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LTR-CH0007001-1509

October 18, 2016

**ASTALDI Canada Inc.**

114 Hamilton River Road  
North Star Building,  
Happy Valley-Goose Bay,  
NL, Canada AOP 1C0

**Attention:** Don Delarosbil, Project Manager

**Agreement No.:** CH0007- 001 Construction of Intake and Powerhouse, Spillway and Transition Dams

**Subject:** Schedule Critical Path

**Reference:** Company Letter LTR-CH0007001-1380, August 19, 2016  
Contractor Letter LTR-CH0007001-1390, (ACI- MFC-0803), August 30, 2016  
Company Letter LTR-CH0007001-1429, September 26, 2016  
Contractor Letter LTR-CH0007001-1434, (ACI- MFC-0823), September 26, 2016  
Company Letter LTR-CH0007001-1437, September 27, 2016  
Company Letter LTR-CH0007001-1448, September 30, 2016  
Company Letter LTR-CH0007001-1449, September 30, 2016  
Contractor Letter LTR-CH0007001-1476, (ACI-MFC-0832) October 10, 2016

Dear Mr. Delarosbil:

Company takes this opportunity to correct Contractor's statements in its October 10, 2016 letter (ACI-MF-0832) regarding the Project schedule and specifically Contractor's Control Schedule Critical Path. All Company prior letters on this subject are an accurate reflection of the facts and address Company's continuing concerns with Contractor's performance and inability to meet schedule commitments and Company stands by the content of all such letters.

**Project Integrated Schedules**

Company has advised Contractor on several occasions that the Integrated Project Schedule is of no benefit to Contractor in planning its work. The Integrated Project Schedule is a high level Company management tool only. However the Integrated Project Schedule is dependent on the Contractor's schedule data, not the other way around. Due to Contractor's delays, and continuing slippage to Contractor milestone dates, Company has been left with no choice but to make a number of broad assumptions in preparing the Integrated Project Schedule to reflect the project status.

Contractor states that its repeated requests for the "...full Project Integrated Schedule..." in Weekly Progress Meetings over the past year have been ignored. Contractor's statement is inaccurate and also incomplete. A review of the project correspondence reveals that since contract award Contractor has

made no formal written request for the Project Integrated Schedule. In weekly progress meetings between January 26 and February 23, 2016 there were three references to the Company developing a Project Integrated Schedule. The last reference was on February 23, 2016 (Item No. 6.3). There has been no further reference to the project integrated schedule in the weekly progress meetings since February 23, 2016.

Commencing with its March 26, 2016 Monthly Progress Report, Contractor has included in the Planning Section of its reports the following comment:

*"At the moment, Astaldi is still waiting to receive the integrated schedule related to other subcontractors from the client and Company's validation of the interface milestones with other contractors."*

In response to Contractor's statement in its April 30, 2016 Monthly Progress Report, Company commented as follows:

*"The text in Section 5 states "...still waiting to receive the integrated schedule related to other subcontractors..." As a note of clarity, Company will not be providing the integrated schedule to contractor. Company is working with stakeholders to validate interfacing points between various stakeholders."*

Company has responded to Contractor in a similar manner to its May 28, and June 25, 2016 Monthly Progress Reports, and will provide an expanded response to Contractor's comment in its August 25, 2016 Monthly Progress Report.

In response to Company's Comments to the May 28, 2016 Monthly progress report Contractor replied as follows:

Company Stated Item No. 2

*"Company does not intend to send the Integrated Project Schedule (IPS) to Contractor."*

Contractor Reply

*"Noted: We respect company Decision:"*

Company Stated Item No. 20

*"As a note of clarity, Company will not be providing the Integrated Project Schedule to Contractor. Company is working with the stakeholders to validate interfacing points between various stakeholders."*

Contractor Reply

*"Contractor will be requiring input about other Contractors such as access to the rollways, T&G, gates, etc."*

Company provided the requested information on the rollways on August 31, 2016 in letter LTR-CH0007001-1399. Company also provided milestone interface information on July 19, 2015 in letter LTR-CH0007001-0646 as part of the Schedule Development Initiative. Company has also provided information on the intake hydro-mechanical work through the workshops held in September 2016, where we confirmed that the D portion of the applicable milestones (M28D, M36D, M44D and M52D) would be the turnover to Andritz Hydro Canada Inc. ("Andritz") under Contract CH0032001. During a teleconference on September 15, 2016 Company expressed concerns with a partial handover (i.e. the "A" portion of the intake milestones) based on our prior experience with the Spillway hydro-mechanical work.

