



# Wastewater Treatment Project

Treated for a cleaner future

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## CRD Wastewater Treatment Project

### Quarterly Report

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Reporting Period: October- December 2019

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# 1 Executive Summary

## 1.1 Introduction

This Quarterly report covers the reporting period of October- December 2019 and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the “Project”) includes three main Project Components (the “Project Components”): the McLoughlin Point Wastewater Treatment Plant (the “McLoughlin Point WWTP”), the Residuals Treatment Facility (the “RTF”) and the Conveyance System (which includes upgrades to the conveyance network including the construction of pump stations and pipes). The Project scope is being delivered through a number of contracts with a variety of contracting strategies.

Overall the Wastewater Treatment Project progressed as planned with no changes to the construction/commissioning start and completion dates.

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing construction including: work on Biological Aerated Filter (BAF) Mono Floor; fire suppression work in Operations and Maintenance (O&M) building; commenced installation of Lamella plate settling equipment in Primary Clarifier No. 1; progressing building envelope on Electrical, Blower and Heat Recovery buildings; progressing concrete work in the Process Building; receiving delivery of large process equipment; progressing O&M Building exterior walls and interior finishes; progressing off-site utility installation and ongoing installation of plant inlet piping and plant by-pass piping; layout and phase 1 installation of Densadeg 2 and completion of Densadeg 1; progressing concrete in Moving Bed Biofilm Reactor #2; delivery and installation of motor control centres; progression of heating, ventilation, and air conditioning (HVAC), electrical and plumbing trade work throughout the O&M building; completion of raw influent valve installation; and progression of pig receiving piping and raw influent piping.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completion of Digester 1; final piping installation at Digester 2; commencement of installation of Digester 3 including concrete base, foundation and starter panels; continued construction of Water Pump House; completion of masonry and continued equipment installation, piping, electrical and fire suppression in the Dryer building; continued installation of exterior cladding, and sprinklers at the Residuals Handling Building, Equalization building, Water Pump House and Digester Building; continued electrical, process piping, HVAC, drywall, and sprinklers at the Residuals Handling Building; installation of equipment in the Dryer Building; pouring slab; continued stabilization of the south slope and commencement of structural steel for the Operations Building.

The Conveyance System is being delivered through seven construction contracts: two design-build contracts and five design-bid-build contracts.

The two design-build Conveyance System contracts progressed over the reporting period as follows:

- Clover Point Pump Station: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including:

installation of motor control centres, and Programmable Logic controls in the electrical room; openings between existing and new inlet channels were cut; completion of backfill over new structure; ongoing work on retaining wall structure; installation of sanitary forcemain and pigging chamber; completion of interior masonry work in new station; installation of surge relief and domestic water piping; installation of forcemain discharge bend; completion of sanitary and storm wet well benching; ongoing work on public washroom facilities; installation of sanitary and storm pump discharge spools; ongoing installation of check valve; permanent BC Hydro power installed; ongoing piping installation throughout the station; and completion of forcemain fusion to flange.

- Macaulay Point Pump Station: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of process piping and lighting circuits; suspended slab and pump room concrete poured; receipt and installation of cross laminated timber; inlet sewer pipe, and vortex degritter delivered to site; motor control centres installed in electrical room; commencement of installation of sanitary pipe; commencement of backfill around building exterior; installation of odour control unit; and cross laminated timber roof and bridge installed. Macaulay Forcemain progressed along View Point Street, providing for a total installed length to the end of December of 750m with tie in at McLoughlin Point WWTP all that remains.

The design-bid-build Conveyance System contracts progressed over the reporting period, as follows:

- Clover Forcemain: Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including: ongoing cycle track paving; road restoration; landscaping; completion of watermain lining; ongoing electrical lighting installation; completion of final tie in to the harbour crossing pipe in the transition chamber; and completion of final assembly of transition chamber.
- Residual Solids Conveyance Line (“RSCL”): the RSCL is being delivered through two construction contracts, with work progressing as follows:
  - Residual Solids Pipes: Don Mann Excavating Ltd. (“Don Mann” as the Construction Contractor for the Residual Solids Pipes) continued construction activities including installation of approximately 2000m of pipes; installation of valve chambers; and road restoration.
  - Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities at all three pump stations and bridge crossings including: erection of scaffolding at Tillicum and Admirals bridges; continued rock breaking at Pump Station 1; continued concrete work including footings and retaining walls for Pump Station 2, kiosk pad at Pump Station 3, and wet well slab for Pump Station 1; installation of watermain at Hartland and water system improvements were completed on Willis Point Road; and commencement of valve chamber spool installation at Pump Station 3.

- Arbutus Attenuation Tank (“AAT”): NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities with a focus on excavation and structural secant pile construction works. Ongoing activities also include maintaining the dewatering system; completing bypass pumping for tie-in works during construction; commenced installation of permanent yard piping and manholes; and decommissioned existing overflow system infrastructure within tank footprint.
- Trent Forcemain: The Project Team, with Stantec (as the design consultant for the Trent Forcemain) progressed work through the procurement phase, including: responding to tender inquiries and issuing addenda; receiving tenders and selecting the tenderer in accordance with the Invitation to Tender; and initiating contract award.

## 1.2 Dashboard

Table 1 indicates the high level status of the Project and each Project Component with regards to the six Key Performance Indicators (“KPI”) that were defined within the Project Charter.

There were no changes made to the KPIs over the reporting period. The safety KPI for the Project and the conveyance system remains yellow. Over the quarterly reporting period three reportable safety incidents occurred and the total incident frequency increased from 1.3 at the end of the third quarter of 2019 to 1.5. The Project Team continues to work with, and ensure that all of the prime contract partners maintain safety as their number one priority.

The cost KPI for the Project overall and the conveyance system remained red over the reporting period, and are expected to remain red for the duration of the Project, primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete to Project at \$775M, or \$10M over the Project’s control budget. The CRD Board has approved an increase in the Project’s budget by \$10M to \$775M.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					Three recordable incidents occurred over the period. Site inspections are ongoing.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.					Four minor environmental incidents occurred over the period. All four were sediment releases associated with heavy rain events. Environmental controls were re-established and the releases ceased.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.					No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.					Engagement activities were ongoing over the reporting period. Significant efforts were made to provide accurate and timely information to stakeholders.
Schedule	Deliver the Project by December 31, 2020.					No schedule issues.
Cost	Deliver the Project within the Control Budget (\$765 million).					Based on the value of the contracts awarded to-date and a refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete the Project at \$775M, or \$10M over the Project's Control Budget. This is primarily as a result of inflation in the Vancouver Island construction market. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020. The CRD Board have approved an increase in the Project's budget by \$10M, to \$775M.

\* A TRIF of no more than 1 means that there is 1 or fewer recordable incidents (being a work-related injury or illness that requires medical treatment beyond first aid or causes death, days away from work, restricted work or transfer to another job, or loss of consciousness) for every 200,000 person-hours of work

Status	Description
	KPI unlikely to be met
	KPI at risk unless correction action is taken
	KPI at risk but corrective action has been identified/is being implemented
	Good progress against KPI

## 2 Wastewater Treatment Project Progress

### 2.1 Safety

Safety information for the reporting period and cumulative for the Project from January 1, 2017 is summarized in Table 3.

Site safety tours and weekly safety inspections were carried out by Project Management Office (“PMO”) construction and safety personnel over the reporting period at all active worksites: McLoughlin Point WWTP, RTF, Macaulay Point Pump Station and Forcemain, Clover Point Pump Station, Clover Forcemain, Residual Solids Pipes, Residual Solids Pump Stations and Arbutus Attenuation Tank.

Over the reporting period (October to December) 30 safety incidents occurred in total: nine in October, twelve in November and nine in December, comprising: one lost time recordable, two medical aid recordable, three near miss reports, three first aid and twenty-one report-only incidents, as summarized in Table 2.

