirmed that it is in a zero energy state, unless involved with commissioning or troubleshooting;
- The isolation system shall be applied to all activities on the Lower Churchill Project;
- The isolation procedure should determine the appropriate isolation method for any activity (either by way of a full description or by demonstrating the process that shall be followed for new activities;
- Prior to relying on an isolation to supply a safe working environment, documented testing procedures must be provided to verify energy isolation integrity;
- A formal procedure shall be in place for controlling clearances to the work for isolation and de-isolation of equipment, handover and handback of equipment (maintenance to operations), or transfer of isolations between shifts/workgroups;
- Specific procedures shall be developed to address software overrides;

- A procedure for testing and positioning during maintenance and set-up shall be in place;
- A procedure shall be in place to mitigate hazards in special cases where zero energy state, test/try of isolation or use of a locking device are not possible or feasible;
- Formal isolation procedures include requirements for investigation, reporting and removal of personal locks/tags by an authorized person other than the originator. The isolation system must be reviewed regularly and audited to capture any previous unidentified changes and revised when necessary.

Workplace Hazardous Material Information System (WHMIS)

- All contractors will have an established WHMIS program in place for all LCP construction activities;
- All personnel will be trained in WHMIS, including a site specific element;
- All material and containers will be properly labeled;
- Contractors will maintain a complete and up to date set of Material Safety Data Sheets for all controlled products on site.

Environment

Environment

All Nalcor companies will help sustain a diverse and healthy environment for present and future Newfoundlanders and Labradorians by maintaining a high standard of environmental responsibility and performance through the implementation of a comprehensive environmental management system.

Roles and Responsibilities

All project participants have a responsibility for the protection of the environment. Project personnel will:

- Participate in the LCP orientation sessions;
- Be familiar with the environmental mitigation measures specific to their scope of work, as described in the environmental documents;
- Participate regularly in toolbox meetings;
- Report any environmental issues or concerns as outlined in the orientation provided by your supervisor;
- Project personnel are encouraged to reduce/eliminate idling of vehicles where practical.

General Environmental Procedures

Storage, Handling, Disposal of Fuel and Other Hazardous Materials

- All personnel handling fuel and hazardous materials are to be properly trained and informed;
- Fuel may only be stored and transported in appropriate and approved containers;
- Waste products will be properly stored and disposed;
- Fuel and other hazardous materials are not to be poured down drains or permitted to enter the environment in any manner.

Waste Management

- Project personnel are to keep work areas free of food scraps and garbage;
- Project personnel should recycle wherever possible;
- There will be NO littering on site;
- Absolutely NO waste material is to be deposited in any water body.

Water Protection

When working around water bodies Project personnel should:

- Confirm with On-Site Environmental Monitor, proper mitigation measures to be used;

- Report any incidents of failed siltation/soil erosion control structures and incidents of sedimentation of water bodies.

Wildlife

There is a wide range of plants and animals found in the project area, some of which are protected or of special concern. Project personnel should be especially aware of rare birds such as the Common Nighthawk, Grey Cheeked Thrush, Rusty Blackbird, Harlequin Duck, and the Olive Sided Flycatcher as well as Raptors and Woodland Caribou.

- Any sightings of these and other wildlife are to be reported to an On-Site Environmental Monitor;
- Any nest sightings are to be reported to an On-Site Environmental Monitor;
- NO personal pets will be allowed on the site;
- Under NO circumstances is wildlife to be fed, chased, followed, diverted or otherwise harassed;
- Any incident that results in the displacement or fatality of wildlife is to be reported to the On-Site Environmental Monitor;
- Project personnel are not permitted to hunt, fish, or trap wildlife, collect firewood or pick berries, whether on or off duty, at any time during their employment within the Project Area at any LCP work site and support

infrastructure. This includes Project related roads, camps, the main work site, the future reservoir area and associated transmission lines. The attached map illustrates the “no harvesting zone”;

- Project personnel conducting activities outside of the Project footprint who are non-resident to the area may only do so while they are off rotation and in compliance with applicable provincial and federal regulations. Project personnel conducting activities outside of the Project footprint who are resident to the area may only do so outside of their normal hours of work and in compliance with applicable provincial and federal regulations;
- This policy will be strictly enforced through corrective action which would include revocation of site access and termination of your employment by your employer, unless there are exceptional mitigating circumstances;
- Harvesting by Labrador Innu within the Project Area is addressed in the Impacts and Benefits Agreement with the Innu Nation.

Historic Resources

Historical resources can include stone flakes; tent rings; burial mounds; tilts; structural frames; arrowheads, tools and fire pits. If an historic resource or artifact is suspected:

- Stop work immediately, **DO NOT** touch or remove artifact;
- Report the find to a supervisor and On-Site Environmental Monitor.

Spills

In the event of a spill or leak of hazardous materials (including fuels), site personnel should:

- Act immediately;
- Stop source if possible and safe to do so;
- Contain the spilled products if safe to do so;
- Contact your supervisor or the site; emergency contact, providing as much information as available.

Human Resources

Employment Equity

The LCP team recognizes the importance and benefit of a diverse workforce. Employment decisions concerning the workforce on this project shall be based on individual merit qualifications and competence, and the employment preference provisions in the Lower Churchill Construction Projects Benefits Strategy (Benefits Strategy) and the Impacts and Benefits Agreement (IBA) for qualified Labrador Innu. Nalcor is committed to employment equity and will not discriminate on the basis of race, colour, nationality, ethnic origin, social origin, religious creed, religion, age, disability, disfigurement, sex, sexual orientation, marital status, family status, source of income and political opinion. The profitable, responsible growth and business success of the company, as well as the personal growth of individuals, results from using the abilities of all individuals to the fullest extent practical within the framework of the business environment.

Lower Churchill Construction Projects Benefits Strategy

LCP and the Province of NL have agreed to the projects Benefits Strategy. The overriding objective of this strategy is to provide opportunities and benefits to the people of Newfoundland and Labrador during the

construction of the project. Included in this strategy are hiring protocols for different components and geographical areas of the project. These hiring protocols are also contained in the Labour Project Agreements with our Union partners. A summary of these hiring protocols is as follows:

Muskrat Falls Generating Facility and associated HVac Transmission System

For these components of the LCP the priority is as follows:

1. Qualified Labrador Innu as per the terms of the IBA;
2. Qualified residents of Labrador; and
3. Qualified residents of the Island of Newfoundland;
4. Qualified Canadian Residents.

Island Link HVdc Transmission System

For these components of the LCP the priority is as follows:

1. Qualified Labrador Innu for the Labrador portion of this component of the LCP;
2. Qualified residents of Newfoundland and Labrador;
3. Qualified Canadian Residents.

The Benefits Strategy also includes an outline for the project's Gender Equity and Diversity Program. The objective of this program is to address employment Equity for the Project, including access to employment opportunities for qualified members of underrepresented groups. This program will implement programs and practices that contribute to the creation of an inclusive work environment and culture.

The main objective of the Gender Equity and Diversity Program is access to employment opportunities for, and employment of, qualified women and members of underrepresented groups on the project. The program includes a Women's Employment Plan that provides the necessary resources for an inclusive work environment and corporate culture.

The LCP team recognizes the importance of compliance with the commitments and obligations contained in the IBA with the Innu Nation and the Benefits Strategy. These commitments and obligations are supported by Nalcor's Human Resources policies and procedures.

IBA initiatives include Innu cross-cultural training for all employees to enhance understanding of the culture of the Innu of Labrador, and social supports for Innu employees, including opportunities for Innu cultural activities.

Labrador Aboriginal Cultural Awareness

Three distinct Aboriginal peoples reside in Labrador: the Labrador Innu, represented by Innu Nation, the Labrador Inuit, represented by Nunatsiavut Government, and the descendants of Inuit and European cultures, represented by NunatuKavut Community Council.

The Labrador Innu are the indigenous inhabitants of an area they refer to as Nitassinan (“Our Land”). The Labrador Innu claim Aboriginal rights and title to a significant portion of Labrador, including the LCP area. In recognition of this, Nalcor negotiated an Impacts and Benefits Agreement (“IBA”) with the Innu Nation and both Innu First Nation communities. The IBA provides certain benefits to the Innu, including first preference for employment opportunities on the project.

Innu reside primarily in the communities of Sheshatshiu (pop. 1700) and Natuashish (pop. 900), which are reserves under the *Indian Act*. One of the last Aboriginal peoples in Canada to settle permanently, the Innu lived in Labrador as hunter/gatherers for several thousand years until the 1960s when they became permanently settled in communities. The word Innu means “human being” in Innu-aimun, which is the first language of the Innu.

The 6,500 Labrador Inuit call their homeland in northern Labrador “Nunatsiavut.” This means “our beautiful land” in Inuttitut, the traditional language of the Inuit who have lived in Labrador for thousands of years. Labrador Inuit settled their claim for Aboriginal rights and title under the Labrador Inuit Land Claims Agreement, which came into effect in 2005. Labrador Inuit have rights over and/or title to land in Labrador that includes the Inuit communities of Rigolet, Postville, Makkovik, Hopedale and Nain. In addition, many Inuit live in Happy Valley-Goose Bay, Mud Lake and North West River. English is widely spoken by Labrador Inuit, who have had regular contact with European settlers for over 200 years.

NunatuKavut Community Council, formerly known as the Labrador Metis Nation, represents 6,000 descendants of Inuit and European cultures. Members of NunatuKavut live in the southern Labrador communities of Cartwright, Paradise River, Black Tickle, Norman Bay, Charlottetown, Pinsent's Arm, Williams Harbour, Port Hope Simpson, St. Lewis, Mary's Harbour and Lodge Bay, as well as the Upper Lake Melville area.

LCP Respectful Workplace Standard

The project is committed to maintaining a safe, healthy and productive work environment where all persons attending LCP worksites are valued

and treated with respect and dignity. The project has adopted a Respectful Workplace Standard (“standard”) which is intended to support a work environment free of discrimination, harassment, workplace violence and/or threats of workplace violence. All persons engaged in work on the LCP are expected to lead by example to ensure the project is free of discrimination, harassment, workplace violence and/or threats of workplace violence. This standard provides guidelines for Nalcor Energy and its contractors to respond quickly and fairly with any incidents reported under this standard or policy created under this standard.

This Standard supports our Project values:

Open Communication: Fostering an environment where information moves freely in a timely manner.

Accountability: Holding ourselves responsible for our actions and performance.

Safety: Relentless commitment to protecting ourselves, our colleagues and our community.

Honesty and Trust: Being sincere in everything we say and do.

Team Work: Sharing our ideas in an open and supportive manner to achieve excellence.

Respect and Dignity: Appreciating the individuality of others by our words and actions.

Leadership: Empowering individuals to help guide and inspire others.

Application of Standard

This standard applies to all employees and consultants of Nalcor, LCP contractors and any other parties engaged in or performing work on LCP worksites.

This standard applies to visitors, vendors, suppliers, contractors and consultants attending LCP worksites.

All contractors working at any LCP worksite are required to have a Respectful Workplace Policy that meets or exceeds this standard. In the event a contractor does not have such a policy, this standard will constitute the contractor's policy.

Discrimination, Harassment and Workplace Violence

1. Discrimination

“Any action, inaction or behaviour which negatively affects the status of an employee, or the unequal treatment of an employee or harassment on the basis of prohibitive grounds as defined under Human Rights Act, 2010, SNL2010 CHAPTER H-13.1, s. 9 (j) and s. 14 (j) including race, religion, religious creed, political opinion, source of income, color, nationality, ethnic origin, social origin, sex, sexual orientation, marital status, family status, disfigurement, disability, age and

conviction of a criminal offence unrelated to employment.”

2. Harassment

Harassment is any form of conduct that is known or reasonably ought to have been known to:

- a) Create an intimidating, hostile or offensive work environment;
- b) Be objectionable or offensive behaviour that is unwelcome;
- c) Adversely affect an individual’s employment relationship or work performance; or
- d) Deny an individual dignity and self-respect.

3. Sexual Harassment

Any conduct, comment, gesture, or contact of a sexual nature, whether one-time or on a continuous basis that:

- a) Might reasonably be expected to cause offense or humiliation;
- b) Is known or ought to reasonably be known as unwelcome;
- c) Is made to an individual by another individual where the other individual is in a position to confer a benefit on or deny a benefit to, the individual to whom the solicitation or advance is made, where the individual who makes the solicitation or advance knows or

- reasonably ought to know that it is unwelcome;
- d) Is a retaliation or threat of retaliation against an individual for rejecting a sexual solicitation or advance; or
 - e) Might reasonably be perceived as placing a condition on employment or opportunity for training, promotion or career development.

4. **Workplace Violence and/or Threat of Workplace Violence**

Any inappropriate physical contact or action, or threat of inappropriate physical contact or action, that would result in pain and/or suffering to individuals. This includes behaviour that would be interpreted by a reasonable person as a substantial threat to harm another person, or endanger the safety or wellbeing of another person, as well as any aggressive or bullying behaviour that is intended to cause emotional or physical distress to a person.