During the schedule workshops on September 27 and 28, 2016 the parties discussed the coordination of the work related to the Draft Tube Cones and the Stay Rings. It was noted that Contractor's work sequence needs to be addressed for all units. There was a collective walk through of the sequence in Unit 1. This sequence should be similar for all units. Contractor's action item from the workshop was to review its schedule and make appropriate modifications. Contractor's schedule information is required for Andritz under Contract CH0030001. Company is unable to provide any further information on this subject from Andritz without first providing Andritz with Contractor's up-dated schedule, which Contractor has failed to produce to-date.

Company indicated a willingness to consider delaying the timing of the start of the draft tube cone in Unit No. 1 until Contractor's work in Unit No. 2 was sufficiently advanced in order to provide Andritz with a continuity of construction once they were mobilized. There is also a benefit to Contractor as it provides some flexibility in execution in a more cost effective manner with respect to crane access.

Exhibit 9 sets forth the schedule and interface milestones that Contractor is to use in its planning. Company has and will continue to work with all contractors to coordinate their joint efforts to eliminate interface conflicts. Exhibit 9 to Agreement CH0007001 stipulated two defined milestones for access to the Spillway for the hydro-mechanical work to commence, M4A on February 15, 2015 and M4B on July 31, 2015. The actual date for Milestone M4A was November 15, 2015 and Milestone M4B was September 1, 2015. The actual hand over date to Andritz for M4A was November 15, 2015 a delay of 273 days. Milestone M4B was delivered 32 days late. A further complication was the two milestones were handed over in reverse order which altered Andritz's planned sequence of work. Company worked with Andritz on a continual basis in providing updates on the access dates to start the hydro-mechanical work. As a result of these Contractor caused delays, Company has incurred several million dollars in additional costs to recover the delayed handover of Milestones M4A and M4B, and achieve river diversion in 2016. Looking at the Intake and Powerhouse, Contractor is required to complete its work in a sequence which will allow access to Andritz to perform the hydro-mechanical work in the Intake Structure and Powerhouse, and to install the turbine generators in the Powerhouse. In addition, there are access dates for the balance of plant contractor. Attachment 1 summarizes the Key Milestones in Exhibit 9, with the Baseline Schedule and the monthly schedule updates from November 29, 2015 through September 25, 2015. The average delay to the key milestones from the Exhibit 9 Dates to September 2016 is 611 calendar days. The maximum delay was 842 calendar days and the minimum was 500 Calendar days. The access date for the South service Bay, ready for start of work by other contractors, Milestone M18/M18A has ranged from October 31, 2016 to January 9, 2017. The September 2016 forecast date is December 12, 2016. Until Contractor produces a reliable schedule it is meaningless to go to Company's other contractors and solicit a construction plan.

Contractor has all the scheduling data it needs. Contractor's problem has been in failure to prepare an accurate plan and then managing the work to achieve the plan. Contractor possession of Company's Integrated Project Schedule will do nothing to address these two fundamental Contractor ongoing deficiencies.

### **September 27 and 28, 2016 Workshop**

Contractor claims that Company withheld the logic behind Company assertion that the intake structure is on the critical path. Contractor's claim is incorrect. During the September workshops Company asked Contractor to validate the durations and logic for the Intake structure pours. On September 26, 2016 Contractor reported errors in the logic and durations which, when corrected, extended the duration of the critical Intake Structure milestones by four months. As a result this moved the Contractor's critical path to the Intake structure versus the Powerhouse. Given the Intake Structure and hydro-mechanical

work needs to be complete in order to water-up, the Intake Structure is critical and the Powerhouse has float.

The Intake Structure's place on the critical path was discussed in detail with Contractor's project controls personnel. As part of this discussion the sequence of work regarding the completion of the Intake Structure, the hydro-mechanical work, and water-up activities were explained and clearly understood by Contractor and Company.