*Table 2: Safety Incidents over the Reporting Period*

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
October 5, 2019	McLoughlin Pt WWTP	Report Only	While moving a piece of equipment a worker lost their grip pinching their hand between the equipment and the stair railing.	Worker reported incident to First Aid but no treatment was rendered and worker returned to work.	Tool-box talk to discuss good communication methods when performing manual lifts with multiple people. Ensure everyone has a good grip on the load before proceeding.
October 5, 2019	McLoughlin Pt WWTP	Near Miss	Workers cutting the concrete on the second floor of the O&M building allowed a core to fall to the first floor. The control zone below the work area had been established but was deficient.	No one was injured in the incident.	Job area was immediately shutdown and control zone established in the correct location Tool-box talk held to coordinate activities and communication between crews on upper and lower slabs
October 14, 2019	Residual Solids Pump Stations	Report Only	Police notified our contractor that a road plates had shifted creating a potential hazard.	Police controlled the area around the excavation until contractor arrived to reinstall road plate.	Plate was reinstalled with an increased overhang for better coverage and pinned in place to prevent the plates from shifting
October 16, 2019	Residual Solids Pipes	Report Only	Altercation between an aggressive driver and a Traffic Control Person (TCP)	Police were called and a file number was opened with the Saanich Dept.	Monthly Prime Contractor meeting discussed the dangers of Flagging and the importance of not confronting dangerous drivers.
October 16, 2019	Macaulay Point Pump Station	Near Miss	Worker exposed to small electrical shock from a road plate while installing Macaulay forcemain.	It was determined that a broken wire from a street lights base came in contact with the steel plate.	Electrical line repaired and isolated from road plate.
October 18, 2019	Residual Solids Pump Stations	Report Only	Altercation between an aggressive driver and a Traffic Control Person (TCP)	Police were contacted and a police file opened.	Monthly Prime Contractor meeting discussed the dangers of Flagging and the importance of not confronting dangerous drivers.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
October 30, 2019	McLoughlin Pt WWTP	Report Only	Worker reported to first aid as they were experiencing pain and stiffness in their wrist from previous day activities.	Worker was referred to a medical clinic for an evaluation and no further treatment was provided.	Tool-box talk reminder to report all incidents
October 30, 2019	McLoughlin Pt WWTP	Report Only	Worker's hand struck a piece of reinforcing steel.	Worker reported incident, no first aid required and returned to work	Tool-box talk to discuss awareness of surroundings and to ensure that all hazards are identified on their Daily Field Level Risk Assessment cards
October 31, 2019	Residual Solids Pump Stations	Near Miss	Watering truck backed into an open excavation.	Contractor utilized an excavator to move the water truck.	Tool-box talk on the use of spotters when backing any vehicles with limited line of site
November 1, 2019	McLoughlin Pt WWTP	Medical Aid	Worker rolled ankles while descending stairs.	While trying to take the weight off of his right ankle the worker ended up rolling his left ankle as well.	Worker has been placed on modified duty until ankles are completely healed  Tool- box talk reminding workers to use handrail while ascending and descending stairs.
November 4, 2019	Residual Solids Pump Stations	Report Only	Worker was observed smoking on the Hartland Site.	This is in contravention to site safety rules at the landfill. The worker was removed from site.	Tool-box talk with crew reviewed the landfill site rules and reinforced compliance with all including the smoking policy.
November 5, 2019	Residual Solids Pump Stations	Report Only	Low voltage electrical conduit struck while excavating.	Conduit was not identified on any as-built drawings. The electrical conduit was damaged and repairs undertaken by CRD Hartland staff. There were no injuries to any personnel.	Utility locates documents updated to reflect the conduit.
November 7, 2019	RTF	Report Only	Scissor lift working in a congested area struck a cable tray while lowering.	Scissor lift was removed from service for inspection and repair.	Any further work requiring a scissor lift in that area will require a spotter present at all times.
November 8, 2019	McLoughlin Pt WWTP	Report Only	Worker while climbing a ladder experienced discomfort in their hip.	Worker reported to Medical aid for an assessment but no treatment rendered.	Worker was reminded to be aware of their surroundings.
November 12, 2019	Residual Solids Pump Stations	Medical Aid	Employee injured hand while installing rebar.	Employee was assessed on site by the First Aid Attendant and sent to hospital where he received 3 stitches.	Tool-box talk held to remind crew to wear gloves, be mindful of hand positioning and the use of the proper equipment for the task.
November 19, 2019	RTF	Report Only	While moving a telescopic lift the operator struck a job box.	Minor damage to job box, no injuries to workers.	Tool-box talk to remind crews to use a spotter when moving equipment in congested areas.
November 25, 2019	RTF	Report Only	Excavator contacted an overhead telecommunication line.	Shaw was contacted and line reinstated.	Tool-box talk discussed working in close proximity to utilities.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
November 27, 2019	McLoughlin Pt WWTP	Lost Time Recordable	While dislodging a chain on an excavator a worker's hardhat was contacted by the bucket.	Worker stated he was fine and continued to work. After leaving the work place he attended a hospital where he was assessed by a doctor. He has not returned to work.	Tool-box talk regarding the operations of equipment when workers are in close proximity.  Excavator was inspected to ensure proper operations of controls.
November 28, 2019	Residual Solids Pump Stations	Report Only	Careless driving by a subcontractor.	A worker was witnessed overtaking on a double solid line in a dangerous manner on Hartland Ave.	Worker was spoken to in the morning before the start of their shift and given a verbal warning.
November 29, 2019	Clover Forcemain	Report Only	A Traffic Control Person was struck on Dallas Road by a work van that proceeded to drive through a controlled stop.	TCP sustained minor bruising but did not need medical attention.	Tool-box talk reviewing safe traffic control practices and staffing assignments at busy intersections was held.
November 29, 2019	Residual Solids Pipes	Report Only	Telus overhead service line was struck by an excavator.	Excavator was equipped with an overhead skylight however visor was stuck closed at the time restricting operator's vision.	Crew will ensure that low overhead lines are marked with surveyor tape.  Machine was returned to the yard where the skylight was inspected and repaired.
December 2, 2019	McLoughlin Pt WWTP	First Aid	Worker sustained a hand injury while using an electrical grinder. Worker was wearing gloves at the time of the injury,	Worker reported to First Aid to have injury treated. No further follow up was required.	Tool-box talk discussing safe use of power tools was held.
December 2, 2019	McLoughlin Pt WWTP	Report Only	Worker was lifting a pump through a tank opening.	Worker's back felt a bit stiff and reported to First Aid but no follow up was required.	Tool-box talk regarding the proper method for lifting was held.
December 3, 2019	WTP Office	Report Only	Worker sustained a hand injury while in the office kitchen.	Worker felt pain at the time of incident but did not report to office first aid attendant until 2 days later. No first aid required.	Worker reminded to report any incident the day of occurrence.
December 5, 2019	Residual Solids Pump Stations	Report Only	While working adjacent to Marigold Road there was a partial collapse of the excavation wall which impacted one of the travelled lanes.	No workers were in the excavation. Public safety was the top priority with traffic control measures implemented immediately.	Contractor/Engineer re-assess the soil conditions and a restoration plan was established. Marigold Road was limited to single lane alternating while the roadway was reinstated.
December 5, 2019	Residual Solids Pump Stations	Report Only	Traffic Control Person (TCP) was struck by a vehicle while directing traffic on Marigold Road.	TCP was not seriously injured however did have some bruising.	Flagging Safety discussion was held at the site and reinforced at the monthly Prime Contractor Safety Meeting. Police were notified of the incident.
December 9, 2019	McLoughlin Pt WWTP	First Aid	Workers ankle injured while fitting a pipe.	Worker reported to first aid and put on modified duty.	Tool-box talk in regards to appropriate securing of materials and awareness of surrounding work space was held.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
December 12, 2019	Residual Solids Pump Stations	Report Only	A contractor's pickup was observed using the outbound lane at the Hartland landfill.	CRD bylaw officer was notified and the Contractor was put on notice of the infraction.	Tool-box talk was held with the crew to reemphasize the site rules. Driver was required to re-take the Hartland site orientation to ensure the site rules were understood.
December 12, 2019	Clover Point PS	Report Only	A worker had wastewater splashed back into their face.	The First Aid Attendant had worker wash their face with clean water and disinfecting soap. No further follow up was needed.	Tool-box talk reinforcing the use of full-face shield protection was held with the crew.
December 17, 2019	Macaulay Point PS	First Aid	Worker's wrench slipped and struck his arm.	Worker reported to first aid and returned to work with no further follow up.	Tool-box talk regarding the safe use of hand tools was held with the worker.

Key safety activities conducted during October included:

- WTP Project Office participation in the Great Shake Out and annual emergency response drill;
- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- hosted Prime Contractor Safety Coordination Meeting;
- weekly project update meetings with prime contractor: HRMG;
- monthly incident investigation reviews;
- reviewed site specific safety plans and high risk tasks;
- daily site safety audits during habitat restoration work at Colquitz Creek; and
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites.

Key safety activities conducted during November included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor: HRMG;
- participated in IWS's Safety Day;
- monthly Incident Investigation reviews;
- reviewed site specific safety plans and high risk tasks;
- daily site safety audits during work at Colquitz;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- circulated a Safety Notice Recall for Self-Retracting Lifelines;
- circulated a Safety Notice Recall for defective Crosby Shackles; and
- "Shift into Winter" program completed by WTP staff that are using CRD vehicles.

Key safety activities conducted during December included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor: HRMG;
- monthly incident investigation reviews;
- reviewed site specific safety plans and high risk tasks;
- daily site safety audits during work at Colquitz;

- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- host Prime Contractor Safety Coordination Meeting focusing on the upcoming holiday and resuming work in the New Year; and
- attended a meeting with WorkSafeBC and Prime Contractor to discuss Confined Space work and documentation.

Table 3: WTP Safety Information

	Reporting Period (October- December 2019)	Project Totals
<b>Person Hours</b>		
PMO	10 134	127 488
Project Contractor	285 402	1 355 471
Total Person Hours	295 536	1 482 959
<b>Total Number of Employees</b>		
PMO	31	
Project Contractors (& Project Consultants) working on Project Sites	556	
Total Number of Employees	587	
<b>Near Miss Reports</b>		
Near Miss Reports	3	36
High Potential Near Miss Reports	0	5
Report Only	21	116
First Aid	3	34
Medical Aid	2	5
Medical Aid (Modified Duty)	0	2
Lost Time	1	4
Total Recordable Incidents	3	11
		Project Frequency (from January 1, 2017)
First Aid Frequency		4.6
Medical Aid Frequency		0.9
Lost time Frequency		0.5
Total Recordable Incident Frequency		1.5

## 2.2 Environment and Regulatory Management

Environmental and regulatory activities continued over the reporting period relating to both the planning and permitting of upcoming work and the execution of current work.

### 2.2.1 Environment

Environmental work progressed as planned over the reporting period. The focus was on environmental monitoring of construction activities.

Key environmental management activities completed in October included:

- The CRD completed an Environmental Effects Determination (EED) Amendment for submission to the Department of National Defence. The EED Amendment was prepared to evaluate environmental effects from construction of a parking area near the McLoughlin Point WWTP.

Key environmental management activities completed in November included:

- McElhanney Consulting Services (as the qualified environmental professional for Knappett, Don Mann and NAC Constructors Ltd. – being the Construction Contractor for the Residual Solids Pump Stations, the Residual Solids Pipes, and the Arbutus Attenuation Tank, respectively) completed environmental monitoring and inspections at numerous sites over the course of the reporting period. Generally, any environmental risks that were identified by them were corrected at the time of the inspection.

Over the reporting period there were four minor environmental incidents.

- In October HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) experienced a minor environmental incident. During an environmental inspection that coincided with a heavy rainfall event, HRP's Environmental Manager observed sediment laden water discharging from a storm sewer outfall near their temporary office buildings at McLoughlin Point. The sediment laden water was entering the storm sewer system through a storm drain that was in proximity to some excavating activity. HRP implemented additional sediment control measures and the discharge of sediment laden water ceased. Due to the short duration of the discharge, no adverse environmental effects were observed.
- On December 12, the environmental monitor (EM) for Windley (the Construction Contractor for the Clover Forcemain) attended the work site to complete inspections as it was a heavy rain day. The EM observed that residual topsoil material on Dallas Road was being mobilized by the heavy rain, and some turbid run-off was entering a catch basin with no sediment protection. Crews were informed and immediately cleaned up the street, eliminating the flow of turbid water. The short duration of the discharge and limited turbidity led to the conclusion that no adverse environmental effects resulted from the release.
- On December 31, the City of Victoria received notices that a City of Victoria stormwater outfall along Dallas Road was discharging turbid water to the environment, and upon investigation found that some catch basins that led to the outfall did not have sediment protection. The City of Victoria installed sediment protection and the flow of turbid water from the outfall ceased. The catch basins were previously within the work area of Windley (the Construction Contractor for the Clover Forcemain), who decommissioned the

sediment protection after completing their work. However, the intensity of the rainfall mobilised sediments from further away than would normally be expected; Windley will ensure that all catch basins that could be affected by their work are protected and maintained until all work is complete. The short duration of the discharge and limited turbidity led to the conclusion that no adverse environmental effects resulted from the release.