Workplace harassment, workplace related harassment or any other violations of this standard or any policy created under this standard, by any means of communication including but not limited to social media (i.e. Facebook, Twitter, MySpace, Blogging, etc.), email or texting during or outside work hours is strictly prohibited. Any form of workplace harassment, workplace related

harassment or other violation of this standard or any policy created under this standard, may lead to revocation of site access and discipline by your employer up to and including termination.

5. **Examples of Discrimination, Harassment, Sexual Harassment, Workplace Violence and/or Threat of Workplace Violence**

Discrimination, harassment, sexual harassment, workplace violence or threat of workplace violence can take many forms including but not limited to jokes, insults, threats, personal comments or innuendoes. The following are some examples:

- a) Posters, pictures, graffiti or derogatory statements;
- b) Insults, slurs and negative stereotyping;
- c) Threatening, intimidating and hostile acts;
- d) Written or graphic material, including email and internet material, that denigrates or shows hostility towards an individual or group;
- e) Touching, pushing, pinching, or any unwelcome physical contact including but not limited to physical assault, offensive comments, leering or similar gestures; and
- f) Profanity and offensive language; verbal and physical threats or assault;

intimidation; taunting or ostracizing; rude or inappropriate jokes or innuendos; overly aggressive, embarrassing, humiliating or demeaning behaviour; and malicious gestures or action.

6. **What Harassment is Not**

Examples of what is not harassment or behaviour that does not offend this Standard are the following:

- a) Chit-chat or good-natured jesting when both parties find the conduct acceptable;
- b) An occasional compliment or remark;
- c) Workplace flirtation when it is a voluntary relationship to which neither objects;
- d) Normal exercise of supervisory responsibilities including training, counselling and discipline or a particular supervisory style; and
- e) Personality differences between people

Individual Responsibility

All individuals are responsible for:

1. Abiding by this standard or any policy created under this standard;
2. Fostering a respectful workplace where discrimination, harassment, workplace

- violence and/or threat of workplace violence is not tolerated; and
3. When encountering behaviour which violates this standard or a policy created under this standard, immediately advise the individual (where possible) that the behaviour is unwelcomed or report the undesired behaviour to a supervisor.

Managers and Supervisors

Managers and supervisors are responsible for:

1. Leading by example to ensure our project is free of discrimination, harassment, workplace violence and/or threat of workplace violence;
2. Implementing or enforcing this standard or any policy created under this standard;
3. Ensuring that all employees they supervise have knowledge of and understand this standard or any policy created under this standard;
4. Ensuring the work environment they supervise is free from discrimination, harassment, workplace violence or the threat of workplace violence and is a respectful workplace; and
5. Taking or assisting in prompt and appropriate corrective action where necessary to ensure compliance with this standard or any policy created under this standard.

Contractor Responsibility

Contractors are responsible to:

- a) Have a Respectful Workplace Policy that meets or exceeds this Standard;
- b) Make inquiries to determine if the circumstances are such that an informal resolution of the complaint is a potential outcome, and if so to determine if the Complainant will consider attempting to resolve the matter through the Informal Complaint process;
- c) Document Informal Complaints and the resolution of Informal Complaints, and provide a copy of documentation to Nalcor Energy, no later twenty-four (24) hours after receipt;
- d) Upon receipt of a Formal Complaint, or being made aware of a complaint, the Contractor must determine the following:
 - i. if it is appropriate to separate the Complainant and the Respondent'
 - ii. have the Respondent off work on administrative leave pending the outcome of the investigation; or
 - iii. such other action the Contractor deems appropriate in the circumstances.
- e) Report in writing all Informal or Formal Complaints made under this Standard or policy created under this Standard, to Nalcor Energy immediately, including copies of all

- statements and other documentation, and no later than twenty-four (24) hours after receipt;
- f) Complete investigation, or cause an investigation to be completed by an independent investigator and render a report within seven (7) days of receipt of the Formal Complaint, unless completing the report in this timeframe is not practical;
 - g) Upon completion of the investigation report, advise Nalcor Energy in writing of the outcome of the Formal Complaint including any corrective action recommended and taken;
 - h) Provide a copy of the investigation report to Nalcor Energy if requested; and
 - i) Make available translation services that have been designated by Nalcor Energy for Labrador Innu that are interviewed or required to attend any meeting under this Standard or policy created under this Standard

Complaint Reporting and Informal Resolution

1. Informal Complaint Resolution Option

- a) If possible, tell the individual either verbally or in writing, that the behaviour is unwelcome and/or ask him/her to stop immediately following the incident;
- b) Report the incident to your immediate supervisor, or a manager or a member of

the human resources department (Labrador Innu workers have the option of reporting any incidents under this standard to the Innu Liaison Coordinator);

- c) The person making the complaint and the person the complaint is reported to shall keep a written record of the incident(s), including but not limited to date, time, location, witnesses, and what happened;
- d) Have consultation with your immediate supervisor, manager, member of the Human Resource Department or a third-party investigator engaged by the contractor to determine if the matter can be resolved as an Informal Complaint; and
- e) Where the complainant is not satisfied with the outcome of the informal process (as set out in (a), (b) (c) and (d)), or where an Informal Complaint is inappropriate, the complainant may choose to file a Formal Complaint against the Respondent.

2. Formal Complaint Reporting

- a) A Formal Complaint may be filed with any of the following:
 - Immediate supervisor;
 - Human resources and/or labour relations manager;

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- Any manager of your Employer; or
 - Labrador Innu workers may file a complaint with the Innu Liaison Coordinator.
- b) The complaint should include:
- Name of alleged harasser(s); and
 - Details of alleged discrimination, harassment, workplace violence and/or threat of workplace violence (including dates, times, location, witnesses, circumstances surrounding the complaint, drawings or any other supporting documentation).
- c) The complaint should be made as soon as possible, as timeliness in filing the complaint protects the rights of the Complainant and Respondent;
- d) Nothing in this standard or policy under this standard, prohibits the individual their right to report the incident to the police or any other form of authority including the Newfoundland and Labrador Human Rights Commission; and
- e) The Complainant and Respondent will be made aware of the nature of the complaint and will be given an opportunity to respond as part of the investigation.

3. Reports of Violation of Respectful Workplace Standard by Witnesses

If you observe any incident of discrimination, harassment, workplace violence and/or threat of workplace violence, you are required to:

- a) If possible, tell the alleged harasser or person engaging in discriminatory or violent behaviour that the behaviour is inappropriate and ask him/her to stop;
- b) Keep a record of the incident(s) (date, time, location, witnesses, details of incident, etc.);
- c) Refer the victim of the incident to this standard or any policy of the victim's Employer created under this standard; and
- d) Report the incident to your supervisor, the human resources or labour relations manager, or any other manager of your employer.

Investigation Process

1. Within two (2) days upon receipt of a Formal Complaint, an impartial investigator shall be appointed by a senior management person or representative of the human resources department. Where appropriate, an independent investigator may be appointed to conduct the investigation.
2. The investigator will conduct a thorough and impartial investigation appropriate to the

- circumstances and collect evidence, question the involved parties, review documentation and interview witnesses.
3. The investigator will submit an investigation report within seven (7) days of being appointed, if practical, documenting the findings.
 4. A senior manager designated by the Contractor will, upon reviewing the report, determine the appropriate corrective action(s).
 5. In the case of an investigation report rendered by Nalcor Energy, a senior management person designated by Nalcor Energy will determine the appropriate corrective action(s).

When the disposition of the complaint has been decided, the Complainant and the Respondent are to be informed of the investigation findings and the action(s) taken to resolve the complaint. Where the resolution of the complaint requires disciplinary action against a union person, the union must be provided with a copy of any discipline notation.

Confidentiality

All parties involved in investigations of complaints of discrimination, harassment, workplace violence and/or threat of workplace violence will be treated with the strictest of confidence. Such complaints will be investigated

or resolved with the persons deemed necessary to carry out the investigation. The names of the individuals involved and the circumstances will only be divulged if necessary for the purposes of investigating the complaint, if required by law, or pursuant to Section 4.3 of this Standard

LCP Contractor Remedies under this Standard or Policy Created under this Standard

Appropriate action to be taken by a contractor against any employee found to have violated this standard or a policy created under this standard may include but is not limited to and not necessarily in the following order:

1. Written reprimand;
2. Attendance at Respectful Workplace Training;
3. Attendance at Cultural and/or Gender Sensitivity Training;
4. A suspension without pay;
5. A transfer if the persons involved cannot continue working together; and
6. Termination of employment.

Nalcor Energy Role and Remedies under this Standard

Nalcor Energy reserves the right, at its sole discretion, to review or change this standard at any time.

Nalcor Energy, at its sole discretion may in exceptional circumstances, investigate any complaint made under this standard to Nalcor or any complaint submitted to a Contractor under this standard or a policy created under this standard. Should Nalcor Energy conduct an investigation, such investigation does not replace any investigation being conducted by the contractor or relieve the contractor's obligation to comply with this standard or any policy created under this standard.

Nalcor Energy, upon receiving an Informal or Formal Complaint, completing an investigation or being notified of the outcome of an investigation or corrective actions, may:

1. Temporarily revoke site access;
2. Impose any conditions precedent to granting site access;
3. Permanently deny or revoke site access; or
4. Any other actions Nalcor Energy, in its absolute discretion, deems appropriate.

Frivolous Complaints or Retaliation for Making Complaints

Unsubstantiated/Unwarranted or Frivolous Complaints

Making a false complaint, frivolous complaint or a complaint in bad faith, or knowingly providing false information during a process established pursuant to this Standard or a policy created

under this Standard is prohibited and will result in discipline up to and including termination by the Contractor and may result in site access being revoked temporarily or permanently at Nalcor Energy's absolute discretion.

Retaliation

No one shall discipline, retaliate or take reprisal in any way against anyone who in good faith makes a complaint pursuant to this Standard or policy created under this Standard, or expresses a concern about discrimination, harassment, workplace violence and/or threat of workplace violence, or who has cooperated in an investigation pursuant to this Standard or policy created under this Standard.

Any retaliation against an individual who has made a bona fide complaint is strictly prohibited and any individual who engages in such conduct may be subject to discipline up to and including termination and may have their site access revoked temporarily or permanently at Nalcor Energy's absolute discretion.

Work Schedule

The work schedule for site shall be determined by the contractor in accordance with the Project Labour Agreement, where applicable. The scheduling of the number of days of work in a week, the number of shifts in a day and the

number of hours in a shift shall be at the discretion of the contractor in accordance with the applicable Project Labour Agreement. The work schedules for Innu employees will comply with the terms of the IBA, including flexibility in work schedules and rotation provisions to allow Innu to participate in traditional activities.

Privacy Policy

All contractors are to institute systems to protect the personal information of their employees as outlined in the Provincial Government's Access to Information and Protection of Privacy Act.

Labour Relations

Labour Relations

The LCP is committed to the creation of a positive project culture and terms and conditions of employment that differentiates the project. In partnership with the union all stakeholders will work together to support the Labour Relations Management Plan which provides the framework for achieving high levels of labour productivity, while fostering a respectful work environment, safety, quality, efficiency and respect for the environment. The focus is on fairness in the relationship between workers, contractors and union through open dialogue, equal treatment, consistent enforcement of rules and respect for each other's requirements.

In partnership with our unions, Project Labour Agreements have been negotiated that support a team based work environment. Adherence to the Project Labour Agreement is expected. This Handbook is not a part of the agreement and no grievances can arise out of this document. You are encouraged to discuss any work related problems or concerns with your supervisor.

Given the large number of employees who will be working on the Project, and to maintain the desired work environment, we have created work standards for site access and related day to day matters.

It is our expectation that contractors will have work rules that meet or exceed the standards listed below.

LCP Site Access

Nalcor, as the Owner, has the right to control access to any LCP site. As such, Nalcor, at its sole discretion, may grant or deny access to any LCP site.

Site Access Card

All personnel granted site access will be issued a picture ID card. All lost or misplaced ID cards must be reported to the Administration Office immediately. If a replacement card is required, there will be a charge for each replacement. When employees leave the site indefinitely or for extended periods (temporary layoffs) the supervisor must ensure that the employee's ID card is returned to the Administration Office. If an employee has forgotten or misplaced their ID card, the employee is required to sign in at Security.

Report to Work Standard

All personnel must sign in and out on a daily basis at the start and end of the shift, as well as any late start or early departure from the Project.

All personnel must arrive at work in a timely manner such that the employee is ready to go to work at the start of the shift. All personnel must leave work in a manner that reflects a time that is either on or after the conclusion of the work shift.

Personnel are not allowed to sign in or out for one another.

Attendance Standard

Personnel are accountable for their attendance and are expected to be at work on time every workday and to complete a full shift. Absenteeism of three or more consecutive shifts without notification or a reasonable excuse will result in revocation of site access and termination of your employment by your employer, unless there are exceptional mitigating circumstances.

Personal Cell Phones/ Mobile Devices and Internet Usage

Personal cell phones or other mobile devices are not to be used on LCP work sites.

