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**TOWN OF EASTEND**  
**WTP, RAW WATER RESERVOIR & INTAKE UPGRADES**

BCL File #103.02-7B  
August 11, 2021

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### General Progress to Date

In July, project progress included:

- Delco Water has completed the start-up of all the treatment process equipment and BCL completed process testing.
- Fencing, signage and hydroseeding around the raw water reservoir has been completed.
- Roadway structure in front of the plant has been completed.
- Additional tie-in and hydrant installation at the existing water treatment plant site has been completed.
- Delco began training the Town's operators on the new systems and started pumping water from the new plant to the distribution system on Thursday, August 5, 2021.

Overall, construction is effectively completed except for aesthetic items, final deficiencies, and the formal commissioning and operator training on the plant. The new plant will need to run for two weeks prior to the formal commissioning so the dates of official turnover / training / commissioning is tentatively scheduled **for August 23-24, 2021**.

During the next work period (month), construction is expected to include Substantial Performance of Contract, completing remaining deficiencies and the decommissioning of the existing water treatment plant.

### Progress Certificate

Progress No. 15 is certified and represents work completed to August 9, 2021. Westridge Construction Ltd. is eligible for payment in the amount of \$287,493.09.

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

Payment in the amount of \$28,778.09 should also be made to the holdback trust account, as required by the Builder's Lien Act. Total holdback to date should be \$640,164.10 plus taxes.

### Construction Schedule

With commissioning scheduled for August 23-24, it is expected that this will also mark the date of Substantial Performance of Contract. Westridge will continue to complete deficiency work and decommissioning of the existing plant after that timeline but should be completed in September.

### Change Orders

Two more change orders were decided on since the last report:

**Change Order (#7)**

Through the site coordination with the Town of Eastend operators, it was determined that an additional distribution main tie-in and flushing hydrant would be required to maintain the existing flow paths and be able to isolate the upper reservoir on the hill south of town. The tie-in will include a new tee to be tied into the new distribution line, two gate valves, a hydrant, approx. 20 metres of 6” pipe and coordination work to tie that into the existing main behind the existing WTP. The Contractor provided a final price of \$61,676.90 plus taxes which included the underground contractor’s work, Westridge’s applicable markup plus hydrovaccing the existing lines.

**Contemplated Change Order (#8)**

Again, through the site coordination with the operators, it was brought up that the operators would like to maintain the upper reservoir level sensor that is currently in the existing reservoir. The new system operates on pressure, but the electrical and automation contractors will evaluate options for relaying the existing signal back to the new WTP. **August Update** – It was decided that the upper reservoir will be taken out of service as part of the operation of the new plant as it is no longer required. This CCO will be canceled.

**Testing**

Westridge completed bacteriological testing on the two new reservoir chambers and the new distribution line from the plant to the new hydrant on two subsequent days, as required in their start-up instructions. All six tests came back negative for bacteria and the Water Security Agency approved the distribution of the water to the community, provided the chlorine and turbidity levels also met the requirements. Water began distribution on August 5, 2021.

BCL also conducted performance testing on the new UF/NF system on July 15, 2021 which came back showing extremely good water quality. The improved removal of some of the key parameters are shown below. The first table shows the old water treatment plant quality taken in August 2018 prior to the new plant construction and the second table shows the new water plant removal levels.

**Table 1: Old (Existing) WTP Removals**

Parameter	Raw Water	Treated Water (Old System)	Guidelines (Limits)
Ammonia	0.07 mg/L	0.05 mg/L	1.0 mg/L*
Total Organic Carbon	<b>9.1 mg/L</b>	<b>6.4 mg/L</b>	4.0 mg/L*
Total Dissolved Solids	334 mg/L	352 mg/L	500 mg/L
Colour	<b>19 TCU</b>	<1 TCU	15 TCU
Turbidity	<b>4.3 NTU</b>	0.3 NTU	0.3 NTU
Iron	0.15 mg/L	0.0048 mg/L	0.3 mg/L
Manganese	<b>0.10 mg/L</b>	0.0095 mg/L	0.02 mg/L
Trihalomethanes	N/A	<b>151 ug/L</b>	100 ug/L

\* Design guideline to eliminate disinfection by-products, not regulated limit.