- Also on December 31, while the Department of National Defence (DND) was completing outfall monitoring near the Macaulay Point Pump Station, sediment laden water was observed to be discharging to the environment. Kenaidan determined that the source of the sediment was likely unprotected or poorly protected catch basins in proximity to the Macaulay Forcemain, and so installed new filter fabric in all catch basins along the Forcemain route. Due to the short duration of the release, no adverse environmental effects are thought to have occurred.

## 2.2.2 Regulatory Management

During the reporting period, the Project Team continued to monitor the advancement of construction-related regulatory approvals and supported or led the advancement of permit applications.

Key permitting activities for October included:

- The BC Ministry of Environment and Climate Change Strategy (ENV) authorized the temporary bypass of some parts of the Clover Point Pump Station to allow Kenaidan (as the Design-Build Contractor) to complete critical tie-in work.

Key permitting activities for November included:

- The CRD, Lorax, Stantec and HRP met with ENV to review the results of the marine outfall dispersion modelling. The review resulted in a series of technical questions from ENV about the model and underlying assumptions.

Key permitting activities for December included:

- Lorax Environmental Services (Lorax, the CRD's dispersion modelling consultant) prepared a technical memo that addressed a request for additional information from the BC Ministry of Environment and Climate Change Strategy (ENV). The request from ENV was to clarify technical details of the dispersion model (see Regulatory Management section below).
- Kenaidan (as the Design-Build Contractor) prepared a request for submission to ENV to authorize the temporary bypass of some parts of the Clover Point pump station while critical tie-ins and other construction activities occur.

The status of key Project permits are summarized in Table 4. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits. There were no updates made to the table from that presented in the Project's Q3 2019 Quarterly Report.

Table 4- Key Permits Status

Permit/Licence	Anticipated Date	Status	Party Responsible for Obtaining Perming
<b>McLoughlin Point WWTP</b>			
Municipal Wastewater Regulation ("MWR") Registration	Q1 2020	Submitted September 2019	CRD
<b>McLoughlin Point Harbour Crossing</b>			
Transport Canada Lease	Following completion of construction	On Track	HRP
<b>McLoughlin Point Outfall</b>			
Transport Canada Lease	Following completion of construction	On Track	HRP
<b>Residuals Treatment Facility</b>			
Operational Certificate	Prior to start of RTF operations	Submitted May 2019	HRMG

## 2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, with a focus on the development of interpretive signage for installation at several locations and the procurement of Indigenous art for installation at Clover Point and Macaulay Point.

Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations at Clover Point and along the RSCL route with members of local First Nations.

Key activities in October included:

- Representatives of CRD and HRMG met with the W̱SÁNEĆ Technical Advisory Committee and presented the Technical Assessment Report and the CRD's Biosolids Beneficial Use Strategy. The Environmental Impact Study and Environmental Protection Plan prepared for the RTF were also discussed. This meeting occurred as a result of the CRD sharing (in June, 2019) a Technical Assessment Report that was prepared by Hartland Resource Management Group (the Design-Build-Finance-Operate-Maintain Contractor for the RTF) with each of the Esquimalt, Malahat, Pauquachin, Songhees, Tsartlip, Tseycum and Tsawout Nations, with the offer to meet to review: the report findings, any other aspects of the construction and operation of the RTF, or the plan for the beneficial use of the biosolids that will be produced. In July the W̱SÁNEĆ Leadership Council accepted the CRD's offer and asked that the CRD present to the W̱SÁNEĆ Technical Advisory Committee. The meeting was scheduled for, and occurred, in October.

Key activities in November included:

- The CRD and the W̱SÁNEĆ Leadership Council scheduled a signing ceremony (to be held in December) for a Memorandum of Understanding, as described in the following section.

Key activities in December included:

- Representatives of the Project Team and the Capital Regional District have been meeting with the W̱SÁNEĆ Leadership Council to discuss the construction and operation of Wastewater Treatment Project components in W̱SÁNEĆ Territory. In December, the CRD and the W̱SÁNEĆ Leadership Council participated in a signing ceremony for a Memorandum of Understanding that will provide \$400,000 of capacity funding and allow this productive engagement to continue. This is an important step in furthering the

important relationship between the CRD and the W̱SÁNEĆ Nation, and is a positive step toward re-establishing W̱SÁNEĆ decision-making in the region and implementing the recommendations of the CRD's Special Task Force on First Nations Relations. In addition to providing capacity funding, the Memorandum of Understanding commits the CRD to move toward a negotiated agreement that considers the Project's presence within W̱SÁNEĆ territory, and engage in further discussions towards an agreement involving the broader relationship between CRD and the W̱SÁNEĆ Nations that takes into consideration CRD's operations within W̱SÁNEĆ territory and the recommendations of CRD's First Nations Task Force Final Report as adopted by the Board of the CRD.

- The CRD, City of Victoria and Esquimalt and Songhees Liaisons met to review the proposals submitted in response to the Clover Point Call to Artists. The Call to Artists was for the provision of an Indigenous design for incorporation at Clover Point.

## 2.4 Stakeholder Engagement

The Project maintained its ongoing two-way Communications and Engagement Plan to provide Project information to stakeholders, communities and the public and to respond to public inquiries. The key focus of the communications and engagement activities over the period was to keep residents and stakeholders informed of Project plans, progress and construction information, and to receive and respond to questions and concerns raised by the community. A variety of communications tools and engagement activities were utilized to support the implementation of the plan, including stakeholder meetings, Project website updates and notifications of construction through notices and a public inquiry program, among other methods.

### October Overview

Four construction notices were issued to stakeholders in October:

- Residuals Treatment Facility (Hartland): Blasting Notice (October 1, 2019) (Appendix A);
- Traffic Advisory: Interurban, Marigold and Grange Roads (October 9, 2019) (Appendix B);
- Residual Solids Conveyance Line: Tillicum Bridge Lane Closure (October 10, 2019) (Appendix C); and
- Clover Point Pump Station: Overnight Work (October 22, 2019) (Appendix D).

The Project Team hand delivered three of these construction notices in the community: Residuals Treatment Facility: Blasting Notice (33 residences near Hartland Landfill); Residual Solids Conveyance Line Tillicum Bridge Lane Closure (24 residences and businesses near the Tillicum Bridge); and Clover Point Pump Station: Overnight Work (92 residences along Dallas Road and Hollywood Crescent). The construction notice for Interurban, Marigold and Grange Roads was issued as a Traffic Advisory to local schools and media outlets in the region.

Over the month of October, the Project website, [wastewaterproject.ca](http://wastewaterproject.ca), was updated with information about the Project. Four construction notices were posted. The photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix E) was updated.

The CRD's Twitter account was used to provide Project information to the public, including notifications about anticipated delays and single lane alternating traffic along construction corridors.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group;
- School District #61 Staff; and
- Township of Esquimalt Liaison Committee.

### **November Overview**

Two construction notices and a traffic advisory were issued to stakeholders in November:

- Residual Solids Conveyance Line: Admirals Bridge Work (November 15, 2019) (Appendix F);
- Arbutus Attenuation Tank: Overnight Bypass Pumping (November 19, 2019) (Appendix G); and
- Traffic Advisory: 24-Hour Single Lane Traffic on Interurban Road (November 19, 2019) (Appendix H).

The Project Team hand-delivered the two construction notices in the communities around the respective construction sites: Residual Solids Conveyance Line (79 residences in proximity to the Admirals Bridge) and Arbutus Attenuation Tank (53 residences near Haro Woods). These notices were also circulated to stakeholders via email. The traffic advisory (Appendix H) regarding 24-hour single lane traffic on Interurban Road was issued to local media outlets in the region. As well, a letter regarding construction updates for Peters Street was delivered to 16 residences in Esquimalt.

Over the month of November, the Project website, [wastewaterproject.ca](http://wastewaterproject.ca), was updated with information about the Project. Two construction notices, one traffic advisory and an updated information sheet were posted. The photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix I) was updated regularly.

The CRD's Twitter account was used to provide Project information to the public, including notifications about construction along the RSCL route and a road closure at Clover Point. A Facebook update regarding anticipated traffic delays along Interurban Road was posted.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Technical Working Group;
- Department of National Defence;
- District of Saanich Technical Working Group;
- Environment and Climate Change Canada (the Federal Government's Department of Environment) McLoughlin Point WWTP Tour;
- EOCP (Environmental Operators Certification Program) McLoughlin Point WWTP Tour; and
- Township of Esquimalt Liaison Committee.

## December Overview

Two construction notices were issued to stakeholders in December:

- Overnight Work: Interurban and Wilkinson Intersection (December 5, 2019) (Appendix J); and
- Residual Solids Conveyance Line: Tillicum Road (December 9, 2019) (Appendix K).

Both construction notices were distributed to 287 residents and stakeholders by email. As well, the Project Team hand delivered the *Overnight Work: Interurban and Wilkinson Intersection* construction notice to 211 residences and businesses in Saanich.

Project Update #8 was distributed (Appendix L) in December. The update provided an overview of construction progress, work completed in 2019, activities underway, and what to expect in 2020. This document was posted to the Project website, CRD Twitter and Facebook accounts, and distributed by email to more than 730 residents and stakeholders who have signed up to receive Project updates.

Over the month of December, the Project website, wastewaterproject.ca, was updated with information about the Project. Two construction notices and Project Update #8 were posted. The photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix M) was updated regularly.

The CRD's Twitter and Facebook accounts were used to provide Project information to the public, including notifications and a traffic advisory about construction along the RSCL route.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group;
- Fairfield Gonzales Community Association Neighbourhood Improvement Committee;
- Greater Victoria Harbour Authority;
- Township of Esquimalt Liaison Committee; and
- Vancouver Island Engineering Society.

## Public Inquiries

Table 5 – Project Inquiries- October- December 2019

Inquiry Source	Contacts for Q4
Information phone line inquiries	76
Email inquiries responded to	55

Key themes of the public inquiries were as follows:

- questions about traffic management and delays on Interurban and Willis Point roads;
- concerns regarding noise, gravel, trucks and other construction impacts;
- questions about traffic management and timelines on Interurban Road;
- interest regarding construction schedule and school drop-off time considerations for work around Burnside and Grange roads;
- inquiries about timing and extent of restoration along the Residual Solids Conveyance Line and Clover Forcemain; and
- interest in amenities along Dallas Road and Clover Point Park.