A recreational internet network will be available in the accommodations complex for use during non-work hours, appropriate restrictions will apply. Nalcor offices will have secure internet connection for business use only.

Use of Cameras

Digital Camera/Video Permits are to be issued to those required to collect photos for work related duties/purposes and can be revoked at any given time by the Project Delivery Team.

This policy applies to all project property locations, including the camp accommodations. Permits are required to be signed by the respective LCP Area Construction Manager or Site Manager and the approval signature for authorization must be obtained by Authorized Project Delivery Personnel. In accordance with the policy, project authorization can be granted by any of the following: Project Site HSSER Manager, Project Site HSSER Coordinator, Project Site Manager (or designate), Project Deputy Site Manager (or designate), Area Construction Manager (or designate).

The Digital/Camera Permit shall be made readily available for presentation to both Security and Project Delivery Team Personnel in order to control unauthorized usage.

Safety/Hazard potential in high risk areas must be taken into consideration while utilizing digital/video equipment on any LCP site.

A designated escort will be responsible for ensuring that digital equipment/camera

equipment is used in accordance with the reason the permit was brought on site.

A progressive disciplinary policy will be enforced upon those who fail to abide by the requirements of this Policy.

All visitors and new employees/contractors are advised of this policy requirement during site orientation. For visitors found violating this policy, it will constitute IMMEDIATE removal from the site. For employees, consultants, etc., a violation will result in a formal report to the supervisor and will be subject to the progressive site disciplinary policy.

Smoking

LCP has designated smoking areas for personnel who smoke. All personnel should check with their supervisor and watch the bulletin boards at their location for information on this policy. Whether you are a smoker or non-smoker, respect the rights of your coworkers. All personnel who smoke in non-designated areas may be subject to revocation of site access and discipline by your employer, up to and including termination.

Control of Firearms

Personnel are strictly prohibited from possession or use of firearms or other weapons on the site,

even when they possess a legal permit from a governmental body to carry such an item. Weapons may include, but are not limited to, handguns, knives (other than small, personal ones or those used as work tools), explosives and explosive devices and other instruments or materials that could cause harm to another employee, wildlife, or the public. Violation of this standard will result in the revocation of site access and termination of employment by your employer, unless there are exceptional mitigating circumstances.

Counseling and Progressive Discipline Standard

Counseling

Counseling is non-disciplinary and may be utilized by a supervisor when an employee does not meet the expected standard of performance or conduct established by the Contractor or for the Project. This non-disciplinary counseling is to ensure the employee is made aware of what is expected for a standard of performance or conduct and to give the employee the opportunity to modify the behavior. In addition, any counseling will make it clear that similar conduct or behavior may result in discipline up to and including termination.

Progressive Discipline

Progressive discipline may be utilized by a supervisor after an employee has received counseling and the conduct or behavior continues or when the severity of an incident warrants discipline in the first instance.

Discipline is normally carried out in progressive severity and is intended to correct behavior while acting as a deterrent.

The following is the typical sequence of progressive discipline:

Verbal Disciplinary Warning – to be recorded by a contractor and noted in the employee's personnel file; issued when the infraction is of a minor nature and is either the first occurrence of unacceptable behaviour or first occurrence after the employee has been counseled. The employee is to be provided a written confirmation of the verbal disciplinary warning.

Written Disciplinary Warning – issued where the first infraction is of a relatively minor nature. It may be a first occurrence of unacceptable behaviour or it may have been brought to the attention of the employee previously, through counseling or through a verbal disciplinary warning.

Suspension – issued when the infraction is of a serious nature, even though it may be the first occurrence;

The infraction is of a minor nature but is a continuation of unacceptable behavior, after a written and/or verbal disciplinary.

Termination – issued when the infraction is of such a serious nature that employment cannot continue;

The infraction is a final incident in a series of infractions that have been dealt with through one or more steps of progressive discipline.

Factors to Consider:

The steps of progressive discipline may be jumped or accelerated or delayed based on the following:

- Length of service;
- Past record;
- Severity of the infraction;
- Attitude of the employee;
- Previous corrective action record;
- Other mitigating factors, i.e., provocation.

Investigation – When a supervisor observes or is made aware of conduct or behavior of an employee that does not meet the accepted

standards of performance or conduct established for the project, the supervisor or a contractor/manager will:

- Conduct an initial investigation of the incident to gather all of the facts. The investigation may include an opportunity for the employee to provide the facts as the employee sees them. It should also provide an opportunity for the employee union representative, when requested to be involved;
- Innu employees will also have the access to support of the Innu Liaison Coordinator and other supports provided for in the IBA.

After the Contractor's supervisor has gathered information on the circumstances surrounding the infraction and reviewed the personnel file, the supervisor will communicate the level of discipline to the employee, including a copy of the written documentation.

LCP Site Work Rules

For all individuals working on the site, a basic set of rules have been developed to govern daily activities. While various rules are listed throughout the Handbook, particular attention should be paid to the violations listed below, which will lead to the denial or revocation of site access and termination of your employment by

your employer, unless there are exceptional mitigating circumstances.

The following list provides examples and is not exclusive:

- Violation of safety absolutes;
- Disregard for safety rules;
- Non-compliance with the Lower Churchill Project Drug and Alcohol standard, including but not limited to:
 - Reporting for work under the influence of alcohol or illegal drugs;
 - Possession of alcohol, illegal drugs or illegal drug paraphernalia;
 - Distribute, sell or attempt to sell drugs or illegal drug paraphernalia, or engage in unauthorized distribution, offering, or sale of prescription medication;
 - Refusing to submit to a requested just cause or post incident drug and alcohol test;
- Willful damage to equipment;
- Tampering with Safety Devices or Emergency Response Equipment;
- Working without a Construction Specific Permit. (Confined Space Entry, Excavation, Leading Edge/ Open Hole, etc.);
- Theft of property;
- Deliberate falsification of statement, reports or records;
- Failure to submit to requested searches

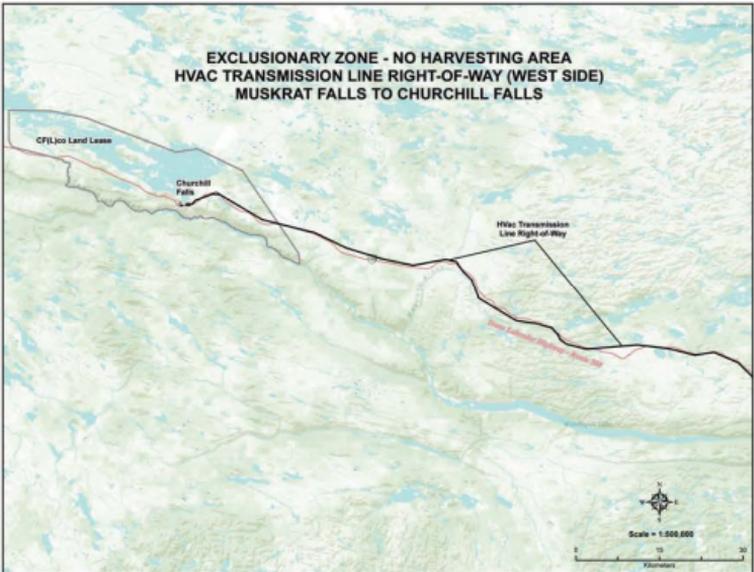
(vehicles, packages and/or personal baggage, including lunch boxes, entering or leaving the Site);

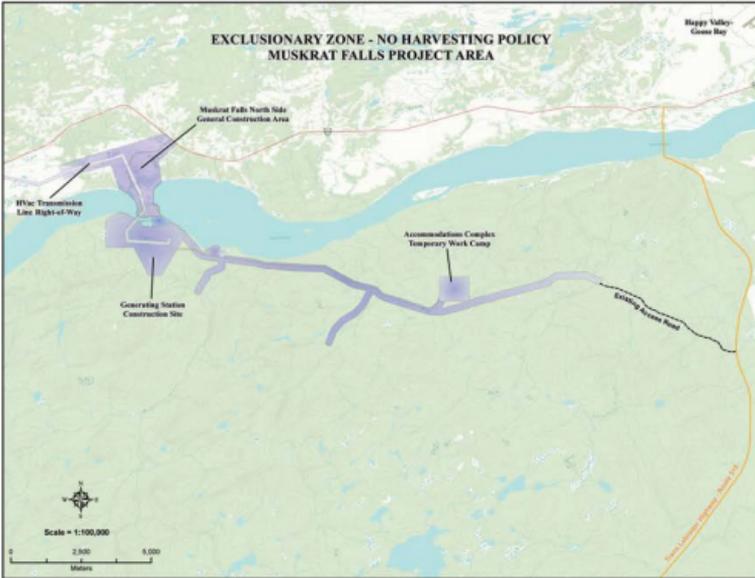
- Fighting or assault;
- Card swiping in or out for another individual and time card theft;
- Sleeping on the job during work hours;
- Possession of firearms, lethal weapons, ammunition or explosives on the site;
- Insubordination;
- Absenteeism of three (3) consecutive shifts without notification;
- Serious harassment, sexual or any other form.

The following are examples that may lead to revocation of site access and discipline by your employer up to and including termination:

- Hunting, fishing, trapping, collecting firewood or picking berries, whether on or off duty, at any time within the project area at any LCP work site and/or support infrastructure;
- Personal cell phones or other mobile devices, unless authorized;
- Abusive language, verbal threats, or intimidation of any employee;
- Failure to report job related injuries or illnesses.

11.0 Attachments







Harlequin Duck



Rusty blackbird



Osprey



Olive-sided flycatcher



Caribou



Night hawk



Grey-cheeked thrush

Acknowledgement Form

I have been provided with a copy of the LCP Site Handbook and understand that I am required to read the Handbook and am required to comply with the safety absolutes, rules and other requirements contained in the Handbook.

Signature: _____

Printed Name: _____

Date: _____

Office Location: _____

Signed original is to be retained by the Training Department.



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energy
LOWER CHURCHILL PROJECT

Nalcor Energy – Lower Churchill Project



Lower Churchill Project Respectful Workplace Standard

LCP-PT- MD-0000-HR-SD-0002-01

	Total # of Pages (Including Cover): 13
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Status/ Revision	Date	Reason For Issue	Prepared By	Checker	Functional Manager Approval	Project Manager (Generation + Island Link) Approval	Project Director Approval
B1	16 Sep 2013	Issue for Use	F. Cornick / D. Clark	J. Kean / F. Cornick	B. Crawley / L. Clarke	R. Power	P. Harrington
CONFIDENTIALITY NOTE:		This document contains intellectual property of the Nalcor Energy – Lower Churchill Project and shall not be copied, used or distributed in whole or in part without the prior written consent from the Nalcor Energy – Lower Churchill Project.					

LCP Respectful Workplace Standard

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Rev. B1

Inter-Departmental / Discipline Approval (where required)

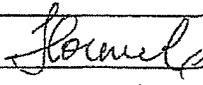
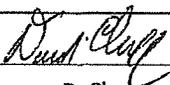
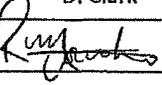
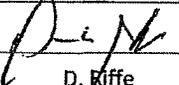
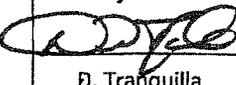
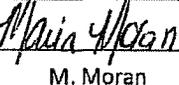
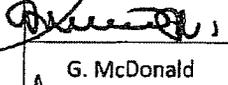
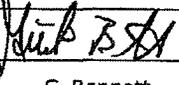
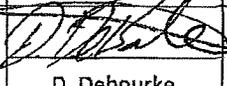
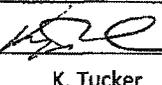
Department	Department Manager Approval	Date
Human Resources Lead	 F. Cornick	Aug 21, 2013
Labour Relations Lead	 D. Clark	Aug 21/2013
Training Lead	 B. Marshall	August 21, 2013
Project Manager Muskrat Falls	 S. O'Brien	06 Sep. 2013
Manager, Health & Safety	 D. Riffe	Aug 21, 2013
Site Manager Muskrat Falls Generation	 P. Tranquilla	5/16/13
Benefits Lead	 M. Moran	Aug 21, 2013
SOBI Marine Crossing	 G. Fleming	Aug 28/2013
VP - HROE	 G. McDonald	Sept 6 (2013)
VP - LCP	 G. Bennett	26, Aug 2013
Project Manager HVdc Specialties	 D. Debourke	5 Sept. 2013
LILCo Manager	 K. Tucker	21 Aug. 2013

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1.0 Purpose

The Lower Churchill Project (“LCP”) is committed to maintaining a safe, healthy and productive work environment where all persons attending LCP worksites are valued and treated with respect and dignity. This Respectful Workplace Standard (“Standard”) is intended to support a work environment free of discrimination, harassment, workplace violence and/or threat of workplace violence. All persons engaged in work on the LCP are expected to lead by example to ensure our Project is free of discrimination, harassment, workplace violence and/or threat of workplace violence. This Standard provides guidelines for Nalcor Energy and our Contractors to respond quickly and fairly with any incidents reported under this Standard or policy created under this Standard.

This Standard supports our Project values:

Open Communication: Fostering an environment where information moves freely in a timely manner.