#### **Events Outside of Contractor's Control and Draft Tube No. 2 Failure**

Contractor indicates there have been events, outside of Contractor's control, which have impacted milestone dates. Contractor is fully aware of the process to notify Company of any event which could give rise to a change in cost or time, and to submit a detailed proposal requesting an extension of time and / or additional compensation. Contractor has failed in this regard to-date.

Regarding Draft Tube No. 2 incident, Contractor is solely responsible for the incident. Contractor is liable for all successor events post the incident, including any delays due to the formwork failure in draft tube number two and the subsequent release of the draft tubes and outlets structures.

Draft tube number two formwork failure is in fact a claim by Company and Contractor for recovery of the insured costs due to Contractor's failures. The fact that both parties are submitting insurance claims should not be interpreted that Company is a shareholder in the liability for the incident which, for record purposes, it is not.

#### **Early Work and First Power**

Contractor's statement that Contractor never committed to working to the early schedule timeline is inconsistent with the contemporaneous project record. Contractor affirmed it was working to the early schedule dates during the January 12, 2016 schedule presentation. In Company's comments to the April 2016 Monthly, Progress Report Contractor's affirmation was confirmed:

*"During Contractor presentation to Company on 12-January-2016, and in subsequent discussions, both Company and Contractor were clear that Contractor was intending to execute in accordance with the "Early" timeline presented. It appears, however, that Contractor has subsequently used the "Guaranteed" timeline to constrain the schedule, both at the Project level (Project 'Must Finish By' constraint), and the individual milestone level. This is wholly inappropriate as it does not reflect the execution intent, and may well negatively impact execution, as improper float calculations (and possibly criticality) will be generated thus potentially inaccurately influencing execution decision making. The contract is clear on the use of constraints within the schedule. Company understands Contractor's position with respect to constraining the milestones to enable the use of "Multiple Critical Paths" in schedule management. Company believes that Contractor's intent can be achieved in other ways, which are more transparent. Contractor is directed to remove the use of "Late" or "Guaranteed" dates in constraints anywhere in the schedule. Contractor is welcome to create "shadow" milestones, indicating the "Early", "Target" and "Guaranteed" dates as presented during Contractor presentation on 12-Jan-16. Company can provide these dates to Contractor if desired. The forecast completion milestone can thus be logically linked to the "Early" constrained milestone in order to generate schedule float values that are representative of the expressed execution strategy."*

Company repeated this comment regarding the May 2016 Monthly Progress Report. Contractor responded to Company's comments to the May 2016 Monthly Progress Report as follows:

*"Contractor always emphasized his intention to hit the early dates..."*

In Item No. 5.2 of the April 14, 2016 Commercial Issues Meeting in St. John's, Contractor's Project Manager made the following statement which was recorded in minutes:

*"Astaldi confirmed they are working to the early dates in their schedule and continue to be optimistic they will achieve those dates."*

Contractor's position that they are not working to the early dates is unacceptable and contrary to best practices. Contractor's statement that Contractor is not working to the early dates is an admission that Contractor is not concerned about late completion. This is of great concern to Company.

The first power date, based on the Agreement Milestone dates in Exhibit 9, was December 31, 2017. Due to Contractor's delays to date, that date will not be achieved. Company's current first power date is now August 2019. With the current changes to the milestone dates and delays to the critical path reflected in the July, August and September 2016 schedule updates, the published first power date is again in jeopardy. Company's concerns regarding delays to the first power date are entirely justified, as is Company's requirement pursuant to Exhibit 3 of the Agreement that Contractor submit a recovery plan, which Contractor should have voluntarily initiated but has failed to provide to-date.

### **Concrete Pours and the Bridging Agreement**

The Bridging Agreement is the result of joint negotiation and agreement between the parties. Contractor's allegation that Company imposed a sequence of work on Contractor regarding the concrete pours is clearly incorrect. Locations were jointly agreed, as were estimated quantities for each location. The target quantities in each area are not tied to specific pours and are below Contractor's previously forecast volumes. The locations and volumes in the Bridge Agreement were jointly agreed post the Draft Tube No. 2 incident and were with full consideration of any impacts resulting from that event.