**Table 2: New WTP Removals**

Parameter	Raw Water	New Treatment Processes		Guidelines (Limits)
		Post UF	Post NF	
Ammonia	0.03 mg/L	0.04 mg/L	0.02 mg/L	1.0 mg/L*
Total Organic Carbon	<b>11.0 mg/L</b>	<b>8.5 mg/L</b>	<b>0.2 mg/L</b>	4.0 mg/L*
Total Dissolved Solids	279 mg/L	284 mg/L	20 mg/L	500 mg/L
Colour	<b>17 TCU</b>	<b>16 TCU</b>	<b>&lt;1 TCU</b>	15 TCU
Turbidity	0.1 NTU	0.1 NTU	< 0.1 NTU	0.3 NTU
Iron	0.011 mg/L	0.0012 mg/L	0.0007 mg/L	0.3 mg/L
Manganese	0.0031 mg/L	mg/L	0.0031 mg/L	0.02 mg/L
Trihalomethanes	N/A	To be tested once distributed**.		100 ug/L

\* Design guideline to eliminate disinfection by-products, not regulated limit.

\*\*At organics levels of 0.2 mg/L, THM production is anticipated to be negligible (10 ug/L).

### Summary of Process Testing

Based on the above, the new treatment process is removing organics, colour, and solids from the raw water with very high efficacy. The post-nanofiltration (NF) water has effectively zero organics in it which will lead to lowered THM and HAA production in the distribution system which was the goal of the project to meet all regulated values.

The turbidity, iron and manganese levels in the raw water are also lower than expected. This means that these parameters are also likely settling out in the raw water reservoir (pond) before it reaches the WTP. Follow-up testing of all parameters will also be completed during formal commissioning in two weeks.

**Photos**



Truck fill slab and roadway completed.



Loading dock grading completed; hydroseeding on backfill at left.



Berms, hydroseeding and fencing completed around reservoir.



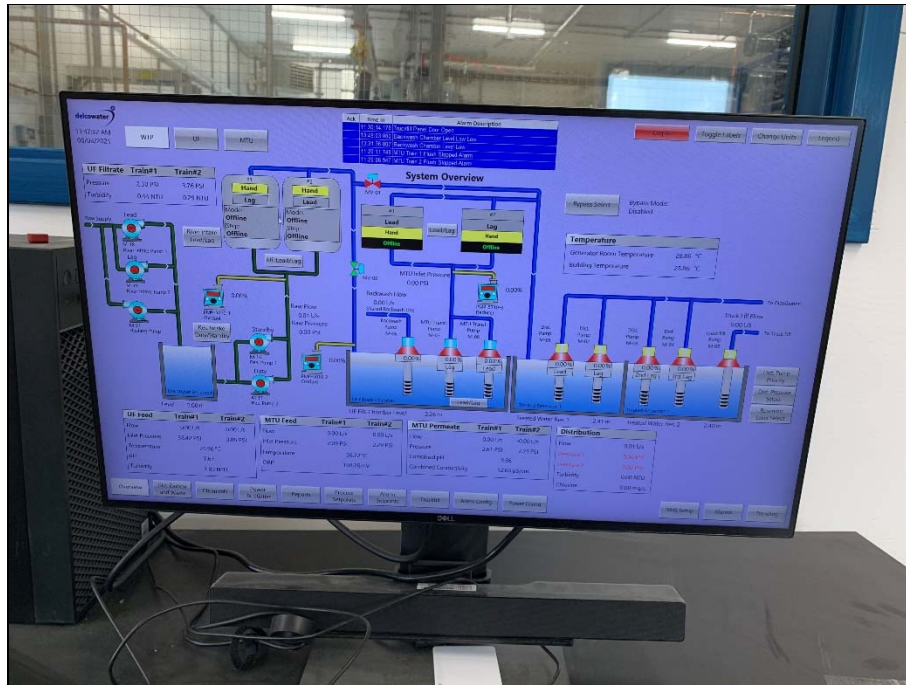
Flushing hydrant (Change Order #7) installed near old WTP.



Ultrafiltration systems now operational.



Nanofiltration systems now operational.



Control systems are now operational.



Distribution pumps are providing water to the town.



Electrical equipment area completed.



Office partially set up; remaining furniture and equipment to be unboxed prior to commissioning.

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