Accountability: Holding ourselves responsible for our actions and performance.

Safety: Relentless commitment to protecting ourselves, our colleagues and our community.

Honesty and Trust: Being sincere in everything we say and do.

Team Work: Sharing our ideas in an open and supportive manner to achieve excellence.

Respect and Dignity: Appreciating the individuality of others by our words and actions.

Leadership: Empowering individuals to help guide and inspire others.

2.0 Application

This Standard applies to all employees and consultants of Nalcor Energy, SNC-Lavalin Inc., LCP Contractors and any other parties engaged in or performing work on LCP worksites.

This Standard applies to visitors, vendors, suppliers, Contractors and consultants attending LCP worksites.

All Contractors working on the LCP are required to have a Respectful Workplace Policy that meets or exceeds this Standard. In the event a Contractor does not have such a policy, this Standard will constitute the Contractor’s policy.

3.0 Definitions of Discrimination, Harassment, Workplace Violence and Other Terms

3.1 Discrimination, Harassment, Workplace Violence

The definition of discrimination, harassment, workplace violence and/or threat of workplace violence and examples of what is not harassment are as follows::

3.1.1 Discrimination

Any action, inaction or behaviour which negatively affects the status of an employee, or the unequal treatment of an employee or harassment on the basis of prohibitive grounds as defined under *Human Rights Act, 2010*, SNL2010 CHAPTER H-13.1, s. 9 (i) and s. 14 (i) including race, religion, religious creed, political opinion, source of income, color, nationality, ethnic origin, social origin, sex, sexual orientation, marital status, family status, disfigurement, disability, age and conviction of a criminal offence unrelated to employment.

3.1.2 Harassment

Harassment is any form of conduct that is known or reasonably ought to have been known to:

- a) Create an intimidating, hostile or offensive work environment;
- b) Be objectionable or offensive behaviour that is unwelcome;
- c) Adversely affect an individual's employment relationship or work performance; or
- d) Deny an individual dignity and self-respect.

3.1.3 Sexual Harassment

Any conduct, comment, gesture, or contact of a sexual nature, whether one-time or on a continuous basis that:

- a) Might reasonably be expected to cause offense or humiliation;
- b) Is known or ought to reasonably be known as unwelcome;
- c) Is made to an individual by another individual where the other individual is in a position to confer a benefit on or deny a benefit to, the individual to whom the solicitation or advance is made, where the individual who makes the solicitation or advance knows or reasonably ought to know that it is unwelcome;
- d) Is a retaliation or threat of retaliation against an individual for rejecting a sexual solicitation or advance; or
- e) Might reasonably be perceived as placing a condition on employment or opportunity for training, promotion or career development.

3.1.4 Workplace Violence and/or Threat of Workplace Violence

Any inappropriate physical contact or action, or threat of inappropriate physical contact or action, that would result in pain and/or suffering to individuals. This includes behaviour that would be interpreted by a reasonable person as a substantial threat to harm another person, or endanger the safety or wellbeing of another person, as well as any aggressive or bullying behaviour that is intended to cause emotional or physical distress to a person.

3.1.5 Examples of Discrimination, Harassment, Sexual Harassment, Workplace Violence and/or Threat of Workplace Violence

Discrimination, harassment, sexual harassment, workplace violence or threat of workplace violence can take many forms including but not limited to jokes, insults, threats, personal comments or innuendoes. The following are some examples:

- a) Posters, pictures, graffiti or derogatory written statements;
- b) Insults, slurs and negative stereotyping;
- c) Threatening, intimidating and hostile acts;
- d) Written or graphic material, including email and internet material, that denigrates or shows hostility towards an individual or group;
- e) Touching, pushing, pinching, or any unwelcome physical contact including but not limited to physical assault, offensive comments, leering or similar gestures; and
- f) Profanity and offensive language; verbal and physical threats or assault; intimidation; taunting or ostracizing; rude or inappropriate jokes or innuendos; overly aggressive, embarrassing, humiliating or demeaning behaviour; and malicious gestures or action.

3.1.6 What Harassment is Not

Examples of what is not harassment or behaviour that does not offend this Standard are the following:

- a) Chit-chat or good-natured jesting when both parties find the conduct acceptable;
- b) An occasional compliment or remark;
- c) Workplace flirtation when it is a voluntary relationship to which neither objects;
- d) Normal exercise of supervisory responsibilities including training, counselling and discipline or a particular supervisory style; and
- e) Personality differences between people.

3.2 Informal Complaint or Informal Complaint Resolution

A complaint which is resolved by direct interpersonal negotiating or mediation with the help of a supervisor and/or personnel staff, or a third-party mediator and/or third-party investigator.

3.3 Formal Complaint

A written, signed complaint statement which will result in an investigation by an investigator designated under this Standard.

3.4 Investigator's Report

The formalized report of the investigation process and a recommended resolution of the complaint.

3.5 Complaint Statement

The allegations of harassment made by the complainant.

3.6 Complainant

The person making a complaint of harassment.

3.7 Investigator

The individual appointed to investigate the complaint.

3.8 Respondent

The person accused of harassment by the complainant.

3.9 LCP

The Lower Churchill Project.

3.10 LCP Worksite

Means any property, facility or space utilized by the LCP and includes but is not limited to physical worksites, lunchrooms, workspaces, offices, kiosks, meeting rooms, Nalcor Energy or Contractor vehicles, cafeterias, accommodations complexes, training sessions, Nalcor Energy or Contractor sponsored voluntary events and/or Contractors sponsored social gatherings related to LCP.

4.0 Responsibility under Standard**4.1 Individual Responsibility**

All individuals are responsible for:

- a) Abiding by this Standard or any policy created under this Standard;
- b) Fostering a respectful workplace where discrimination, harassment, workplace violence and/or threat of workplace violence is not tolerated; and

-
- c) When encountering behaviour which violates this Standard or a policy under this Standard, immediately advise the individual (where possible) that the behaviour is unwelcomed or report the undesired behaviour to a supervisor.

4.2 Managers and Supervisors

Managers and supervisors are responsible for:

- a) Lead by example to ensure our Project is free of discrimination, harassment, workplace violence and/or threat of workplace violence;
- b) Implementing or enforcing this Standard or any policy created under this Standard;
- c) Ensuring that all employees they supervise have knowledge of and understand this Standard or any policy created under this Standard;
- d) Ensure the work environment they supervise is free from discrimination, harassment, workplace violence or the threat of workplace violence and is a respectful workplace; and
- e) Taking or assisting in prompt and appropriate corrective action where necessary to ensure compliance with this Standard or any policy created under this Standard.

4.3 Contractor Responsibility

Contractors are responsible to:

- a) Have a Respectful Workplace Policy that meets or exceeds this Standard;
- b) Make inquiries to determine if the circumstances are such that an informal resolution of the complaint is a potential outcome, and if so to determine if the Complainant will consider attempting to resolve the matter through the Informal Complaint process;
- c) Document Informal Complaints and the resolution of Informal Complaints, and provide a copy of documentation to Nalcor Energy, no later twenty-four (24) hours after receipt;
- d) Upon receipt of a Formal Complaint, or being made aware of a complaint, the Contractor must determine the following:
 - i. if it is appropriate to separate the Complainant and the Respondent'
 - ii. have the Respondent off work on administrative leave pending the outcome of the investigation; or
 - iii. such other action the Contractor deems appropriate in the circumstances.
- e) Report in writing all Informal or Formal Complaints made under this Standard or policy created under this Standard, to Nalcor Energy immediately, including copies of all statements and other documentation, and no later than twenty-four (24) hours after receipt;
- f) Complete investigation, or cause an investigation to be completed by an independent investigator and render a report within seven (7) days of receipt of the Formal Complaint, unless completing the report in this timeframe is not practical;

-
- g) Upon completion of the investigation report, advise Nalcor Energy in writing of the outcome of the Formal Complaint including any corrective action recommended and taken;
 - h) Provide a copy of the investigation report to Nalcor Energy if requested; and
 - i) Make available translation services that have been designated by Nalcor Energy for Labrador Innu that are interviewed or required to attend any meeting under this Standard or policy created under this Standard.

4.4 Visitors, Vendors, Suppliers, Contractors and Consultants

Visitors, vendors, suppliers, Contractors and consultants are responsible for complying with this Standard.

4.5 Complainant

Once a Formal Complaint is made, the complainant agrees to cooperate in any investigation being conducted.

4.6 Respondent

The Respondent to any complaint shall cooperate in any investigation being conducted.

5.0 Informal Complaint Resolution, Formal Complaint and Reporting

For an individual who believes they are the subject of any behaviour that violates this Standard or any policy created under this Standard, the following are the processes:

5.1 Informal Complaint Resolution

- a) If possible, tell the individual either verbally or in writing, that the behaviour is unwelcome and/or ask him/her to stop immediately following the incident;
- b) Report the incident to your immediate supervisor, or a manager or a member of the human resources department (Labrador Innu workers have the option of reporting any incidents under this Standard to the Innu Liaison Coordinator);
- c) The person making the complaint and the person the complaint is reported to shall keep a written record of the incident(s), including but not limited to date, time, location, witnesses, and what happened;
- d) Have consultation with your immediate supervisor, manager, member of the Human Resource Department or a third-party investigator engaged by the Contractor to determine if the matter can be resolved as an Informal Complaint; and
- e) Where the complainant is not satisfied with the outcome of the informal process (as set out in 5.1(a), (b) (c) and (d)), or where an Informal Complaint is inappropriate, the complainant may choose to file a Formal Complaint against the Respondent.

5.2 Formal Complaint

- a) A Formal Complaint may be filed with any of the following:
 - i. Immediate supervisor;
 - ii. Human resources and/or labour relations manager;
 - iii. Any manager of your Employer; or
 - iv. Labrador Innu workers may file a complaint with the Innu Liaison Coordinator.
- b) The complaint should include:
 - i. Name of alleged harasser(s); and
 - ii. Details of alleged discrimination, harassment, workplace violence and/or threat of workplace violence (including dates, times, location, witnesses, circumstances surrounding the complaint, drawings or any other supporting documentation).
- c) The complaint should be made as soon as possible, as timeliness in filing the complaint protects the rights of the Complainant and Respondent;
- d) Nothing in this Standard or policy under this Standard, prohibits the Individual their right to report the incident to the police or any other form of authority including the Newfoundland and Labrador Human Rights Commission; and
- e) The Complainant and Respondent will be made aware of the nature of the complaint and will be given an opportunity to respond as part of the investigation.

5.3 Reports by Witnesses

If you observe any incident of discrimination, harassment, workplace violence and/or threat of workplace violence, you are required to:

- a) If possible, tell the alleged harasser or person engaging in discriminatory or violent behaviour that the behaviour is inappropriate and ask him/her to stop;
- b) Keep a record of the incident(s) (date, time, location, witnesses, details of incident, etc.);
- c) Refer the victim of the incident to this Standard or any policy of the victim's Employer created under this Standard; and
- d) Report the incident to your supervisor, the human resources or labour relations manager, or any other manager of your employer.

6.0 Investigation Process

1. Within two (2) days upon receipt of a Formal Complaint, an impartial investigator shall be appointed by a senior management person or representative of the human resources department. Where appropriate, an independent investigator may be appointed to conduct the investigation.

-
2. The investigator will conduct a thorough and impartial investigation appropriate to the circumstances and collect evidence, question the involved parties, review documentation and interview witnesses.
 3. The investigator will submit an investigation report within seven (7) days of being appointed, if practical, documenting the findings.
 4. A senior manager designated by the Contractor will, upon reviewing the report, determine the appropriate corrective action(s).
 5. In the case of an investigation report rendered by Nalcor Energy, a senior management person designated by Nalcor Energy will determine the appropriate corrective action(s).
 6. When the disposition of the complaint has been decided, the Complainant and the Respondent are to be informed of the investigation findings and the action(s) taken to resolve the complaint. Where the resolution of the complaint requires disciplinary action against a union person, the union must be provided with a copy of any discipline notation.

7.0 Confidentiality

All parties involved in investigations of complaints of discrimination, harassment, workplace violence and/or threat of workplace violence will be treated with the strictest of confidence. Such complaints will be investigated or resolved with the persons deemed necessary to carry out the investigation. The names of the individuals involved and the circumstances will only be divulged if necessary for the purposes of investigating the complaint, if required by law, or pursuant to Section 4.3 of this Standard.

8.0 LCP Contractor Remedies under this Standard or Policy Created under this Standard

Appropriate action to be taken by a Contractor against any employee found to have violated this Standard or a policy created under this Standard may include but is not limited to and not necessarily in the following order:

- a) Written reprimand;
- b) Attendance at a Respectful Workplace Training;
- c) Attendance at Cultural and/or Gender Sensitivity Training;
- d) A suspension without pay;
- e) A transfer if the persons involved cannot continue working together; and
- f) Termination of employment.

9.0 Nalcor Energy Role and Remedies under this Standard

Nalcor Energy reserves the right, at its sole discretion, to review or change this Standard at any time.