Contractor's September actual Concrete Production figures and a comparison of the Control Schedule with the September three week look-ahead schedules confirm that Contractor was not working critical path work, and completing easier pours at the expense of critical pours. In September, Contractor did not achieve the 70% threshold for Unit Nos. 1 and 2, except for Unit 2 Intake and Tailrace pours, and yet achieve 291.24% of the target for the Centre Transition Dam and 352.64% of the target pours for the South Transition Dam.

During the September 27 and 28, 2016 Schedule Workshops Contractor's project controls personnel confirmed Contractor did pursue non-critical work that would enhance revenue under the Bridging Agreement, and was deferring more labour intensive critical path work to the winter period.

Contractor's characterization of Company's Letter LTR-CH0007001-1380 is not correct. Company has not, nor will it, direct Contractor's means and methods and work activities. That letter does not direct where Contractor was to work. The letter only identified critical delays in Intake Unit Nos. 2 and 3 and Powerhouse Unit Nos. 3 and 4, and inquired how Contractor intended to rectify these critical path delays and prevent further delays.

### **Accommodation**

Company has provided Contractor's craft with accommodation well in excess of the contract requirements. Contractor's delays and failure to accurately forecast its labour requirements have compounded the availability of accommodation but at no time has any of Contractor's craft failed to be provided with camp accommodation.

**Schedule Concerns**

A review of Contractor’s schedules since March 2014 demonstrates the following Contractor caused delays to the critical path and delayed activity starts. Looking at four separate Windows in the Project history to date the critical path delay from March 2014 through August 2016 is 480 calendar days. Much of the delay recorded in Window No. 2 is a result of days in Window No. 1 but Contractor did not accurately reflect the delays in their schedule updates until 2015.

Window	Window Period	Window Duration	Critical Path Variance
1	01-Mar-14 - 25-Jan-15	330	123
2	25 Jan 2015 - 29 Nov 2015	308	303
3	29 Nov 2015 - 29 May 2016	182	20
4	26 Jun 2016 - 28 Aug 2016	<u>63</u>	<u>34</u>
	Total	883	480

A further measure of Contractor’s performance deficiencies is the assessment of Contractors actual versus planned starts for work activities. Of the 2,302 planned starts during the period of January 2015 through August 2016 Contractor started 1,038 on time for an average of 52.1% of on-time starts. In no period did Contractor exceed 61% of on-time starts. The performance measured during the period 25-Aug-2016 through 25-Sep-2016 revealed the average late activity starts was 58.4% and further delays of up to two weeks to the critical path.

Company has a continued serious concern with Contractor’s performance due to the critical path delays, late starts, duration and logic errors and other poor planning practices associated solely with Contractor. At the conclusion of the recent Schedule Workshop Contractor advised Company of duration and logic errors with the Powerhouse activities similar to those uncovered in the Intake Structure. It is Company’s understanding that Contractor is currently addressing these issues and has committed to submitting a revised schedule as soon as possible.

The cumulative effect of the issues discussed in this letter is the Company’s continuing concerns with the credibility of Contractor’s schedule and Contractor’s performance. Accordingly Company reiterates its requirements that Contractor expedite the following matters on or before 24 October 2016:

- Contractor must submit a recovery plan;
- Contractor must address all logic and duration issues in its September 25, 2016 Control Schedule, and allow the schedule to calculate the critical path;
- Contractor cease its utilization of constraints and other artifices to manipulate the schedule and mask delays;
- Contractor to allow the schedule to reflect negative float as an indication of delay and float paths which merit attention to mitigate further delays; and,
- Contractor will provide monthly schedule narratives as required in Section 3.2.3 of Exhibit 3 to the Agreement.

Contractor must seriously address Company's concerns and take immediate action to rectify Contractor's schedule and performance deficiencies as noted hereto. Contractor's failure to take immediate action to arrest the current unacceptable schedule trends will further negatively impact the Project.

Regards,

**Muskrat Falls Corporation**



**Scott O'Brien**

Company Representative, Muskrat Falls Generation

Attachment 1