PROJECT ENGINEER'S REPORT

TOWN OF EASTEND
WTP, RAW WATER RESERVOIR & INTAKE UPGRADES
BCL File #103.02-7B
August 7, 2020

General Progress to Date
In July, project progress included:

- Wall concrete pour was completed, and forms were removed.
- Forming, rebar tying and placement of the columns.
- Began shoring and formwork for the top slab.
- Installed most of the 250 mm distribution main and 100 mm sanitary sewer main including tie-ins to existing infrastructure by the old WTP, gate valves and bends.
- Began groundwater pumping at the reservoir intake structure site (next to WTP).
- Began planning for new river intake construction.

During the next work period (month), construction is expected to include rebar and concrete placement of the top slab. The underground piping and intake structures are expected to be completed in August. Upon completion of the top slab, the shoring and formwork will be removed, and the reservoir hydrostatic test will be completed prior to backfilling.

Progress Certificate
Progress No. 3 is certified and represents work completed to July 31, 2020. Westridge Construction Ltd. is eligible for payment in the amount of $526,026.45.

Westridge provided their required WCB clearance and Statutory Declaration paperwork along with their invoice.

Payment in the amount of $52,655.30 should also be made to the holdback trust account, as required by the Builder's Lien Act. Total holdback to date should be $99,130.30.

Construction Schedule
A preliminary construction schedule (up to and including building close-up) was provided by Westridge on May 21, 2020. Based on the submission, Westridge appears to be on schedule.

Price Request #1
A Price Request was issued to Westridge Construction which included some changes to the air scour and backflushing procedures at each of the reservoir and river intake structures. The request was the result of some discussion with the intake supplier during shop drawing review. The Price Request was completed by Westridge on July 20, 2020 and after review was sent to the Town on July 24, 2020. The extra cost for the changes is $6,773.50 plus taxes. The cost provided by Westridge appears to be a very reasonable reflection of the work required and we recommend proceeding with the changes as presented. BCL will process the Change Order upon approval from the Town.

Water for Reservoir Testing – Extra Costs

The project specifications require clean, treated water to be used in the reservoirs to fill up and check for leaks. Westridge needs approximately 750,000 L of treated water to fill one side of the reservoir, test it for leaks, and then pump it over to the other side of the reservoir for a second test. They noted that they had talked to one of the Town's water plant operators about it and they did not figure they could spare 750,000 L of water from the existing treatment process output in the summertime.

Therefore, Westridge is proposing to haul water from Shaunavon to not interrupt the water supply to Eastend. They are estimating that this would be an additional cost of approximately $7,500 to $9,000 total depending how long each fill takes. Therefore, it is requested that Council discuss which option they would like to go ahead with:

- Option 1 – Allow Westridge to pump water from the water treatment plant / distribution system for a total of 750,000 L over a period of 3-4 days at no additional cost.
- Option 2 – Request that Westridge haul water from Shaunavon and not interrupt the Eastend plant output for an additional cost of up to $9,000.
- Option 3 – 'Hybrid' approach of 1 and 2 where most of the water comes from Shaunavon but the existing plant provides as much as it can spare at the time.

Preliminary discussions with the Town indicated that the preferred option is Option 2 with hauling from Shaunavon. However, if the water demand in Town is not as high during the pumping, they may be able to help keep costs down by supplying some of the treated water like in Option 3.

Westridge is likely not completing this work until mid- to late-August after the top slab is poured and the forms are removed. However, the sooner the decision can be made, we will advise Westridge and they can start planning.

Testing

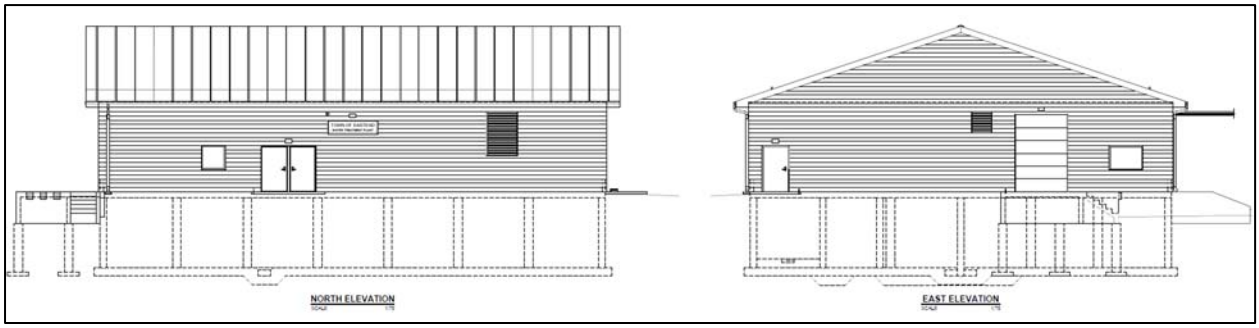
Since the last report, concrete tests were completed on the bottom slab, walls, and columns of the reservoir. Several test results came back with only one set of columns fell short of the specified strength at the 7-day test. Westridge advised BCL of the shortfall and removed the concrete and re-poured the columns that failed. A full summary of test results as of July 28, 2020 is appended.

Shop Drawings

Westridge has provided 37 shop drawing submittals, with some that are still in review by the electrical engineer.