Nalcor Energy, at its sole discretion may in exceptional circumstances, investigate any complaint made under this Standard to Nalcor or any complaint submitted to a Contractor under this Standard or a policy created under this Standard. Should Nalcor Energy conduct an investigation, such investigation does not replace any investigation being conducted by the Contractor or relieve the Contractor's obligation to comply with this Standard or any policy created under this Standard.

Nalcor Energy, upon receiving an Informal or Formal Complaint, completing an investigation or being notified of the outcome of an investigation or corrective actions pursuant to section 4.3 of this Standard, may:

- a) Temporarily revoke site access;
- b) Impose any conditions precedent to granting site access;
- c) Permanently deny or revoke site access; or
- d) Any other actions Nalcor Energy, in its absolute discretion, deems appropriate.

This Standard does not abridge or restrict or modify Nalcor Energy's right as the property Owner of LCP worksites to restrict or deny access to any LCP work site.

10.0 Frivolous Complaints or Retaliation for Making Complaints

10.1 Unsubstantiated/Unwarranted or Frivolous Complaints

Making a false complaint, frivolous complaint or a complaint in bad faith, or knowingly providing false information during a process established pursuant to this Standard or a policy created under this Standard is prohibited and will result in discipline up to and including termination by the Contractor and may result in site access being revoked temporarily or permanently at Nalcor Energy's absolute discretion.

10.2 Retaliation

No one shall discipline, retaliate or take reprisal in any way against anyone who in good faith makes a complaint pursuant to this Standard or policy created under this Standard, or expresses a concern about discrimination, harassment, workplace violence and/or threat of workplace violence, or who has cooperated in an investigation pursuant to this Standard or policy created under this Standard.

Any retaliation against an individual who has made a bona fide complaint is strictly prohibited and any individual who engages in such conduct may be subject to discipline up to and including termination and may have their site access revoked temporarily or permanently at Nalcor Energy's absolute discretion.

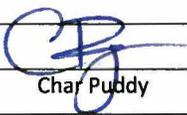
Nalcor Energy – Lower Churchill Project



Site Access Authorization Form

Nalcor Doc. No. LCP-PT-MD-0000-HS-FR-0008-01

Comments:	Total # of Pages: (Including Cover): 2
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B1	28-APR-2014	Issue for Use	 Char Puddy	 Dave Riffe
Status / Revision	Date	Reason for Issue	Prepared by	Functional Manager Approval

CONFIDENTIALITY NOTE:
 This document contains Intellectual property of the Nalcor Energy – Lower Churchill Project and shall not be copied, used or distributed in whole or in part without the prior written consent from the Nalcor Energy – Lower Churchill Project.



Site Access Authorization Form
Nalcor Doc. No. LCP-PT-MD-0000-HS-FR-0008-01

Site Access Authorization Form

All Visitors to a Lower Churchill Project Construction Site must complete this form in its entirety. By signing this form, the applicant agrees to read and abide by all of the appropriate Lower Churchill Project Policies and Procedures. The applicant must also follow the instruction of Site Personnel during the visit.

NOTE: This form shall be considered to be in conjunction with Nalcor document "Authorization Protocol for Access to Project Construction Sites" – Nalcor Doc. No. LCP-PT-MD-0000-HS-PR-0001-01.

Site Visitor's Name (Print):	Title/Organization:	Phone Number/E-Mail:
Emergency Contact Name (Print):		Phone Number:
Signature of Site Visitor:	Date (DD-MMM-YYYY):	E-Mail Address:
Reason(s) for Visit:		
Requested Duration of Visit:	Arrival Date(DD-MMM-YYYY):	Departure Date (DD-MMM-YYYY):

Required Authorization:

LCP Construction Site Manager	Date (DD-MMM-YYYY):
HSSER Manager	Date (DD-MMM-YYYY):

Authorization (as required)

LCP Senior Communications Advisor	Date (DD-MMM-YYYY):
Vice President- Lower Churchill Project	Date (DD-MMM-YYYY):

Exhibit 12
Site Conditions
Agreement Number CT0327-001

EXHIBIT 12

NOT USED

Exhibit 13
Provincial Benefits
Agreement Number CT0327-001

EXHIBIT 13
PROVINCIAL BENEFITS

Exhibit 13
Provincial Benefits
Agreement Number: CT0327-001

For the purposes of this Agreement, wherever the terms “Bidder” and “Successful Bidder” appear in this Exhibit 13 and Attachment 1 (Completed Provincial Benefits Questionnaire), each such term shall mean Contractor.

Handwritten signature and initials in blue ink, located in the bottom right corner of the page. The signature is a stylized, cursive mark, and the initials below it appear to be 'PB' and 'AV'.

APPENDIX A11

PROVINCIAL BENEFITS QUESTIONNAIRE

1.0 INTRODUCTION

This questionnaire is used to assess the Provincial Benefits content contained in Bidder's Proposal for the Lower Churchill Project ("LCP").

Bidder is required to respond to the questions/statements outlined in this questionnaire in the format presented in the various sections herein. Accurate information, consistent with Canadian General Standards Board, is imperative. Failure to provide the information required may result in its Proposal being rejected. Information provided is subject to audit by Company. Extracts from this submission will be included in the final agreement with the Successful Bidder.

Nalcor Energy has agreed to a Lower Churchill Construction Projects Benefits Strategy (http://www.nr.gov.nl.ca/nr/energy/lcp_benefits_strategy.pdf) with the Province of Newfoundland and Labrador. This Benefits Strategy outlines all contracting, purchasing, and employment benefits objectives for the LCP. This strategy also outlines Company's commitments to gender equity and diversity. Successful Bidder will be required to undertake a commitment to support gender equity and diversity in the execution of Work on the LCP. All contractors are required to adhere to applicable principles and commitments contained in this strategy.

Nalcor Energy has signed an Impacts and Benefits Agreement ("IBA") with the Innu Nation. This agreement includes obligations relating to employment, training, procurement and workplace policies. The intent of the IBA is to build capacity within the Innu Nation and involve the Innu in the LCP in a significant way. Innu content will be a consideration in the overall evaluation of all bids submitted.

Also the Government of Newfoundland and Labrador has entered into a Memorandum of Understanding ("MOU") with the Government of Nova Scotia regarding industrial and employment benefits with respect to the Maritime Link transmission project. Details of this MOU can be found at (<http://www.releases.gov.nl.ca/releases/2011/nr/1128n06.htm>).

In this MOU the parties agree that the Company will meet the following commitments in regard to the construction of the Muskrat Falls Plant and the Labrador-Island Link:

1. Provide Nova Scotia contractors, service providers, consultants, and suppliers with open, timely and transparent access to procurement opportunities and activities in relation to the projects;
2. Provide reasonable advance notice to the Nova Scotia supply and service community of all procurement opportunities;
3. Conduct a supplier information workshop in Nova Scotia;
4. Communicate with unsuccessful Nova Scotia proponents, when requested, to help the proponents better prepare for future opportunities.

2.0 BIDDER'S UNDERSTANDING AND COMMITMENT TO NEWFOUNDLAND AND LABRADOR BENEFITS AND IBA COMMITMENTS

2.1 Contracting and Procurement

The LCP is committed to supporting the accrual of benefits for the people of Newfoundland and Labrador, while executing the LCP on an economic basis adhering to competitive business practices. In support of this commitment, Bidder shall work to promote opportunities in Newfoundland and Labrador while maintaining the economic viability of the LCP through application of best value in the acquisition of goods and services. For purposes of this Appendix, best value is defined as a blend of total cost, quality, commitment to safety, technical suitability, credit worthiness, delivery and continuity of supply and services, where total cost is comprised of initial purchase price plus operation and maintenance costs. Within this framework, if successful, Bidder shall with respect to services and Work being performed for the LCP:

- (a) provide suppliers and contractors in Newfoundland and Labrador with full and fair opportunity to participate on a competitive basis in the supply of goods and services;
- (b) become familiar with Newfoundland and Labrador contractor/supplier capabilities, and size and design packages in a manner that recognizes these capabilities;
- (c) make the request for proposal processes, names and locations of key procurement personnel available to potential Newfoundland and Labrador suppliers and contractors where appropriate; and
- (d) require benefits information as part of the request for proposal processes in sufficient detail to assess the benefits to be derived from a proposal, including requiring bidders to complete a Provincial Benefits questionnaire as part of that process.

Bidder is asked to respond to the following:

- 2.1 a) Describe Bidder's experience with implementing local benefits strategies and agreements
- 2.1 b) Describe Bidder's procurement policies and procedures that will ensure reasonable advance notice to Newfoundland and Labrador (NL) supply community of all procurement opportunities
- 2.1 c) Describe Bidder's familiarity with NL contractor/supply capabilities. If Bidder is not currently familiar with these capabilities, describe proposed steps to ensure familiarity

2.1a) ***Bidder's experience with implementing local benefits strategies and agreements***

Valard is a self-sustaining / self-performing construction company; with respect to resources however we employ a proactive approach in engaging a local workforce and local enterprises when completing projects that are adjacent to communities. Specifically, Valard's approach includes:

- a. Filling positions with qualified persons that are available;*
- b. Hiring reliable and certified equipment from local owners and entrepreneurs;*
- c. Subcontracting enterprises that have the demonstrated capacity and experience to provide services as required.*

Additionally, Valard has a long history of engaging local First Nations communities in major projects in a meaningful way, creating and sustaining employment, and providing contracting opportunities. In many instances, Valard will prepare large local and aboriginal population segments for future opportunities by hiring and assigning them to other projects that Valard has underway. We currently have groups of Cape Breton Mi'kmaq training in Alberta; Gaspé Mi'kmaq training on our Hanna (Alberta) Project; Manitoba Cree working and training in all regions of the country, and are currently completing a major clearing project in Saskatchewan with a workforce of nearly three hundred workers from the Peter Ballantyne First Nation. Our programs are hands-on in all respects with trainees being mentored in all elements of transmission line construction. The end result of this activity has local residents prepared for employment when the project in their home region begins. Many of the training positions become full apprenticeships.

Valard currently has two hundred apprentices under their employ; that program is managed by a professional Human Resource Management staff. This program is available for the Nalcor project and planning/discussions have already been underway for over a year.

Whenever Valard becomes involved in projects it enters into agreements with the impacted communities that specify the particulars of the pending relationship. Fundamental to these agreements are the commitments that each party makes to training and creating employment opportunities. Valard has several of these arrangements currently in place. In Northern British Columbia, we have a comprehensive agreement affecting eight First Nations and the independent Nisga'a Nation that specifies the number and term of the employee groups that we bring into the project and within those agreements are the inclusion of local logging and road building contractors. The training programs are sustained; they last throughout the life of the job and are portable beyond the end of the contract. Valard offers continuing employment to all employees that become proficient in their specialty.

In the Yukon, Valard constructed YEC's Carmacks-Stewart Landing Project in two separate phases under a 5-way joint venture with a local contractor and three First Nations. The project was executed on time and at its peak over half of the projects complement of 60 personnel were local First Nation members. In addition to this, the project was able to place subcontracts in the small local communities (total population of approx. 600 people) in excess of \$2.5M, making a substantial contribution to the local economy.

In Manitoba, Valard is engaged in a Joint Venture with Fox Lake Cree Nation that is employment-based and co-managed. The long term nature of the projects in the region will result in local residents forming the bulk of the future employee base because of the training they will receive as a result of the Valard program.

On a previous Manitoba project – the Herblet to Ralls Island Transmission Project – Valard was able to score a 96% local content score, owing to employing a large contingent of Manitoba linemen and combining that with labour for tower assembly that was exclusively local. The personnel trained on this project from the local Cree and Metis communities have since been invited to travel to other projects in Alberta, BC and Ontario.

Projects and potential projects in Ontario are covered by MOU's and Joint Ventures with eleven aboriginal communities (Lake Huron Anishinabek Transmission Corporation [LHATC] and Bamkushwada Corporation) and in each instance the core objective of the agreement is to create and sustain employment for major segments of the local population. Once underway, each agreement is managed with the employment and training milestones monitored and adjusted continually.

An MOU with the Eskasoni Band in Cape Breton, NS is employment-based and highly successful. It is aimed at producing skilled linemen for potential employment in Cape Breton. That agreement has produced a group of nine new hires for Valard, all of whom are receiving their training in Alberta.

Valard has agreements with First Nations' communities that go beyond the technical elements of construction. With the LHATC we are preparing members of the community for the non-construction components of the regions' projects by offering scholarships in the engineering, environmental and business elements of the transmission business. Students are provided with scholarships to major Canadian universities.

Valard enters into extensive community consultation processes that are aimed at ascertaining the training and employment needs and then begins a negotiation process with local leadership intended to arrive at a partnership agreement that meets those needs. To the same extent, business opportunities are presented and those opportunities become a fundamental part of the agreement. The employment created by the business opportunities is significant and Valard works toward assuring the success of those ventures by providing management and mentoring support. The resulting indirect employment has a long term impact on the overall viability and economic health of the community.

For further reference, please find our Aboriginal Partnerships document provided at the end of the Questionnaire.