## 2.5 Resolutions from Other Governments

There were no resolutions related to the Project passed by other governments during the reporting period.

## 2.6 Schedule

Overall the Project's scheduled activities progressed as planned during the period. All major and key interface milestones were on target to be completed as per the schedule. Progress over the reporting period is summarised in section 2.9.

Figure 1 shows the high-level Project schedule. This schedule has been updated from that shown in the Project's Q3 2019 Quarterly Report to delineate between construction and commissioning activities, and remains subject to optimization as the Project progresses.

The Project remains on-schedule to meet the provincial and federal regulations for treatment for the Core Area's wastewater by December 31, 2020.

Figure 1- High-Level Project Schedule

### Wastewater Treatment Project Schedule\*

#### Construction + Commissioning



\*Schedule subject to updates as Project planning progresses.

## 2.6.1 30 day look ahead

Key activities and milestones for the next 30 days (January) are outlined below by function.

### Safety

- host Prime Contractor Safety Coordination Meeting;
- attend weekly and bi-weekly prime contractor progress meetings;
- prime contractor project safety meeting with Project safety representatives;
- office/site inspections with contractors and CRD corporate at all active sites;
- prime contractor project safety meeting with Project safety representatives;
- review of any site-specific safety plans or high risk tasks;
- review prime contractor document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- incident reporting review with prime contractors at active work locations;
- conduct Quality Safety Assurance Audits on Arbutus Attenuation Tank and Residuals Solids Pump Stations Prime Contractors; and
- Trent Forcemain Project Safety Orientation for Prime Contractor.

### Environment and Regulatory Management

- CRD to submit the Dispersion Model memo to ENV.
- CRD to submit Clover Point pump station Bypass Authorization request to ENV on behalf of Kenaidan.

### First Nations

- Award contract for Indigenous art for installation at Clover Point.

### Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

### Cost Management and Forecast

- prepare cost reports;
- prepare 2020 Final Service Budgets;
- monitor schedule;
- fiscal year end close; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

## Construction

### McLoughlin Point

- commence Primary pipe rack installation;
- commence receiving Biological Aerated Filter (BAF) media;
- install cladding on building exterior;
- install insulation and drywall in upper penthouses;
- install Primary Odour Control tank;
- commence masonry façade;
- complete dirty back wash and sludge storage tank piping systems;
- commence fine screen room building envelope and plate settler tank cover installation;

- continue mono floor installation and Biological Aerated Filter structural tie-in work;
- continue BAF equipment installation and cable trays and cable pulls in BAF gallery;
- continue Tertiary lower level equipment layout and setting, and continue disk filter channel walls;
- complete cinder block walls in Operations and Maintenance building (O&M);
- continue fire stopping and glazing in O&M; and
- continue heating, ventilation, and air conditioning (HVAC) and plumbing installation in O&M.

#### Clover Point Pump Station

- backfill structure;
- complete installation of pig launching chamber;
- complete 1500mm tie-in to new inlet channel;
- reinstate seawall walkway;
- complete north retaining walls;
- pressure test process piping in pump room;
- BC Hydro energize sub-station; and
- commence functional testing of odour control system, air handling unit, storm pumps and sewage pumps.

#### Macaulay Point Pump Station

- continue to backfill structure;
- form and pour transformer and fuel tank pad;
- install chain link fence at transformer containment area;
- form and pour slab and walls for diversion chamber;
- continue installation of cross laminated timber (CLT) panels;
- install platforms, grating and metal stairs in bin room;
- install epoxy liner in wet well;
- install insulation and vapour barrier;
- install potable and non-potable pipes and plumbing fixtures;
- install discharge piping;
- install air supply and exhaust ducting to bin room;
- reinstate concrete curbs and pressure test forcemain;
- install jib crane in odour control room; and
- continue installation of cable tray and motor control centres, variable frequency drives and programmable logic control.

#### Residuals Treatment Facility

- continue hydro testing at Digester 1;
- complete Digester 2 ready for hydro testing;
- continue tank erection for Digester 3;
- continue electrical, piping, and sprinkler work at the Digester Building;
- continue piping installation in the Digested Sludge Storage Tank;
- commence steel stud and cladding construction of Operations Building;
- continue electrical cabling and pumps installation at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, HVAC, sprinklers, and drywall at the Residuals Handling Building;
- continue building systems, equipment and electrical installation and process piping at the Dryer Building;

- complete drywall and continue mechanical and electrical work at Equalization Building;
- complete installation of process equipment, cladding, and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

#### Clover Forcemain

- continue road/cycle track construction in areas 2, 4, and 6;
- continue upgrades to Montreal St; and
- continue Dallas Rd restoration between Government St and Douglas St.

#### Residual Solids Pipes

- continue pipe installation on Tillicum Rd to Tillicum Bridge;
- continue pipe installation on Tillicum Rd from Gorge Rd to Vincent Ave.;
- continue pipe installation on Interurban Rd from Knibbs PI to Wilkinson Rd; and
- continue road restoration and valve installations.

#### Residual Solids Pump Stations

- continue installation of pipes in Interurban Rd from Marigold Rd to Grange Rd;
- continue installation of supports and piping on Tillicum Bridge;
- commence installation of hangers and piping on Admirals Bridge;
- commence installation of submersible sewage pump, equipment pads, kiosk and odour control at Pump Station 3;
- commence installation of submersible sewage pump, water service, underground electrical at Pump Station 2;
- continue with substructure construction at Pump Station 1; and
- continue Hartland water system improvements reservoir construction.

#### Arbutus Attenuation Tank (AAT)

- continue drilling operation for secant piles;
- continue of concrete pour operations for reinforced and plain secant piles; and
- initiate formwork / reinforcement for ring beam, western end of tank footprint.

#### Trent Forcemain

- Project kick off with Contractor; and
- Review contractor's construction management plans.

## 2.6.2 60 day look ahead

Key activities and milestones for the next 60 days (February) are outlined below by function.

### Safety

- attend CRD corporate occupational health and safety coordination committee meeting;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- attend weekly and bi-weekly prime contractor progress meetings;
- office/site inspections with contractors and CRD corporate at all active sites;
- prime contractor project safety meeting with Project safety representatives;
- review of any site-specific safety plans or high risk tasks;
- review prime contractor document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- incident reporting review with prime contractors at active work locations; and
- conduct Quality Safety Assurance Audits on Arbutus Attenuation Tank Prime Contractor.

### Environment and Regulatory Management

- CRD, Stantec and HRP to meet with ENV to discuss ENV review of the Environmental Impact Studies that form the basis of the MWR Registration application.

### First Nations

- Continue advancing Indigenous art and signage development and procurement.

### Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

### Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund); and
- prepare for CRD 2019 Financial Statement Audit.

### Construction

#### McLoughlin Point

- demobilise south tower crane and commence demobilisation of north tower crane;
- install perimeter water line and hydrants;
- complete construction of remaining plant and tsunami walls;
- install stairs, exterior brick, roofing and glazing at primary odour control;
- install instrumentation and cables and commence terminations to motor control centre (MCC) at secondary odour control;
- install tank covers at Densadeg 2 & 3;
- install Suez walkways and equipment at Densadeg 2 & 3;
- install roofing and membrane at fine screen room;
- construct cinder block walls at Primary Treatment;
- install process mechanical and process electrical throughout;
- install pipe racks and cable trays in plate settlers 1 & 2;

- install building electrical finishing in secondary treatment;
- install nozzles, diffusers and gravel layer in BAF tanks;
- install tertiary filters in disk filters 1, 2 & 3;
- complete terminations to internal switchgear; and
- connect to BC Hydro plant power supply.

#### Clover Point Pump Station

- commence new public plaza;
- install interior finishes to washroom;
- install stone façade to exterior retaining walls; and
- commence operational testing of odour control, air handling unit, storm pumps and relocated existing screens.

#### Macaulay Point Pump Station

- paint mechanical room and washroom;
- install plumbing fixtures and washroom tiles;
- install HVAC, unit heaters and mechanical louvers and dampers;
- install jib crane in pump room;
- commence installation of diesel generator exhaust and diesel fuel tank;
- pull cable for permanent power feed and terminate to transformer;
- terminate cable in odour control, bin room, electrical room, pump room, and generator room; and
- commence installation of site paving and sidewalks.

#### Residuals Treatment Facility

- complete hydro testing at Digester 1;
- commence hydro testing at Digester 2;
- continue tank erection for Digester 3;
- continue mechanical and electrical installations and complete building envelope work at the Digester Building;
- complete piping and pump installation in the Digested Sludge Storage Tank;
- continue steel stud and cladding construction and commence roofing and building systems at Operations Building;
- continue electrical cabling and install stairs, rails and receiving hopper at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, HVAC, sprinklers, and drywall at the Residuals Handling Building;
- continue building systems, equipment and electrical installation and process piping at the Dryer Building;
- continue mechanical and electrical work at Equalization Building;
- complete installation of water pump and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

#### Clover Forcemain

- continue road/cycle track including paving Dock St to Government St and Douglas St west to Douglas St east;
- continue installing lamp standards on Dallas Rd and cycle track; and
- perform road restoration Government St to Douglas St.

### Residual Solids Pipes

- final pavement restoration as required;
- pipe installation at Portage Rd and Esson Rd; and
- pipe installation on Tillicum Rd from Gorge Rd to Tillicum bridge.

### Residual Solids Pump Stations

- commence installation of pipes on Marigold Rd from Colquitz River to Marigold pump station;
- continue installation of pipes on Interurban from Violet Ave to Grange Rd;
- continue installation of supports and piping on Tillicum Bridge and Admirals Bridge; and
- continue installation of process mechanical and electrical at pump stations 1, 2 & 3.

### Arbutus Attenuation Tank (AAT)

- complete drilling operation for secant piles;
- complete installation of plain and reinforced secant piles;
- continue installation of ring beam (formwork, rebar, pour concrete);
- commence installation of cross and diagonal strut beams;
- commence excavation within tank footprint to base slab elevation; and
- commence installation of Rock Anchors.

### Trent Forcemain

- contractor to mobilize to site; and
- contractor to start pot holing and utility relocation activities.

## 2.7 Cost Management and Forecast

The monthly cost report for December and quarterly cost report for the reporting period (October – December 2019) are shown in Appendices N and O respectively. The cost reports summarize Project expenditures and commitments by Project Components and the major cost centres common to the Project Components.