Shop drawing package 40 (roofing and siding) requires some input from the Town. Photos of example projects with Light Grey siding and Heron Blue roofing are shown below. These were the preliminary colours selected during design but should be confirmed by the Town. The only difference is that you will not have the flat siding up in the gable end and you will not have the vertical pieces breaking up the horizontal siding (that was for a knockout panel for big filter tanks at the reference plant). The horizontal lap sizing will go all the way up to the roof peak on yours. **Please review and advise if you would like physical samples before you decide on building finish colours.**

The below building finish photos are a reference for the Light Grey siding and Heron Blue metal roofing:



Shop drawings that have been reviewed since the last project engineer's report are:

Transmittal	Description	Status
18	Doors & Frames	Reviewed & Returned
19	Door Hardware	Reviewed & Returned
33	Treatment Process Equipment	Under Review by Electrical
34	Misc. Metals (Re-submit)	Reviewed & Returned
35	Top Slab Formwork	Reviewed & Returned
36	Floor Hardener	Reviewed & Returned
37	Delco Controls (Electrical)	Under Review by Electrical
38	Valves	Reviewed & Returned
39	(Void)	Ignore
40	Roofing & Siding	Under Review – Town Also to Review.

Photos

Wall concrete pour – pump truck.

Wall concrete pour – finishing at connection to top slab.

Wall formwork removed after curing.

Form removal and column pours.

Water main tie-in and gate valve near existing water treatment plant.

Sewer main tie-in to existing manhole near existing plant.

Water main and valve at new water treatment plant.

Dewatering well for reservoir intake structure next to new water plant.

Top slab formwork underway.

Top slab shoring and formwork underway – last few columns are poured.

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BCL ENGINEERING LTD.

Town of Eastend
Water Treatment Plant
Concrete Test Results
Updated July 28, 2020
Job # 103.02

Cylinder Number	Date Cast	Date Taken	Third Party Tester	Location	Measured Slump	Measured Air	Compressive Strength (MPa)			Required Strength (MPa)	Additional Comments
							7 Day	28 Day	56 Day		
50743	2020-06-19	2020-06-26	Clifton	Base Slab - Pits	90 mm	1.6%	30.9			35	88.3% of design at 7 days - Good.
50744	2020-06-19	2020-07-17						42.4			Passed. Very high.
50745	2020-06-19	2020-07-17						46.7			Passed. Very high.
50746	2020-06-19	2020-08-14									
50747	2020-06-19	2020-06-26	Clifton	Base Slab - SW Corner	90 mm	1.6%	32.2			35	92% of design at 7 days - High, but good.
50748	2020-06-19	2020-07-17						45.6			Passed. Very high.
50749	2020-06-19	2020-07-17						43.1			Passed. Very high.
50750	2020-06-19	2020-08-14									
50751	2020-06-19	2020-06-26	Clifton	Base Slab - West Side Corner	100 mm	1.4%	28.8			35	82.3% of design at 7 days - Good.
50752	2020-06-19	2020-07-17						40.2			Passed. Somewhat high.
50753	2020-06-19	2020-07-17						42.2			Passed. Somewhat high.
50754	2020-06-19	2020-08-14									
50755	2020-06-19	2020-06-26	Clifton	Base Slab - NW Corner	60 mm (before Super P was added)	1.8%	30.2			35	86.3% of design at 7 days - Good.
50756	2020-06-19	2020-07-17						41.0			Passed. Somewhat high.
50757	2020-06-19	2020-07-17						45.1			Passed. Very high.
50758	2020-06-19	2020-08-14									
50759	2020-06-19	2020-06-26	Clifton	Base Slab - South Centre	75 mm (before Super P was added)	1.7%	32.1			35	91.7% of design at 7 days - High, but good.
50760	2020-06-19	2020-07-17						44.6			Passed. Very high.
50761	2020-06-19	2020-07-17						42.9			Passed. Somewhat high.
50762	2020-06-19	2020-08-14									
51207	2020-07-13	2020-07-20	Clifton	North Four (4) Columns	75 mm (before Super P was added)	1.7%	25.7			35	73.4% of design at 7 days - Good.
51208	2020-07-13	2020-08-10									
51209	2020-07-13	2020-08-01									
51191	2020-07-14	2020-07-21	Clifton	Walls - North and Northeast Corner	80 mm	6.0%	26.7			35	76.3% of design at 7 days - Good.
51192	2020-07-14	2020-08-11									
51193	2020-07-14	2020-08-11									
51194	2020-07-14	2020-09-08									
51195	2020-07-14	2020-07-21	Clifton	Walls - South and Southwest Corner	50 mm (before Super P was added)	5.5%	25.7			35	73.4% of design at 7 days - Good.
51196	2020-07-14	2020-08-11									
51197	2020-07-14	2020-08-11									
51198	2020-07-14	2020-09-08									
51199	2020-07-14	2020-07-21	Clifton	Walls - East	70 mm	5.2%	21.3			35	60.9% of design at 7 days - Bit low, will monitor.
51200	2020-07-14	2020-08-11									
51201	2020-07-14	2020-08-11									
51202	2020-07-14	2020-09-08									
51203	2020-07-14	2020-07-21	Clifton	Walls - South and Southwest Corner	90 mm	1.8%	20.2			35	57.7% of design at 7 days - Low, will monitor..
51204	2020-07-14	2020-08-11									
51205	2020-07-14	2020-08-11									
51206	2020-07-14	2020-09-08									
51325	2020-07-14	2020-07-21	Clifton	Columns	Not tested	Not tested.	14.6			35	Suspected too high of air content led to low strength. Contractor indicated that they were going to remove these columns and re-pour.
51326	2020-07-14	2020-08-11									
51327	2020-07-14	2020-08-11									
51360	2020-07-22	2020-07-29	Clifton	Columns	Not tested	Not tested.	31.3			35	89.4% of design at 7 days - High, but good.
51361	2020-07-22	2020-08-19									
51362	2020-07-22	2020-08-19									