2.1b) Bidder's procurement policies and procedures to ensure reasonable advance notice is provided to Newfoundland and Labrador (NL) supply community of all procurement opportunities

Valard has a simple procurement policy "shop local". The success of Valard over the past decades has been to minimize the import of materials, services, and personnel that can be acquired locally. To quote the Mayor of Terrace BC, a community that was facing serious financial distress due to the closure of lumber mills and a general decline in the local economy, "Valard is the best thing to happen to Terrace in a long time".

Directly attributed to Valard's success is the recruitment of the people and associated services directly affected or impacted by a project and the development of services that would complement the necessary works. In some cases, Valard has, as an example, taken a nearly defunct concrete plant and modified it to make pre-cast forms for foundations, or engaged a skeletal lumber mill into making blocking, skids for camps, and even bridge beams.

In addition to having been in the local communities affected by this project (as described in detail in 2.1c), having attended several Industry based conferences in NL and Labrador over the past 3 years, and currently being engaged in business relationships with local service providers, Valard, upon successful award of the tender, would revisit local Industrial suppliers, general service suppliers, and the community as a whole for potential expansions in employment and service opportunities, and with the Innu Nations for the same. A Valard team would typically include our Human Resources group, the Business Development group, the project Management group including the regional VP, and certain members of the Construction group. The advertising would be promoted by the local radio station which is the most popular medium in the area, and by newspaper. Pending the award date of the contract, Valard usually stages this type of promotion close enough to the beginning of the works in order to hire quickly and not create false expectations by having a long delay between the event, the interviews, and the hiring schedule.

It must be noted that Valard has already been actively engaging local contracting companies and service providers to complement its work force and to supplement a competitive bid price for the project.

2.1.c) Bidder's familiarity with NL contractor/supply capabilities. If Bidder is not currently familiar with these capabilities, describe proposed steps to ensure familiarity

Valard has been engaged in meeting and familiarizing itself with suppliers and with members of the local community since the summer of 2011. Initially, speculative in nature due to the uncertainty of being the successful bidder, Valard has approached most of the local suppliers relative to the project works and supportive of the needs regarding a large contingency of equipment, personnel, transport, accommodations, repairs, etc., established accounts, and planned with certain vendors the logistics of supply and service for specific needs.

Valard is a member of the Happy Valley/Goose Bay Chamber of Commerce and is pursuing an office and shop in the local vicinity. Valard has also engaged in some housing to support Valard staff in the development of the project which has enabled us to develop a closer connection to the community and the people and services contained therein. Although Happy Valley/Goose Bay has many qualified and competitive services, many of the specialized services are provided and home based throughout Newfoundland with representation in HV/GB. These specialized services have been a part of Valard's supply chain and are involved in our pricing criteria.

In addition, Valard has a very close working relationship with the Innu Nation, the Innu Development Corp (IDL) and the two Innu communities which will be a prominent source for workers, and through the Innu Corp Registry of companies, Valard has acquired a large list of Innu partnered companies that are very reflective of Newfoundland and Labrador based partnerships. Many of the companies provided in the IDL registry are actively working with Valard and if successful will become major partners in the timely completion of the project works.

2.2 Employment

A hiring protocol, consistent with the Canadian Charter of Human Rights and Freedoms, has been established for the LCP as outlined below.

For work at the Generation Site (Muskrat Falls hydroelectric generating facility, HVac transmission line within Labrador) the protocol is as follows:

- Qualified and Experienced Members of Innu Nation
- Qualified and Experienced Residents of Labrador
- Qualified and Experienced Residents of Newfoundland
- Qualified and Experienced Canadians
- Qualified and Experienced Non-Canadians

For work on the HVdc Transmission system on the island portion of Newfoundland and Labrador the protocol is as follows:

- Qualified and Experienced Residents of Newfoundland and Labrador
- Qualified and Experienced Canadians
- Qualified and Experienced Non-Canadians

Bidder is asked to respond to the following:

- 2.2 a) Describe Bidder's familiarity with the Newfoundland and Labrador workforce
2.2 b) Describe Bidder's human resource policies that will optimize NL employment benefits

2.2 a) Bidder's familiarity with the Newfoundland and Labrador workforce

The accrual of Valard's present day workforce has taken place over the decades and is comprised of a diverse multicultural Canadian group of skilled tradespersons, engineers of all faculties, and an extremely dedicated labor force. Much of the population within the Valard family comes from the Maritime Provinces and many within those ranks are from Newfoundland & Labrador, including a few that constructed the existing transmission line between Goose Bay and Churchill Falls.

Being sensitive to the tough times that have befallen Atlantic Canada since the demise of the Fishing industry and the struggling Lumber industries Valard hopes, through its proactive and progressive hiring agenda, to be able to offer some permanent employment opportunities as well as maximize the short term potential opportunities as they become available throughout the life of the project. Many of our workers have been working "away" for many years and are eager to bring their talents "home" and act/serve as mentors to an enthusiastic potential new crowd, and develop those skills making themselves better qualified to engage in trades, and thus creating opportunities for more local folks to explore new and meaningful employment post project.

2.2 b) Bidder's human resource policies that will optimize NL employment benefits

In Section 2.1a) of this Questionnaire, we have described some policies and principles which Valard abides by on projects to ensure that we are bringing the best value to the local community.

To further optimize what has been outlined in Section 2.1a), we rely on the local labour market to achieve a number of objectives for the company which includes growing our workforce, making local contacts, and mitigating risk within our Project Team.

For any project, it is prudent to ensure that there is sufficient coverage and a qualified alternate in place for all Key Personnel assigned to the Project Team; we describe this as Succession and Absence Planning. For the identified Key Personnel such as the Project Manager and Construction Manager, we endeavour to hire alternates for those individuals from the local community. They are placed with the Key Personnel to be trained and mentored throughout the project activities and on every aspect of the role. It

is intended that these local individuals are retained within Valard following the project, bringing on-going and sustained employment for the local community beyond the period of the project.

2.3 Gender Equity and Diversity

Gender equity and diversity plans are being developed. These plans will address employment equity, including access to employment opportunities for qualified members of under-represented groups. For the purpose of this document, under represented groups are defined as women, aboriginal people, persons with disabilities and visible minorities.

Bidder is asked to respond to the following:

- 2.3 a) Does Bidder have gender equity and diversity plans? If so, describe Bidder's policies, including harassment and discrimination policies that support gender equity and diversity.

Valard Construction is an equal opportunity employer and does not discriminate on the basis of race, color, national origin, language, sex, age, religion, disability or sexual orientation or any other consideration made unlawful by provincial or federal law. In addition, all human resource actions in such areas as compensation, employee benefits, transfers, layoffs, training and development are to be administered objectively, without regard to race, color, national origin, language, sex, religion, disability or sexual orientation.

Valard Construction will make reasonable accommodations for qualified individuals with disabilities.

Any employee who is suspected of violating Valard Constructions Equal Employment Opportunity Policy will be subject to immediate discipline, up to and including possible termination.

Please reference Section 19 of the Health, Safety & Environment Manual for our Harassment Policy

- 2.3 b) Does Bidder's human resource policies enable the voluntary identification of members of under represented groups.

No, we are an equal opportunity employer as covered in 2.3a)

2.4 Benefits Reporting

Company will be required to monitor and report on certain LCP activities relating to employment and procurement. To assist in this effort, Successful Bidder will be required to submit data reports on a monthly basis regarding employment and expenditures. Company will provide a mechanism for submitting this information.

Employment data reporting is required for direct labour associated with the Work, as follows:

1. Labour performed at the hydro-electric generating station located at Muskrat Falls plus HVac transmission.
2. Direct labour associated with the construction of a HVdc system comprised of high voltage overhead lines from central Labrador to Soldiers Pond or vicinity on the Island of Newfoundland.

It does not include labour associated with procured or manufactured items. Information collected will include the workforce to be broken out by occupation, work location, residency of worker, aboriginal affiliation and gender. Category classifications will be provided by Company.

Expenditure data will also be collected. This will include total value of goods and services purchased from business within the Province of Newfoundland and Labrador as well as value of goods and services purchased from Innu businesses.

Bidder is asked to respond to the following:

- 2.4 a) Indicate Bidder's previous experience at capturing employment and expenditure data as they relate to local benefits monitoring.

The interest in documenting and recognizing the benefits that large transmission line projects have to the local communities and their businesses is becoming increasingly important to Utility companies and similar clients. Valard has been actively capturing this type of information as early as 1998 and, as a result, we consider ourselves a leader in the Transmission Line Contracting community for our proactive approach in this area.

Some specific examples of Local Benefits Monitoring activities are:

- *Herblet to Ralls (Manitoba Hydro)*
A requirement of the contract was for Valard to report on the amount of money that went into the community as a result of the project activities. We tracked all aspects of where labour was obtained: on-reserve employees, off-reserve employees, community residents, provincial residents, and national residents. 97% of all payroll expenditure was to the made to residents of the local area (i.e. Manitoba residents). In addition the hiring of local personnel for the purpose of the project, we ensured that our existing employees who were Manitoba residents working outside of the province were 'returned home' to work on the local project. This is the approach that we are committing to for Nalcor's Muskrat Falls Transmission Construction project.

- *Carmacks to Minto (Yukon Energy)*
Valard executed this project through a JV Partnership agreement with the local First Nations. Detailed statistics were required throughout the execution of the project for reporting to our JV partner.
- *Wesley to Meikle (ATCO Electric)*
This project also had to requirement of reporting local benefits information to our FN partner.
- *Northwest Transmission Line (BC Hydro)*
We are required to report local expenditures and manhours to BC Hydro on a monthly basis for this project currently in progress.

2.4 b) Identify who, within Bidder's organization, will be responsible for benefits monitoring and reporting.

The Project Manager will be responsible for the monitoring and reporting.

3.0 Impacts and Benefit Agreement with Innu Nation

The IBA with the Innu Nation includes obligations relating to employment, training, procurement and workplace polices. The intent of the IBA is to build capacity within the Innu Nation and involve the Innu in the LCP in a significant way. Innu content will be a consideration in the overall evaluation of all bids submitted.

It is on this basis that Bidder is to respond to the following:

3.0 a) Is the Bidder registered as an Innu business with the Innu Business Development Centre (IBDC)?

Over the course of the past 2 years, Valard has maintained a close working relationship with the Innu Nation and has committed to engaging Registry businesses on a preferential basis throughout the life of the project. In doing so, it has sought out Registry businesses in compiling bid estimates and to varying degrees has developed solid working relationships with the expectation that these companies will work with Valard in the execution of the contract.

The Innu Nation has accepted Valard's commitment to the utilization of legitimate Innu contractors both registered and unregistered. The Nation is seeking to maximize the contractual and employment benefits that will accrue to their communities, businesses and individuals and has expressed to Valard that they are comfortable that a relationship with Valard will yield the desired results.

- 3.0 b) List any intended subcontractors/ suppliers that are currently IBDC registered Innu businesses.

Valard, through the offices of the Innu Nation, has contacted and discussed operational possibilities with several businesses registered with the Innu Nation and currently utilizes the services of several suppliers on the CT0319 AC Line project. The Nation has provided guidance and expertise in Valard's efforts at creating relationships with Registry businesses that have the capacity to contribute to the project and produce the employment and contracting benefits that the Innu need and see flowing from this project.

Valard has held discussions with Registry businesses in the Right-of Way clearing and route access field; the storage and lay-down sector; the shop and equipment maintenance sector; the fuel supply sector; the catering sector; the transportation sector the training and development sector the engineering sector and the aviation sector. The majority of these relationships will result in Valard contracting significant amounts of work to Innu businesses. In all instances, Valard has dealt exclusively with Innu businesses included in the registry or businesses recommended by the Innu nation.

- 3.0 c) Identify who, within Bidder's organization, will be responsible for benefits monitoring and reporting and communication of procurement opportunities to the IBDC.

The project manager will be ultimately responsible for the dissemination of information and opportunity identification to Innu businesses. The manager has at his/her disposal a significant team of Human Resource specialists and Aboriginal Business specialists who will work with the Innu Nation's personnel to establish employment and contracting targets and to monitor those activities that contribute to the attainment of the established goals.

Valard has an enviable track record with their First Nations' partners in meeting or exceeding all employment, contracting and training objectives. Valard (as described in section 2) is prepared to begin training operations immediately, taking prospects to other projects that it has across Canada to train in all facets of transmission construction. The Company has several First Nations employees from the Maritimes employed in Alberta, Saskatchewan and British Columbia in anticipation of them transferring to the Labrador project.

- 3.0 d) Identify the number, if any, of personnel submitted with this bid who are members of the Innu Nation.

Valard does not currently have Innu employees, but is working closely with the Innu Nation in an attempt to establish training positions immediately. The Company has been working for the past year in Iqaluit and has Inuit staff; is working in Northern British

Columbia and has Gitanyow and Tahltan staff; is working near Alberta First Nations and has Chipewyan and Athabaska staff; is working in Northern Manitoba and has Cree staff. Valard seeks out First nations' employees and presently, nearly 20% of it's' employees are aboriginal. Over half of Valard's one-hundred and thirty apprenticeships are First Nation's candidates.