The Project Team has been reporting budget pressures through its monthly reports to the Project Board (and CRD Board) since September 2017, and these pressures steadily increased as each conveyance contract was awarded. The Project Team forecasts that the Project can be completed at a total cost of \$775M, or \$10M (1.3%) over the Project's control budget. In May 2019 the Project Board sought and received the CRD Board's approval to increase the Project's budget by \$10M to \$775M, and on August 14, 2019, the associated amendment to the 2019-2023 Financial Plan was approved.

### 2.7.1 Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The net commitments made during the reporting period resulted in an increase in committed costs of \$19.0 million. The significant commitments made in the reporting period were related to the Trent Forcemain contract (the award of which was initiated over the reporting period), and the remediation of contamination at the McLoughlin Point site, as outlined below.

The McLoughlin Point site on which the Wastewater Treatment Plant is being constructed contains contaminated materials, as a result of its previous use as an oil tank farm. Harbour Resource Partners, the contractor building the Wastewater Treatment Plant, are remediating the

site to provincial standards. Remediation work has been ongoing since HRP commenced the excavation of contaminated soils at the site, and over the reporting period payments totalling \$7.1M were made to HRP related to the remediation of contamination at or from the McLoughlin Point site. The extent of contamination on-site is now known, and the delineation of contamination off-site is close to complete. Further payments to HRP will be required associated with:

- remediating contamination that has migrated onto DND lands; and
- completing remediation of the site and obtaining a Certificate of Compliance.

### 2.7.2 Expenses and Invoicing

The Project expenditures for the reporting period were as expected and were within the budget allocations for each of the budget areas. The main Project expenditures incurred over the reporting period were associated with construction activities and project management office-related costs.

### 2.7.3 Contingency and Program Reserves

Contingency draws totalling \$7.4 million were made over the reporting period, as summarised in Table 6. The draws were partially-offset by a \$1.6 million reallocation from budget to contingency over the reporting period, resulting in a net decrease in contingency of \$5.8 million. The draws to-date and remaining contingency and program reserve balances are summarized in Table 6.

Table 6- Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	\$ Amount
<b>Contingency and Program Reserve (in Control Budget)</b>		<b>\$ 69,318,051</b>
Contingency and Program Reserve Draws to September 30, 2019		\$ (56,838,429)
Contingency and Program Reserve addition (May 2019)		\$ 10,000,000
<b>Contingency and Program Reserve balance as at September 30, 2019</b>		<b>\$ 22,479,622</b>
IT and Server Equipment	Oct-19	\$ (22,101)
Marine Environmental Impact Study	Oct-19	\$ (78,186)
SCADA plan for CRD operational requirements	Nov-19	\$ (143,420)
Remediation of Contaminated Soils on DND Lands	Nov-19	\$ (316,097)
McLoughlin Point Contaminated Site Remediation	Nov-19	\$ (5,968,000)
Remediation of Contaminated Soils on DND Lands	Dec-19	\$ (778,975)
<b>WWTP Total Draw</b>		<b>\$ (7,306,779)</b>
<b>RTF Total Draw</b>		<b>\$ -</b>
Macaulay Pump Station - Radio Telemetry Equipment	Nov-19	\$ (4,320)
Clover Pump Station - Radio Telemetry Equipment	Nov-19	\$ (7,544)
Clover Pump Station - Additional Rock Removal Quantities	Nov-19	\$ (39,061)
Macaulay Pump Station - Sprinkler Sleeve Installation	Dec-19	\$ (14,643)
<b>Conveyance Total Draw</b>		<b>\$ (65,568)</b>
<b>PMO Total Draw</b>		<b>\$ -</b>
<b>BC Hydro Total Draw</b>		<b>\$ -</b>
<b>WTP Program Reserve Draw</b>		<b>\$ -</b>
Contingency and Program Reserve additions in the reporting period (reallocation from budget)		\$ 1,600,000
Contingency and Program Reserve draws in the reporting period		\$ (7,372,347)
<b>Contingency and Program Reserve balance as at December 31, 2019</b>		<b>\$ 16,707,274</b>

#### 2.7.4 Project Funding

The federal and provincial governments are assisting the Capital Regional District in funding the Project.

The Government of British Columbia will provide \$248 million towards the three components of the Project, while the Government of Canada is contributing:

- \$120 million through the Building Canada Fund Major infrastructure Component towards the McLoughlin Point WWTP;
- \$50 million through the Green Infrastructure Fund towards the conveyance system; and
- up to \$41 million towards the RTF through the P3 Canada Fund.

The Project Team has applied to the Federation of Canadian Municipalities (FCM) for additional funding and has executed a grant agreement for the contribution of up to \$346,900 towards the

delineation of the contamination and remediation and risk assessment for the McLoughlin Point Wastewater Treatment Plant.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of Government of British Columbia and Government of Canada's funding differs by funding source. The Project Team will submit claims to the funding partners in accordance with the relevant funding agreements. In accordance with the funding agreements, funding from the P3 Canada Fund and the majority of the funding from the Government of British Columbia cannot be claimed until relevant Project components are substantially complete, which is scheduled to occur in 2020. However, as reported in the Project's July 2019 Monthly Report, the timing for the receipt of part of the funding from the Government of British Columbia was brought forward, with \$62 million to be paid by March 2020. As shown in Table 7, this funding was received in the reporting period.

*Table 7- Project Funding Status*

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	\$120M	\$25.2M	\$92.1M
Government of Canada (Green Infrastructure Fund)	\$50M	\$10.4M	\$35.9M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	\$62.0M	\$62.0M
Federation of Canadian Municipalities	\$346K	-	-
<b>TOTAL</b>	<b>\$459.3M</b>	<b>\$98.7M</b>	<b>\$189.7M</b>

## 2.8 Key Risks and issues

The Project Team actively identified and managed Project risks over the reporting period. Table 8 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

The changes to the active risks summary from that presented in the Project's Q3 2019 Quarterly Report were as follows:

- The risk level of unexpected contaminated soil conditions during excavation was reduced to low as the extent of contamination at the McLoughlin Point site is now known, and the delineation of contamination off-site is close to complete;
- The following risks were closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain):
  - Unexpected geotechnical conditions results in higher procurement and/or construction costs;
  - Due to high cost escalation (inflation) Conveyance works contracts' amount higher than budgeted; and
- Engineering design development results in increases to the estimated construction cost.

Table 8- Project Active Risks Summary

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
<b>Project</b>				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	L	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	L	No change
Lack of integration between Project Components.	Planning challenges and system integration between the McLoughlin point WWTP, RTF and Conveyance System components of the Project results in schedule delays and/or additional Project costs.	Physical and schedule interfaces are clearly delineated in all construction contracts along with the requirement for commissioning and control plans. The Project Team is using a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces. Commissioning and control plans are under development	L	No change
Senior government funds issue delayed.	The assessed risk level reflects the Project Team's priority of ensuring Project funding commitments are honoured.	Responsibility for meeting funding commitments has been assigned and is being monitored.	L	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Downstream works delays.	Delay from conveyance projects delay delivery of wastewater to WWTP.	Schedule has sufficient time allowance to ensure conveyance elements complete prior to requirement. Contractor agreements will include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration.	M	No change
Upstream works delays.	Delay of the delivery of residual solids to the RTF.	Contract with HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) includes terms that require the contractor to recover schedule delays and/or allow for CRD acceleration. Liquidated damages for late delivery in HRP contract.	L	No change
Municipal Wastewater Regulation (MWR) Registration is not achieved or is delayed.	A delay to achieving MWR Registration of the wastewater treatment system would mean that the CRD could not discharge treated effluent, and therefore would not be able to commission the WWTP or RTF.	The Project Team (with HRP and Stantec representatives) have been meeting regularly with Ministry of Environment representatives since September 2017 to review the MWR Registration application requirements and the Project's schedule, in order to mitigate the risk of an incomplete application and/or schedule delays in the registration. The MWR Registration application was submitted to the Ministry of Environment in September 2019. The Project Team, MOE and relevant contractors will continue to meet regularly to track progress and discuss issues.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan and coverage of communications in contractor orientations.	M	No change
Change in law.	A change in law impacts the scope, cost or schedule of the Project.	Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.	M	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Labour - availability and/or cost escalation.	There is insufficient labour available to construct the Project, and/or there is significant labour cost.	The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.	M	No change
Disagreement on contractual obligations of the construction contractors.	There is a disagreement between the Project Team and a contractor regarding the performance of their contractual obligations.	The Project Team takes a proactive management approach to the resolution of any changes, claims and disputes that arise, working expeditiously to achieve resolution with the goal of minimizing any impacts to budget and schedule while ensuring adherence to the terms of the construction contracts.	M	No change
<b>McLoughlin Point Wastewater Treatment Plant</b>				
Unexpected contaminated soil conditions during excavation.	Site has more contaminated soils than initial assessment.	CRD and HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) are working collaboratively to minimize the costs associated with remediating the McLoughlin Point site while ensuring that contaminated materials are removed and disposed of in accordance with all applicable legislation.	L	The risk level was reduced from high to low as the extent of contamination at the McLoughlin Point site is now known, and the delineation of contamination off-site is close to complete.

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
<b>Conveyance</b>				
Unexpected geotechnical conditions results in higher procurement and/or construction costs.	Geotechnical conditions result in redesign and/or higher construction cost than budgeted.	Ensure adequate investigations to manage the risk of unexpected geotechnical conditions: comprehensive geotechnical investigations have been undertaken for the Clover Forcemain, Macaulay Point Pump Station and Forcemain, and RSCL. This geotechnical information has been provided to procurement participants. Geotechnical investigations have been undertaken for the Trent Forcemain as part of the detailed design process.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).
Due to high cost escalation (inflation) Conveyance works contracts' amount higher than budgeted.	Cost of conveyance contracts higher than estimated and budgeted.	There is only one conveyance contract remaining to be procured (the Trent Forcemain). It will be competitively-procured, as has been done for all of the construction contracts. The Project Team will continue to undertake value engineering through the detailed design stage with the aim of minimizing costs to CRD's residents and businesses (life cycle costs) and providing value for money, and in order to identify any opportunities where savings could be realized to partially-offset escalation.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).
Engineering design development results in increases to the estimated construction cost.	Conveyance contract amounts higher than budget due to design development (through indicative and detailed design phases).	There is only one conveyance contract remaining to be procured (the Trent Forcemain), for which the Project Team recently refreshed the cost estimate. The Project Team will continue to undertake value engineering through the detailed design stage with the aim of minimizing costs to CRD's residents and businesses (life cycle costs) and providing value for money.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).