As is the case in every jurisdiction in Canada where Valard has a presence, the Innu will become a significant element in the Company's workforce.

Members of the Innu Nation will be hired for construction and non-construction positions. Valard will employ and train environmental monitors, administrative personnel, project management and business management trainees. The employee pool in the two Innu communities is not deep, however their expectation is that this project will enable them to gain significant experience in the many fields that will dominate the Labrador employment arena for many years to come.

- 3.0 e) Provide information relating to commitments to Innu content, including employment of Innu, Subcontracts to Innu businesses, training opportunities for Innu, and other benefits for Innu, Innu businesses or Innu communities.

The Innu Nation openly supports Valard's bid for this project. That support results from Valard's ongoing consultations with the Innu Nation and IDLP and their history with other Canadian First Nations. The Innu feel that Valard will enable them to achieve the contracting, employment and training goals that they have established. They do not believe that other contractors will commit to the Innu to the same extent that Valard has.

Valard has held several discussions with the Grand Chief and Deputy Grand Chief as well as the Board of Directors of the Innu Nation. Valard has met with the CEO of the IDLP and senior staff of both the Innu nation and the IDLP. They have met with the community chiefs as well and in all instances have listened to the expression of concern over the fact that this project could proceed and fail to meet the employment potential that exists.

Valard is seen to be the vehicle that will make a sincere attempt at maximizing the benefits that flow to the Innu. The working relationship between the business and political factions within the Innu Nation and Valard are strong. The IBA commitments can be exceeded and Valard has shown in many examples that it can be the catalyst that jumpstarts employment activities; helps in creating new businesses and strengthening existing operations and moves community residents into training positions that result in long-term employment on other Valard projects.

Valard's experience with First Nations' is extensive, current and relevant. As previously

noted, the Company is building the Northwest Transmission Line (NTL) in northern British Columbia. The line transverses several land claims and Valard is working with five separate First Nations in varying contractual capacities. In each instance, Valard is maximizing the employment, business and training potential for each of the Nations.

In Northern Alberta, the Athabasca First Nation has invited Valard to join them in undertaking transmission line and substation construction on their settled land claim territory because of the strong reputation that Valard has developed over thirty years of cooperative efforts with the Aboriginal community.

Valard has recently been awarded a major transmission line contract in Saskatchewan and is in the process of negotiating the level of participation with the First Nations that will result in extensive business and employment benefits to them.

In Manitoba, Valard has finalized an agreement with a Cree First Nation that will result in the joint construction of several projects for Manitoba Hydro. The projects are on Cree lands, and Valard's willingness to recognize the rights attached to that land tenure were a significant element in arriving at the agreement.

In Ontario, Valard is currently negotiating a Joint Venture with six bands involved in transmission line construction and it provides funding to another organized group of First Nations that are trying to establish themselves in the energy field.

A recently signed agreement with the Eskasoni First Nation in Cape Breton best exemplifies Valard's commitment to jobs and training. The Company has no work in Cape Breton and minimal near-term expectations. However, Valard has hired nine members of the Eskasoni Band and is rotating them in and out of Hanna, Alberta where they are learning transmission line skills in anticipation of future contracts in Nova Scotia. Their jobs are full-time.

Valard will establish a business relationship with the Innu Nation that will endure. The attached letter of endorsement is a reflection of the confidence that the political and business leadership of the Innu Nation has in Valard. They have listened to Valard's commitment to the communities and they are convinced that a relationship with Valard will result in the jobs, training and contracts that they need from this project. They have conferred with their associates in other parts of Canada and as a result of their diligence effort have taken the rare step of offering their support to one bidder.

4.0 NEWFOUNDLAND AND LABRADOR BENEFITS CONTENT – PERSON HOUR ESTIMATE

Bidder is required to provide, where applicable, an estimate of the direct labour (in person hours) used to complete the Work. Information should be categorized in terms of work location and residency of the workers, as outlined in the tables below.

Bidder is asked to complete the following:

4.0 a) Summary Employment Estimate by Residency

Employment Category	NL	Other Canada	Foreign	Total
Management	40	60	0	100
Engineering	50	25	25	100
Procurement and Contracting	40	60	0	100
Construction and Assembly	80	10	10	100
Other				
Total	80	16	4	100

4.0 b) Summary Employment Estimate by Location of Work

Employment Category	Labrador	Island of Newfoundland	Other Canada	Foreign	Total
Management	80	10	10	0	100
Engineering	0	50	40	10	100
Procurement and Contracting	85	0	15	0	100
Construction and Assembly	100	0	0	0	100
Other					
Total					100

5.0 NEWFOUNDLAND AND LABRADOR BENEFITS CONTENT – EXPENDITURE ESTIMATE

Bidder is required to provide an estimate of the expenditure percentages associated with the Work. Information should be categorized as Newfoundland and Labrador, Other Canadian and Foreign Content using the Expenditure Table below.

Bidder is asked to complete the following:

5.0 a) Expenditure Estimate Table

	NL	Other Canadian	Foreign	Total
Materials and Equipment	20	80	0	100
Direct Labour	80	20	0	100
Services	40	60	0	100
Overhead and Profit	10	86	4	100
Other				
Total				100%

Exhibit 14

Performance Security

Agreement Number CT0327-001

EXHIBIT 14

PERFORMANCE SECURITY

GUARANTEE

This agreement (hereinafter called the "Guarantee") is made this [insert] day of [insert month], [insert year], Quanta Services, Inc. (the "Guarantor") who is the parent company of Valard Construction LP (hereinafter called the "Contractor") in favour of Labrador-Island Link Limited Partnership (hereinafter called the "Company") and Company's successors and assigns.

In consideration of the Company entering into a contract for the performance by the Contractor for [insert description of scope of work and contract number] and made as of [insert day and month and year] (the "Agreement"), the Guarantor hereby agrees with Company as follows:

1.0 Guarantee

1.1 The Guarantor hereby absolutely, unconditionally and irrevocably guarantees to the Company and its successors and assigns (collectively, the "Guaranteed Parties"), as a direct obligation, the full performance, payment and observance by the Contractor of each and every acknowledgement, covenant, agreement, undertaking, indemnity, waiver, release and obligation of the Contractor contained in the Agreement (collectively, the "Guaranteed Obligations"). In no event shall Guarantor's liability under this Guarantee be greater than Contractor's liability under the Agreement. Any provisions in the Agreement that limit the liability of Contractor under the Agreement shall similarly limit the liabilities attaching to Guarantor under this Guarantee.

2.0 Separate Claims and Liability Absolute

2.1 Each and every default in performance, observance or payment of any of the Guaranteed Obligations by the Contractor shall give rise to a separate claim hereunder, and separate claims may be made and brought, as the case may be, hereunder as each such default occurs.

2.2 The guarantee herein provided for shall be a continuing, absolute and unconditional guarantee of performance, observance and payment of the Guaranteed Obligations and shall remain in full force and effect until each and all of the Guaranteed Obligations shall have been fully and satisfactorily discharged in accordance with the terms and provisions of the Agreement and the Guarantor shall have fully and satisfactorily discharged all of its obligations under this Guarantee. Notwithstanding the foregoing, any suit under this Guarantee must be instituted before the expiration of the applicable limitation period for making a claim against the Contractor pursuant to the Limitations Act, SNL 1995, c. L-16.1.

3.0 No Impairment and Immediate Payment

3.1 The liability of the Guarantor hereunder shall remain in full force and effect irrespective of and shall in no way be affected or impaired by (and no notice to the Guarantor shall be required in respect of):

(a) any compromise, waiver, renewal, extension, indulgence, amendment, addition,

deletion, change in, modification of, or release of any security (including any other guarantee, letter of credit, bond or holdback) for or in respect of any of the Guaranteed Obligations;

- (b) any failure, neglect or omission on the part of Company to give the Guarantor notice of the occurrence of any default by the Contractor under or with respect to the Guaranteed Obligations, or to realize upon any obligations or liabilities of the Contractor;
- (c) any amalgamation, merger or consolidation of the Contractor or the Guarantor or any sale, lease or transfer of any of the assets of the Contractor or the Guarantor;
- (d) any change in the ownership of any shares of the capital stock of the Guarantor or the Contractor;
- (e) any change in the financial condition of the Contractor or the Guarantor or a Guaranteed Party;
- (f) any insolvency event affecting the Contractor or its assets or a Guaranteed Party or its assets, or any resulting release, stay or discharge of any Guaranteed Obligation;
- (g) any lack or limitation of power, incapacity or disability on the part of the Contractor any other irregularity, defect or informality on the part of the Contractor with respect to the Guaranteed Obligations;
- (h) any provision of any laws, statutes, rules or regulations or any other circumstance that might constitute a defence available to, or a discharge of, the Guarantor in respect of this guarantee, provided always that the indebtedness, obligations and liabilities guaranteed by the Guarantor hereunder shall in all circumstances be limited to the covenants, agreements, undertakings, obligations and liabilities of the Contractor under the Agreement and that Guarantor hereby reserves to itself all rights, set-offs, counterclaims and other defences to which Contractor is or may be entitled arising from or out of the Agreement, except for defences arising out of bankruptcy, insolvency, dissolution or liquidation and the lack of validity or enforceability of the Agreement or any other documents executed in connection with the Agreement;
- (i) the assignment by Company of its interest, in whole or in part, in and to the Agreement; or
- (j) subject to the reservation stated in Clause 3.1(h), any other occurrence or circumstance whatsoever, whether similar or dissimilar to the foregoing and any other circumstance that might otherwise constitute a legal or equitable defence or discharge of the liabilities of a guarantor or surety that might otherwise limit recourse against the Guarantor.

- 3.2 The obligations and liabilities of the Guarantor hereunder shall not be impaired, diminished, abated or otherwise affected by:
- (a) subject to the reservation stated in Clause 3.1(h), any claim, including any set-off, defence, deduction, counterclaim or cross-claim that the Contractor or the Guarantor may have or claim to have, at any time or from time to time; or
 - (b) the commencement by or against the Contractor of any proceedings under any bankruptcy or insolvency law or laws relating to the relief of debtors, readjustment of indebtedness, reorganizations, arrangements, compositions or extension or other similar laws.
- 3.3 A Guaranteed Party shall not be bound to exhaust its recourse against the Contractor or others or any securities (including, any Surety Bonds, letter of credit, insurance policy and/or other bond) or other guarantees it may at any time hold before being entitled to performance of or payment of the Guaranteed Obligations from the Guarantor and the Guarantor renounces all benefits of discussion and division.
- 4.0 Waiver of Rights by Guarantor**
- 4.1 Subject to the reservation stated in Clause 3.1(h), it is the intent and purpose hereof that the Guarantor shall not be entitled to and does hereby waive any and all defences available to guarantors, sureties and other secondary parties at law or in equity. Without limiting the generality of the foregoing, the Guarantor hereby waives notice of acceptance of this Agreement and of the non-performance by the Contractor, diligence, presentment, protest, notice of protest, dishonour, demand for payment from Company and notice of non-payment or failure to perform on the part of the Contractor and all other notices whatsoever. The guarantee hereunder is a guarantee of payment, performance and compliance. In order to hold the Guarantor liable hereunder, there shall be no obligation on the part of a Guaranteed Party at any time to demand or resort for payment or performance to the Contractor, its properties or assets or to any security, property or other rights or remedies whatsoever, nor shall there be any requirement that the Contractor be joined as a party to any proceeding for the enforcement of any provision of this Guarantee and a Guaranteed Party shall have the right to enforce the provisions of this Guarantee irrespective of whether or not legal proceedings or other enforcement efforts against the Contractor are pending, sought, resorted to or otherwise realized upon. Without limiting the foregoing, it is understood that repeated and successive demands may be made and recoveries may be had hereunder as and when from time to time, the Contractor shall default under or with respect to any of the Guaranteed Obligations, and that, notwithstanding recovery hereunder for or in respect of any such default, the guarantee herein shall remain in full force and effect unamended and shall apply to each and every subsequent default.
- 4.2 Without prejudice to and without releasing, discharging, limiting or otherwise affecting in whole or in part the obligations and liabilities of the Guarantor under this Guarantee and without in any way requiring the consent of or giving notice to the Guarantor, a

Guaranteed Party may grant time, renewals, extensions, indulgences, releases and discharges to and accept compositions from or otherwise deal with the Contractor or the Guarantor or others, including any other guarantors, as such Guaranteed Party may see fit and such Guaranteed Party may take, abstain from taking or perfecting, vary, exchange, renew, discharge, give up, realize on or otherwise deal with security and guarantees in such manner as such Guaranteed Party may see fit.