Risk Level Key - Assessed risk level (based on likelihood and potential impact)			
Low	Medium	High	Closed
L	M	H	C

## 2.9 Status (Engineering, Procurement and Construction)

### 2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP): progressing construction including: work on Biological Aerated Filter (BAF) Mono Floor; fire suppression work in Operations and Maintenance (O&M) building; commenced installation of Lamella plate settling equipment in Primary Clarifier No. 1; progressing building envelope on Electrical, Blower and Heat Recovery buildings; progressing concrete work in the Process Building; receiving delivery of large process equipment; progressing O&M Building exterior walls and interior finishes; progressing off-site utility installation and ongoing installation of plant inlet piping and plant by-pass piping; layout and phase 1 installation of Densadeg 2 and completion of Densadeg 1; progressing concrete in Moving Bed Biofilm Reactor #2; delivery and installation of motor control centres; progression of heating, ventilation, and air conditioning (HVAC), electrical and plumbing trade work throughout the O&M building; completion of raw influent valve installation; and progression of pig receiving piping and raw influent piping.

Key construction activities in progress or completed by HRP in October were as follows:

- installation of the Macaulay Forcemain progressed from Patricia to Victoria View;
- bypass line excavation and installation progressed to valve slab;
- BAF gallery pipe supports and cable tray install continued;
- continued work on BAF Mono Floor with all but slabs 7, 9 and 12 poured;
- moving bed bioreactor infill work started;
- Odour Control room walls started;
- commenced north apron work with slab and pump room walls;
- completed installation of Switchgear and Transformer slabs;
- commenced installation of Lamella1 equipment;
- coating of dirty backwash walls completed;
- commenced staging of equipment in Tertiary including setting of fibre reinforced plastic chemical tanks;
- started suspended slab work in Fine Screen room;
- clean water tank roof slab started;
- glazing installation started in O&M building;
- fire suppression work started in O&M building; and
- building envelope work progressing on Electrical, Blower and Heat Recovery Buildings.

Key construction activities in progress or completed by HRP in November were as follows:

- Primary treatment area:
  - west entry structure nearing completion;
  - north pump room influent boxes complete;
  - odour control walls complete;
  - Densadeg shotcrete sloping is complete;
  - High Density Polyethylene (HDPE) liner welding nearing completion;
  - fine screen room suspended slab complete;
  - fine screens set in place, influent and effluent gates set;
  - Lamella 1 installed;
  - Lamella 2 construction complete;
  - secondary odour control tanks set in place;
  - dirty backwash tank piping and equipment installation continues; and
  - sludge storage tank piping and equipment installation continues.

- Secondary treatment area:
  - Moving Bed Biofilm Reactor #2 (MBBR) concrete in progress;
  - continued installation of pipe rack 2 in the BAF gallery;
  - BAF scouring air distributions systems continue;
  - electricians continue to progress in the BAF gallery;
  - blowers set on final housekeeping pads;
  - cable tray and supports continue in all three penthouse structures;
  - motor control centre installation ongoing in the electrical building;
  - HVAC units set on the penthouse roofs; and
  - penthouse building envelopes in progress.
- Tertiary treatment area:
  - clean water tank slab poured;
  - disk filter slab poured, commencing on upper channels walls;
  - baffle slabs in progress;
  - lower level 1 pumps and mechanical piping install continues; and
  - commenced HVAC and electrical work.
- O&M building:
  - masonry block wall continues;
  - HVAC and plumbing continues throughout the building;
  - electrical trade continues good progress through the O&M; and
  - glazing contractor continues on the lower level.
- Off-Site Utilities:
  - continued progress on underground utility work along Victoria View Road and Patricia Street;
  - continued progress on plant by-pass pipe installation (phase 3 underway); and
  - continued progress on raw influent piping, valves and pig receiving piping.

Key construction activities in progress or completed by HRP in December were as follows:

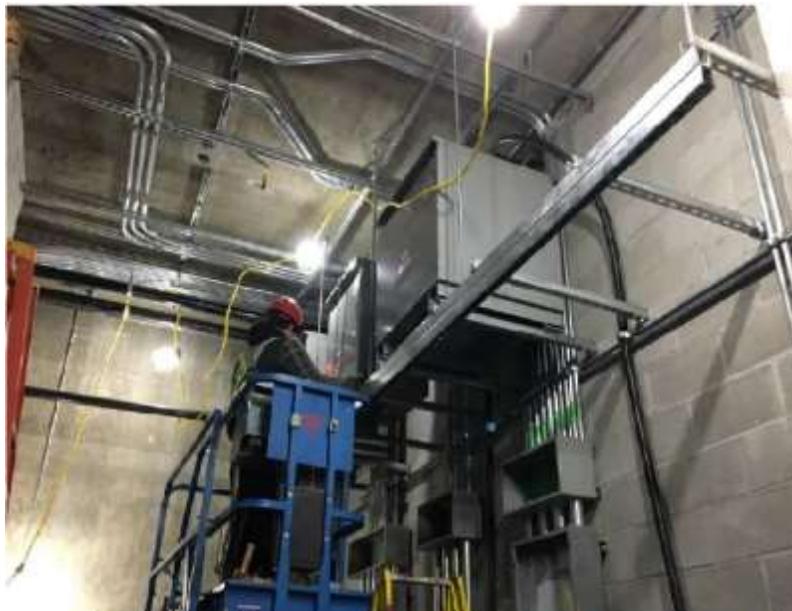
- Primary treatment area:
  - west entry structure complete;
  - north pump room roof slab complete;
  - Odour Control roof slab complete;
  - HDPE liner welding is complete;
  - fine screen room structural steel install complete;
  - chemical tanks in fine screen building set in place;
  - fine screen room chemical containment walls complete;
  - layout and phase 1 installation of Densadeg 1 complete;
  - layout and phase 1 installation of Densadeg 2 ongoing;
  - dirty back wash tank piping and equipment install is ongoing; and
  - sludge storage tank piping and equipment install is in progress.
- Secondary treatment area:
  - MBBR #2 concrete nearing completion;
  - MBBR #1 concrete work underway;
  - continued installation of pipe rack 2 in the BAF gallery;
  - installation of 16 inch pipe ongoing;

- BAF scouring air distributions systems in progress;
  - electricians continue to progress in the BAF gallery;
  - 4 blowers set on final housekeeping pads;
  - cable tray and supports ongoing in all three penthouse structures;
  - motor control centre delivered and installation work commenced in the electrical building;
  - HVAC units set on penthouse roofs; and
  - penthouse building envelopes progressing.
- Tertiary treatment area:
    - BAF effluent shaft complete;
    - continued upper disk filter walls;
    - tertiary perimeter walls complete;
    - baffle slabs in progress;
    - lower level 1 pumps and mechanical piping ongoing; and
    - continued HVAC and electrical work.
  - O&M building:
    - cinder block wall nearing completion;
    - HVAC and plumbing trades continue to progress throughout the building;
    - electrical trade continues to progress throughout the building;
    - glazing contractor ongoing at the lower level; and
    - roofing contractor began roof sloping package installation.
  - Off-Site Utilities:
    - vault progressed on underground utility work along Victoria View & Patricia Street;
    - plant bypass line installation phase 3 ongoing, raw influent valve installation complete; and
    - pig receiving piping and raw influent piping is in progress.

Photographs of construction progress over the month of December at McLoughlin Point are shown in Figures 2-6.



*Figure 2– McLoughlin Point Wastewater Treatment Plant- Backfilling harbour crossing pipe.*



*Figure 3– McLoughlin Point Wastewater Treatment Plant- Installing transformers in O&M electrical room.*



*Figure 4– McLoughlin Point Wastewater Treatment Plant- Installation of control valves and check valves for backwash piping.*



*Figure 5– McLoughlin Point Wastewater Treatment Plant-Fforming odour control roof parapet and roof penetration curbs.*



*Figure 6– McLoughlin Point Wastewater Treatment Plant- Landing electrical feeds in Motor Control Centres.*

## 2.9.2 Residuals Treatment Facility

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completion of Digester 1; final piping installation at Digester 2; commencement of installation of Digester 3 including concrete base, foundation and starter panels; continued construction of Water Pump House; completion of masonry and continued equipment installation, piping, electrical and fire suppression in the Dryer building; continued installation of exterior cladding, and sprinklers at the Residuals Handling Building, Equalization building, Water Pump House and Digester Building; continued electrical, process piping, HVAC, drywall, and sprinklers at the Residuals Handling Building; installation of equipment in the Dryer Building; pouring slab; continued stabilization of the south slope and commencement of structural steel for the Operations Building.

Key construction activities in progress or completed by HRMG in October were as follows:

- pipe installation ongoing for Digester 2;
- commence concrete base for Digester 3;
- structural steel erection at Digester Building;
- commenced foundation preparation for Operations Building;
- continue piping installation at Other Municipal Solids Receiving Facility;
- continued exterior cladding, masonry walls, process piping, and electrical cable tray installation for the Residuals Handling Building;
- continued tank erection for Residuals Effluent Tank;
- completed tank erection Residuals Solids Tank 1 and 2;
- commenced structural steel erection of Equalization Building;
- continued construction of Water Pump House; and
- commenced erection of Water Storage Tank.

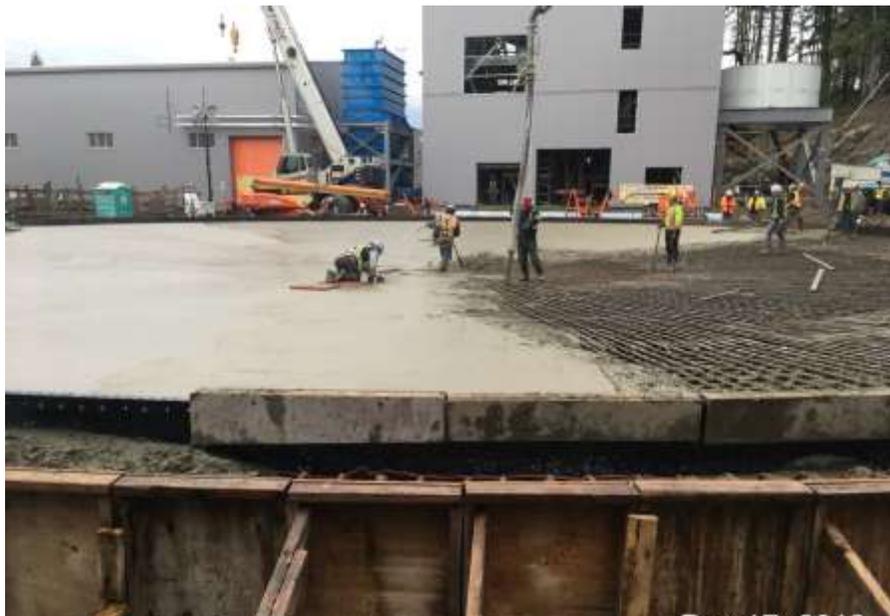
Key construction activities in progress or completed by HRMG in November were as follows:

- nearing construction completion of Digester 1;
- piping installation at Digester 2;
- commenced foundation work and starter panels for Digester 3;
- completed tank erection at Digested Solids Storage Tank;
- completed structure erection and commenced process piping, electrical, masonry and HVAC at Digester Building;
- continued cladding, electrical, process piping and started HVAC, and sprinklers at the Residuals Handling Building;
- completed masonry and continued equipment installation, piping, electrical and fire suppression at the Dryer Building;
- nearing completion of Residuals Effluent Tank;
- nearing completion of Residuals Solids Tanks 1 and 2;
- commenced construction of Water Storage Tank;
- completed structural steel erection and commenced roofing and sprinklers at the Equalization Building;
- completed structural steel erection and commenced roofing and sprinklers at the Water Pump House;
- continued foundation work at the Operations Building; and
- commenced slope stabilization work at the south slope.

Key construction activities in progress or completed by HRMG in December were as follows:

- construction completion of Digester 1;
- final piping installation at Digester 2;
- poured foundation and commenced starter panels for Digester 3;
- piping installation at Digested Solids Storage Tank;
- completed cladding and masonry and continued process piping, electrical, and HVAC at Digester Building;
- continued electrical, process piping, HVAC, drywall, and sprinklers at the Residuals Handling Building;
- continued equipment installation, piping, electrical, drywall, and fire suppression at the Dryer Building;
- completed erection of Residuals Effluent Tank;
- completed erection of Residuals Solids Tanks 1 and 2;
- continued construction of Water Storage Tank;
- continued cladding, drywall, and sprinklers at the Equalization Building;
- continued cladding and completed sprinklers at the Water Pump House;
- poured foundation slab and erected primary structural steel at the Operations Building;
- and
- continued slope stabilization work at the south slope.

Photographs of construction progress over the month of December at the Residuals Treatment Facility are shown in Figures 7-10.



*Figure 7– Residuals Treatment Facility- Concrete placement for digester #3 tank slab.*



*Figure 8– Residuals Treatment Facility- Product storage silo being constructed on south side of dryer building.*



*Figure 9– Residuals Treatment Facility- Installation of exterior insulated cladding on Equalization Building.*



*Figure 10– Residuals Treatment Facility -Installation of motor control centres and switchgear in Residuals Handling Building electrical room.*

## 2.9.3 Conveyance System

### 2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of motor control centres, and Programmable Logic controls in the electrical room; openings between existing and new inlet channels were cut; completion of backfill over new structure; ongoing work on retaining wall structure; installation of sanitary forcemain and pigging chamber; completion of interior masonry work in new station; installation of surge relief and domestic water piping; installation of forcemain discharge bend; completion of sanitary and storm wet well benching; ongoing work on public washroom facilities; installation of sanitary and storm pump discharge spools; ongoing installation of check valve; permanent BC Hydro power installed; ongoing piping installation throughout the station; and completion of forcemain fusion to flange.

Key construction activities in progress or completed by Kenaidan in October include:

- pumps are being installed in the lower pump room along with discharge pipe and valves;
- Motor Control Centres, and interconnecting cables are being installed;
- the Programmable Logic Control was installed in the electrical room and is being wired;
- cable tray and cable installation is ongoing;
- retaining wall structure work is ongoing;
- public washroom structure is being built;
- stairways and platforms are being installed in the wet wells;
- openings between the existing and new storm inlet channels were cut out;
- backfill over the new structure was completed;
- forcemain work has started; and
- cinder block walls are being installed in the screening room.

Key construction activities in progress or completed by Kenaidan in November include:

- sanitary and storm wet wells benching completed;
- forming of curved retaining wall ongoing;
- masonry block walls installed at odour control and screen room;
- knife gate and check valve installation is ongoing;
- installed surge relief and domestic water piping;
- forcemain discharge bend installed;
- sanitary and storm pump discharge spools installed;
- lower and upper pump room ducting installed;
- grounding, cable pulls and terminations continued throughout; and
- continued installation of sanitary forcemain and pigging chamber.

Key construction activities in progress or completed by Kenaidan in December include:

- inlet channel benching;
- inlet channel weir wall;
- interior masonry complete in new pump station;
- sanitary pump surge relief piping;
- check valve installation ongoing;
- interior pigging chamber waterline installed;
- HDPE forcemain fusion complete to Windley blind flange;
- HDPE pigging chamber wye fusion complete;

- sanitary pump intake spools installed;
- piping installation ongoing;
- west slide gate placed inside new inlet channel;
- BC Hydro permanent power installed;
- cable tray and strut ongoing;
- cabling run to workshop; and
- vendor cables terminated in Pump Room.

Photographs of construction progress over the month of December at Clover Point are shown in Figures 11-14.



*Figure 11–Clover Point Pump Station- Upper pump room looking south.*



*Figure 12–Clover Point Pump Station- Transformer room.*



*Figure 13–Clover Point Pump Station- Telescopic monorail installed.*



*Figure 14- Clover Pump Station - Lower pump room looking north.*

### 2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including: installation of process piping and lighting circuits; suspended slab and pump room concrete poured; receipt and installation of cross laminated timber; inlet sewer pipe, and vortex degritter delivered to site; motor control centres installed in electrical room; commencement of installation of sanitary pipe; commencement of backfill around building exterior; installation of odour control unit; and cross laminated timber roof and bridge installed. Macaulay Forcemain progressed along View Point Street, providing for a total installed length to the end of December of 750m with tie in at McLoughlin Point WWTP all that remains.

Key construction activities in progress or completed by Kenaidan in October were as follows:

- installation of process piping in pump room;
- installation of lighting circuits in pump room;
- poured suspended slab and pump room topping poured at 8.20 m elevation;
- cross laminated timber (CLT) received and staged for installation;
- inlet sewer pipe delivered to site;
- lowered existing vent pipe from diversion chamber to pump station; and
- Macaulay forcemain progress to the corner of Bewdley and Peter streets, providing for a total installed length to the end of October of 690m.

Key construction activities in progress or completed by Kenaidan in November were as follows:

- installed concrete curbs;
- commenced installation of Cross Laminated Timber (CLT) panels;
- commenced back filling around building exterior;
- commenced installation of 1800 mm sanitary pipe;
- lowered existing vent pipe from diversion chamber to pump station; and
- Macaulay forcemain progressed along View Point Street, providing for a total installed length to the end of November of 700m.

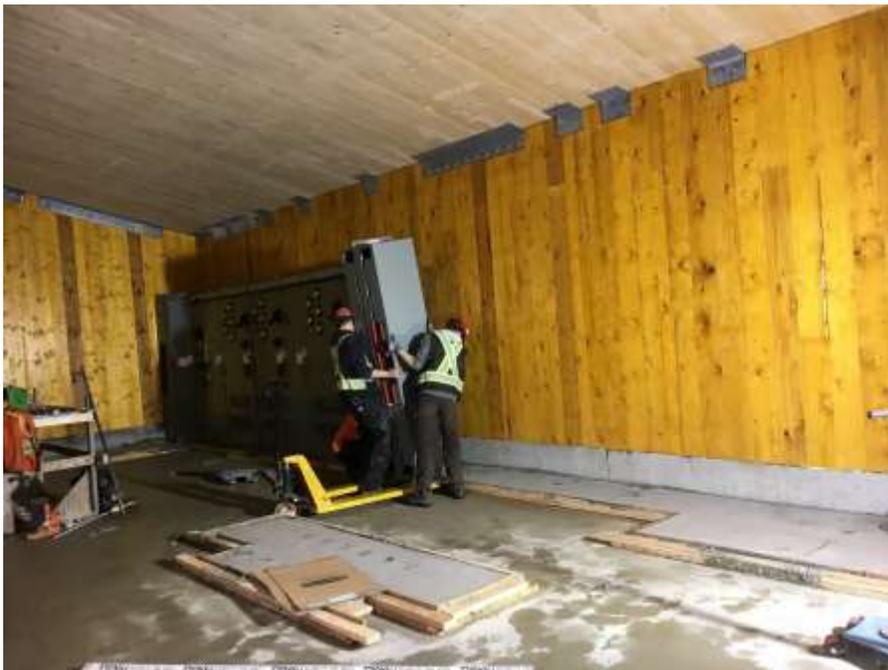
Key construction activities in progress or completed by Kenaidan in December were as follows:

- motor control centre has been installed in the electrical room;
- odour control unit has been installed in the odour control room;
- backfill around exterior wall is ongoing;
- vortex degritter equipment was received on site;
- Cross Laminated Timber roof and bridge have been installed;
- housekeeping pad in electrical room has been poured;
- concrete pad in the bin room has been poured;
- steel stair in the screen room has been assembled; and
- Macaulay forcemain progressed for a total installed length to the end of December of 750m.

Photographs of construction progress over the month of December at Macaulay Point are shown in Figures 15-16.



*Figure 15–Macaulay Point Pump Station- Pump station progression, facing east.*



*Figure 16–Macaulay Point Pump Station- Installation of motor control centre in electrical room.*

### 2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including: ongoing cycle track paving; road restoration; landscaping; completion of watermain lining; ongoing electrical lighting installation; completion of final tie in to the harbour crossing pipe in the transition chamber; and completion of final assembly of transition chamber.

Key construction activities in progress or completed by Windley in October were as follows:

- cycle track paving and landscaping is ongoing;
- road restoration is ongoing;
- electrical lighting installation ongoing; and
- watermain lining is in progress.

Key construction activities in progress or completed by Windley in November were as follows:

- cycle track paving and landscaping is ongoing;
- road restoration is ongoing;
- final tie-in to the Harbour Crossing pipe in the transition chamber is complete;
- electrical lighting installation ongoing; and
- watermain lining is complete.

Key construction activities in progress or completed by Windley in December were as follows:

- ongoing cycle track paving and landscaping;
- ongoing road restoration;
- Montreal Street bump out curbing ongoing;
- completed final assembly of transition chamber; and
- electrical lighting installation ongoing.

Photographs of construction progress over the month of December on the Clover Forcemain are shown in Figures 17-20.