- 4.3 The guarantee hereunder shall continue to be effective, or be reinstated, as the case may be, if at any time payment, or any part thereof, of any of the obligations hereunder is rescinded or must otherwise be restored or returned by a Guaranteed Party upon the insolvency, bankruptcy or reorganization of the Contractor or the Guarantor, or otherwise, all as though such payment had not been made.
- 4.4 Neither an action or proceeding brought under the guarantee hereunder regarding the Guaranteed Obligations nor any judgment or recovery in consequence of that action or proceeding operates as a bar or defence to any further action that may be brought under such guarantee. The Guarantor acknowledges and agrees that, if judgment is granted on an action or proceeding commenced under the guarantee hereunder, the Guarantor's obligations to the Guaranteed Parties do not merge with such judgment or end the Guarantor's obligations hereunder.
- 4.5 A waiver by a Guaranteed Party of any right or remedy hereunder on any one occasion shall not be construed as a bar to any right or remedy which such Guaranteed Party would otherwise have had on any future occasion with regard to any subsequent breach. No failure to exercise nor any delay in exercising on the part of such Guaranteed Party any right, power or privilege hereunder shall operate as a waiver thereof; nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, power or privilege. The rights and remedies herein provided are cumulative and may be exercised singly or concurrently, and are not exclusive of any other rights and remedies provided under this Agreement or otherwise by law.

5.0 Timing, Interest and Expenses

- 5.1 The liability of the Guarantor under the guarantee herein shall arise forthwith after demand has been made in writing on the Guarantor, and the liability of the Guarantor shall bear interest from the date of such demand at the average prime rate as published by the Bank of Nova Scotia plus three percent (3%) per annum, calculated daily not in advance.
- 5.2 In addition to satisfaction of the Guaranteed Obligations, the Guarantor agrees to pay to each of the Guaranteed Parties any and all reasonable out-of-pocket costs and expenses, including legal fees on a solicitor and his own client basis and other professional advisor charges incurred by it in connection with enforcing any of its rights hereunder unless such enforcement is found to be unsuccessful by a court of competent jurisdiction.

6.0 No Exercise of Security

- 6.1 The Guarantor covenants that until the satisfaction and performance in full of all Guaranteed Obligations, the Guarantor will not:
- (i) exercise against the Contractor or against any security held by it for any of the Guaranteed Obligations any right or remedy arising by reason of the observance and/or performance of any Guaranteed Obligations under this Guarantee, whether by subrogation, contribution, indemnity, set off or otherwise; or
 - (ii) claim as a creditor or otherwise in competition with a Guaranteed Party in respect of any monies owing to a Guaranteed Party for or on account of the Guaranteed Obligations in any bankruptcy, liquidation or other insolvency proceedings relating to the Contractor; and the Guarantor covenants to give the Guaranteed Parties the benefit of each such claim and of all monies received or receivable in respect thereof and in the meantime hold the same in trust for the Guaranteed Parties.
- 6.2 The Guarantor covenants and agrees with the Guaranteed Parties that it has not taken and will not take any security from the Contractor in respect of the Guaranteed Obligations. Any security taken by the Guarantor in breach of this provision, and all monies at any time received or receivable in respect thereof, shall be held in trust for the Guaranteed Parties as security for the Guaranteed Obligations.

7.0 General Conditions

- 7.1 Each of the Guarantor and Company shall, from time to time, at the request of the other, execute and deliver, all such further agreements, instruments and documents and do all such further acts and things as may be reasonably required to give effect to the transactions contemplated by this Guarantee.
- 7.2 Subject to Clause 7.4, this Guarantee shall enure to the benefit of and be binding upon the respective heirs, legal representatives, successors and permitted assigns of the Guarantor and the Company.
- 7.3 This Guarantee shall be governed by and construed in accordance with the laws of the Province of Newfoundland and Labrador. The Guarantor irrevocably submits to the jurisdiction of the courts of the Province of Newfoundland and Labrador in any action or proceeding arising out of or relating to this Guarantee but nothing shall prevent the Guaranteed Parties from enforcing this Guarantee or any related judgment against the Guarantor in any other jurisdiction.
- 7.4 This Guarantee shall not be assigned by the Guarantor without the prior written consent of the Company.
- 7.5 The Company may, without the approval of the Guarantor, assign this Guarantee to any of the entities identified in sub-paragraphs (a), (b) and (c) of Article 34.1 of the

Agreement. Company shall not assign this Guarantee or any of its benefits or obligations thereunder to any third party, other than those described in sub-paragraphs (a), (b) and (c) of Article 34.1 of the Agreement, without the Guarantor's written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

IN WITNESS whereof the Guarantor has caused this Guarantee to be signed, sealed and delivered by its duly authorized representatives the day and year first above written.

Quanta Services, Inc.
Guarantor

By: _____

Name: _____

Title: _____

[seal]

(date of issue)

To: (COMPANY'S LEGAL NAME)
(address)

From: (ISSUING BANK)
(address)

Subject: Our Irrevocable Standby Letter of Credit - Performance Number (#)

WHEREAS (legal name of Contractor) having its head office at (address of Contractor) (hereinafter referred to as the "Applicant"), has signed a contract bearing the effective date of (insert date), and reference number (insert number) with Labrador-Island Link Limited Partnership having its head office at 500 Columbus Drive, St. John's, NL A1B 0C9 (hereinafter referred to as the "Beneficiary"), for (insert contract description) (hereinafter referred to as the "Contract");

WHEREAS under Article 7 of the Contract, the Applicant is required to provide to the Beneficiary an Irrevocable Standby Letter of Credit - Performance in the amount of (insert) % of the Contract Price, which amount being (insert) Dollars (\$****) to secure the performance of its obligations under the Contract;

We, (name and address of bank) (hereinafter referred to as the "Bank"), for the account of the Applicant, hereby issue in favor of the Beneficiary our transferable Irrevocable Standby Letter of Credit - Performance in the amount of (insert) Dollars (\$****) (hereinafter referred to as the "Credit"). We hereby irrevocably and unconditionally undertake to pay to the Beneficiary at sight, without protest or notification, and without inquiring any further proof or conditions, and without consideration for any objections or protests which the Applicant may make, any sum or sums not exceeding the aggregate sum of (insert) Dollars (\$****), free of all imposts, taxes, duties, charges, fees, withholdings and/or deductions whatsoever both present and future, of any nature whatsoever and by whomsoever imposed, and without set-off or counterclaim, upon presentation to the Bank of a demand in writing duly signed by two (2) Beneficiary's officers against this Credit, provided the demand is in the form set out in Exhibit "A" hereto, which forms an integral part of this Credit, and that such demand is made no later than on the (insert) day of (insert month, year) (hereinafter referred to as the "Expiry Date") or any new expiry date (as defined below). Only the Beneficiary or a transferee may make drawings under this Credit.

This Credit shall be automatically extended for one (1) year periods from the Expiry Date or from any subsequent expiry date (hereinafter referred to as "New Expiry Date") successively, unless the bank sends by express courier to the Beneficiary at the above-mentioned address, with a copy to the Applicant, a written notice at least sixty (60) days prior to the Expiry Date or a New Expiry Date, stating that the Bank elects not to extend this Credit for any such additional



period. In the event the Bank elects not to extend the Expiry Date or any New Expiry Date of this Credit, then the Bank hereby unconditionally and irrevocably undertakes to pay to the Beneficiary the total amount then outstanding under this Credit upon presentation to the Bank by the Beneficiary, prior to the Expiry Date or the New Expiry Date, of a demand for payment stating that the Bank has elected not to extend this Credit and that the Beneficiary is therefore entitled to such payment, provided the demand is in the form set out in Exhibit "B" attached hereto, which forms an integral part of this Credit.

Notwithstanding the foregoing, in no event will this Credit extend beyond *(insert date)* (hereinafter referred to as the "Final Expiry Date").

This Credit may be automatically reduced by a certificate issued by the Beneficiary to the Bank stating the amount of reduction applicable to this Credit and presented to the Bank by the Applicant or the Beneficiary.

The terms of this Credit set forth in full the terms of our undertaking and this undertaking is not in any way modified, amended or amplified by reference to any document, instrument referred to in this Credit, or in which this Credit is referred to, or to which this Credit is related, and any such reference does not incorporate by reference any document, instrument or agreement.

Partial drawings are authorized. All costs related to this Credit are for the account of the Applicant.

The Beneficiary may transfer its rights under this Credit in their entirety (but not in part) to any transferee. Transfer of the Beneficiary's rights under this Credit to any such transferee shall be effected only upon the presentation to us of this Credit and amendments, if any, accompanied by a transfer letter in the form attached hereto as Exhibit C. Such transfer will be effected without charges or fees of any kind for Beneficiary. Upon such transfer, the transferee shall have no further rights to transfer this Credit. Beneficiary's signatures on such Exhibit C must be verified by Beneficiary's bankers thereon indicating Name of Beneficiary's bank (Name, Title and Signature(s) of Bank Officer), or attested to by a Notary Public. Notwithstanding any other terms herein, a transfer must comply with all applicable laws, including international trade sanctions and anti-money laundering regulations.

This Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits (2007 Revision) of the International Chamber of Commerce (ICC Publication no. 600) and for matters not covered by the Uniform Customs and Practice for Documentary Credits (2007 Revision) of the International Chamber of Commerce, (ICC Publication no. 600) it shall be governed by and interpreted in accordance with the laws of the Province of Newfoundland and Labrador and the laws of Canada, applicable therein.

(NAME OF BANK)

per: _____

EXHIBIT "A"

(date)

To: *(full name & address of the issuing bank)*

From: *(full name & address of Company)*

Subject: This is the form of demand specified in the Irrevocable Standby Letter of Credit - Performance number *(number)* issued on the *(date)* by *(name of the issuing bank)*

Dear Sirs,

We, the undersigned, being the Beneficiary under the above captioned Irrevocable Standby Letter of Credit – Performance (hereinafter referred to as the “Credit”) issued by *(name and address of the issuing bank)* on the instructions of *(name of the Contractor)* the Applicant, hereby request you to pay to us on receipt by you of the present demand the amount of *(currency and amount in figures and letters)*.

We state and declare:

that the Applicant is an Insolvent Party as defined in Contract number *(insert)*, or is a Defaulting Party as defined in Contract number *(insert)* and has failed to rectify or taken reasonable steps to rectify the default or breach;

and

that the Beneficiary has sent by facsimile at *(insert fax number)* and by express courier to the Applicant, attention of *(insert name)* a written notice of default, specifying the nature of default, at least fifteen (15) working days prior to this demand;

that as a result thereof, we have become entitled under the terms of the Contract number *(insert)* to be paid the amount claimed above;

and

that said amount has not otherwise been paid to us, whether directly or indirectly, by or on behalf of the Applicant.

(name of Company)
(address of Company)

per: _____
Name: _____
Title: _____

per: _____
Name: _____
Title: _____

EXHIBIT "B"

This is the form of demand specified in Irrevocable Standby Letter of Credit – Performance number [#] issued on the [date], by [name of the issuing bank]

[date]

To: (ISSUING BANK'S NAME)
(address)

From: (COMPANY'S NAME)
(address)

Subject: This is the demand specified in Irrevocable Standby Letter of Credit – Performance number [#] issued on the [date], by [name of the issuing bank]

Dear Sirs,

We, the undersigned, being the Beneficiary under the above captioned Irrevocable Standby Letter of Credit – Performance issued by [issuing bank's name and address] on the instructions of [Contractor's name] (the "Applicant"), hereby request you to pay to us on receipt by you of the present demand the amount of [currency and amount in figures and letters] only.

We state and declare:

that the Beneficiary has been notified by the Bank of its election not to extend the Credit; and

that as of the date of the present demand for payment the Applicant has not provided the Beneficiary with a satisfactory substitute irrevocable standby letter of credit – performance or alternate satisfactory security.

[Company's name and address]

per: _____
Name: _____
Title: _____

per: _____
Name: _____
Title: _____

cc to the Applicant

EXHIBIT "C"
TO LETTER OF CREDIT

FORM FOR FULL TRANSFER OF LETTER OF CREDIT

_____, 20__

Name and Address of Issuing Bank:

Attention:

Re: Your Letter of Credit ("Letter of Credit") No. _____ in favour of **[insert Company name]**

To Whom it May Concern:

The undersigned, **[insert Company name]**, ("Transferor") has transferred and assigned (and hereby confirms said transfer and assignment) all of its rights in and under the Letter of Credit to **[name and address of Transferee]** ("Transferee"). Transferor confirms that it no longer has any rights under or interest in the Letter of Credit and that you shall have no further responsibility to make payment under the Letter of Credit to Transferor.

Transferor hereby surrenders the Letter of Credit to you and requests that you note the transfer of the Letter of Credit and deliver the Letter of Credit, amended or endorsed to reflect said transfer, to Transferee.

[NAME OF TRANSFEROR]

Per: _____
Name: _____
Title: _____

and Per: _____
Name: _____
Title: _____

[NAME OF TRANSFEE]

Per: _____
Name: _____
Title: _____

and Per: _____
Name: _____
Title: _____

I have authority to bind (Name of Transferor)

Verification of Beneficiary's signatures by Beneficiary's bankers:

Name of Bank: _____

Name of Bank Officer: _____

Title of Bank Officer: _____

Signature of Bank Officer: _____

Or

Notary Public Name: _____

Notary Public Signature: _____

Notary Public Seal: _____