*Figure 17–Clover Forcemain- Road restoration between Government St and Douglas St.*



*Figure 18–Clover Forcemain- Cycle track paving near Paddon Ave.*



*Figure 19–Clover Forcemain– Lamp standard installation near Paddon Ave.*



*Figure 20–Clover Forcemain- Preparation for sidewalk and curb construction near Montreal St.*

### 2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through two construction contracts:

- Residual Solids Pipes; and
- Residual Solids Pump Stations.

Residual Solids Pipes: Don Mann Excavating Ltd. (“Don Mann” as the Construction Contractor for the Residual Solids Pipes) continued construction activities including installation of approximately 2000m of pipes; installation of valve chambers; and road restoration.

Key construction activities in progress or completed by Don Mann in October were as follows:

- Installation of approximately 730m of pipes at the following locations:
  - segment #1: Dominion Road at Belton Ave and Arm Street and Selkirk Ave towards Craigflower Road;
  - segment #2: Grange Road north to Interurban Road and Grange Road south to Burnside Road;
  - segment #3: Interurban Road south to Pump Station 2; and from Charlton Road to Courtland Ave;
  - segment #3: Interurban Road north to Goward Road; and
  - segment #4: Interurban Trail final restoration from Wallace Drive to Prospect Lake Road.

Key construction activities in progress or completed by Don Mann in November were as follows:

- Installation of approximately 730m of pipes at the following locations:
  - segment #1: Arm and Craigflower Streets;
  - segment #2: Grange Road south of Burnside Road and Interurban Road north from Grange Road to Chesterfield Road; and
  - segment #3: Interurban Road south from Courtland Ave to Prillaman Ave and Charlton Road to North Road.

Key construction activities in progress or completed by Don Mann in December were as follows:

- Installation of approximately 615m of pipes at the following locations:
  - segment #1 Dominion and Craigflower Streets;
  - segment #2 Interurban Road from Chesterfield Road to Knibbs PI;
  - segment #3 Interurban Road south from North Road to Dunsterville Ave; and
  - segment #4 Tillicum Road from Selkirk Ave to Gosper Cres.

Photographs of construction progress over the month of December on the Residual Solids Pipes are shown in Figures 21-24.



*Figure 21—Residual Solids Pipes- Compacting asphalt on Interurban Road.*



*Figure 22—Residual Solids Pipes- Compacting gravel on Vincent Ave.*



*Figure 23--Residual Solids Pipes-- Ductile iron pipe installation on Interurban Rd during night work.*



*Figure 24--Residual Solids Pipes- Temporary paving on Tillicum Road at Selkirk Ave.*

Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities at all three pump stations and bridge crossings including: erection of scaffolding at Tillicum and Admirals bridges; continued rock breaking at Pump Station 1; continued concrete work including footings and retaining walls for Pump Station 2, kiosk pad at Pump Station 3, and wet well slab for Pump Station 1; installation of watermain at Hartland and water system improvements were completed on Willis Point Road; and commencement of valve chamber spool installation at Pump Station 3.

Key construction activities in progress or completed by Knappett in October were as follows:

- Pump Station #1 rock hammering rock for the wet well and Saanich watermain relocation commenced;
- Pump Station #2 valve chamber was delivered to site and the wet well was grouted;
- Pump Station #3 wet well barrel was replaced and line valve meter and pigging chamber were cored;
- Tillicum bridge scaffolding was erected and pipe hanger layout was completed; and
- Hartland watermain installation continued and reached the gas plant and drilling and blasting commenced at the reservoir site.

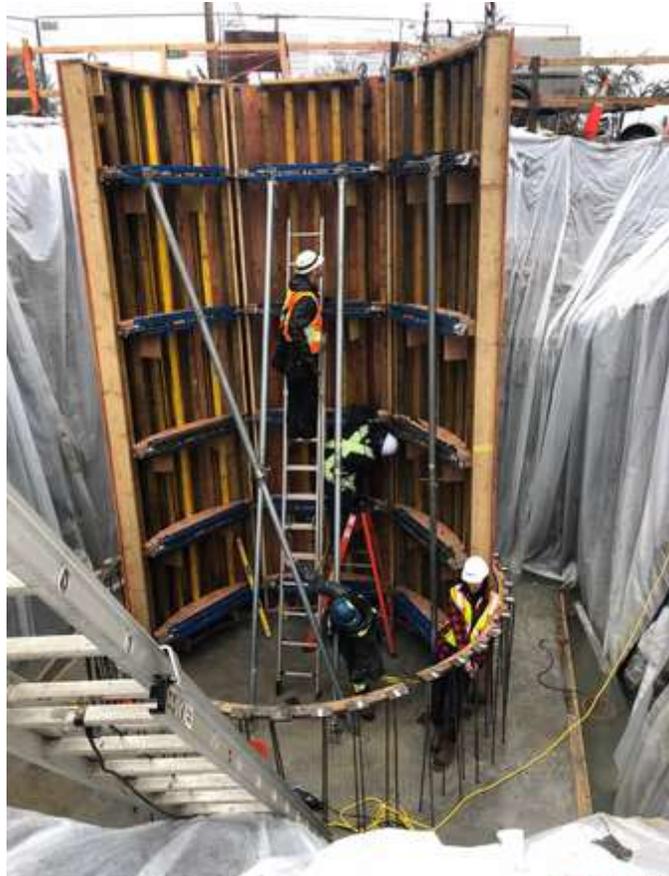
Key construction activities in progress or completed by Knappett in November were as follows:

- Admirals Bridge scaffolding erected;
- Hartland watermain installation and backfilling from the north end to the reservoir;
- Marigold Valve Chamber was excavated down to subgrade;
- installation of the RTF chamber at Willis Point Road.
- pipe installed up to the HRMG tie in;
- Pump Station #1 watermain installed and, tie in completed;
- rock breaking for the wet well is ongoing and nearly completed;
- Pump Station #2 footings and retaining walls were formed and poured;
- Pump Station #3 poured pad for the kiosk at;
- completion of the valve chamber; and
- completed installation of watermain at Hartland.

Key construction activities in progress or completed by Knappett in December were as follows:

- Pump Station #1 wet well slab was formed and poured and the wet well formwork erection commenced;
- Pump Station #2 pig receiver and line valve were installed and partially backfilled. The south east retaining wall was formed and poured and the north east wall was backfilled.
- Pump Station #3 valve chamber spools were partially installed;
- Marigold Rd, the Low Point Drain Valve was installed and pipe placed and buried up to the bend;
- Marigold Pump Station chamber was prepared for spool install;
- Leachate Connection Chamber piping on Willis Point Rd was partially installed; and
- Hartland water system improvements water main installation was completed, and the booster station delivered and commissioned.

Photographs of construction progress over the month of December on the Residual Solids Pump Stations are shown in Figures 25-27.



*Figure 25–Residual Solids Pump Stations – Pump Station 1 – installation of formwork for the wet well.*



*Figure 26 –Residual Solids Pump Stations – Commence pipe installation at Interurban Road.*



*Figure 27–Residual Solids Pump Stations – Pump Station 2 – installation of drain tile at retaining wall.*

### 2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities with a focus on excavation and structural secant pile construction works. Ongoing activities also include maintaining the dewatering system; completing bypass pumping for tie-in works during construction; commenced installation of permanent yard piping and manholes; and decommissioned existing overflow system infrastructure within tank footprint.

Key construction activities in progress or completed by NAC Constructors Ltd in October were as follows:

- ongoing drilling of secant piles around the perimeter of the tank;
- continue concrete pour operations for reinforced and plain secant piles;
- commence installation of temporary bypass system;
- commence installation of permanent yard piping and manholes;
- decommission existing overflow system infrastructure within tank footprint; and
- excavation of remainder of tank footprint to facilitate additional secant pile construction.

Key construction activities in progress or completed by NAC Constructors Ltd in November were as follows:

- ongoing drilling of secant piles around the perimeter of the tank;
- continue concrete pour operations for reinforced and plain secant piles;
- complete installation of temporary bypass system;
- commence installation of permanent yard piping and manholes;
- decommission existing overflow system infrastructure within tank footprint; and
- excavation of remainder of tank footprint to facilitate additional secant pile construction.

Key construction activities in progress or completed by NAC Constructors Ltd in December were as follows:

- ongoing drilling of secant piles around the perimeter of the tank;
- continue concrete pour operations for reinforced and plain secant piles;
- completed installation of temporary bypass system including temporary bypass pumping;
- completed installation of permanent manholes S5, S6, S3 and associated piping; and
- completed installation of flowmeter for monitoring flows during construction.

Photographs of construction progress over the month of December at the Arbutus Attenuation Tank are shown in Figures 28-29.



*Figure 28–Arbutus Attenuation Tank- Second drill mobilised to site.*



*Figure 29– Arbutus Attenuation Tank –Concrete pour for piles and continued drilling.*

#### 2.9.3.6 Trent Forcemain

The Project Team, with Stantec (as the design consultant for the Trent Forcemain) progressed work through the procurement phase, including: responding to tender inquiries and issuing addenda; receiving tenders and selecting the tenderer in accordance with the Invitation to Tender; and initiating contract award.

## **Appendix A– Residuals Treatment Facility (Hartland): Blasting Notice (October 1, 2019)**



October 1, 2019

## Residuals Treatment Facility (Hartland): Blasting Notice

As part of construction for the Residuals Treatment Facility, the Wastewater Treatment Project is replacing the Hartland Reservoir to increase the storage volume and improve pumping capacity. Controlled blasting and excavation is required and is anticipated to take place over five days in early October.

### What to Expect

- Up to four blasts per day.
- Noise and vibrations are expected during this work.
- No traffic impacts are anticipated.

### Blasting Procedure

- All blasts will be covered with blasting mats.
- Blasting signs and personnel will be posted at access points on the construction site boundary to prevent entry into the blast area.
- Warning signals will be used as follows:
  - 12 short whistles at one second intervals followed by a two minute pause
  - Blast will be detonated
  - One long whistle signals all is clear
- Each blast is monitored for vibration with a seismic device.
- If you have any questions or concerns about blasting or the Project, please contact the Project Team at [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or 1.844.815.6132.

### Work Hours

- Blasting will occur between 7:00 a.m. to 7:00 p.m.

### About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees First Nations by the end of 2020.



**24/7 Phone Line**  
1.844.815.6132



**Email**  
[wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)



**Website**  
[wastewaterproject.ca](http://wastewaterproject.ca)

## **Appendix B– Traffic Advisory: Interurban, Marigold and Grange Roads (October 9, 2019)**

October 09, 2019

## Traffic Advisory: Interurban, Marigold and Grange Roads

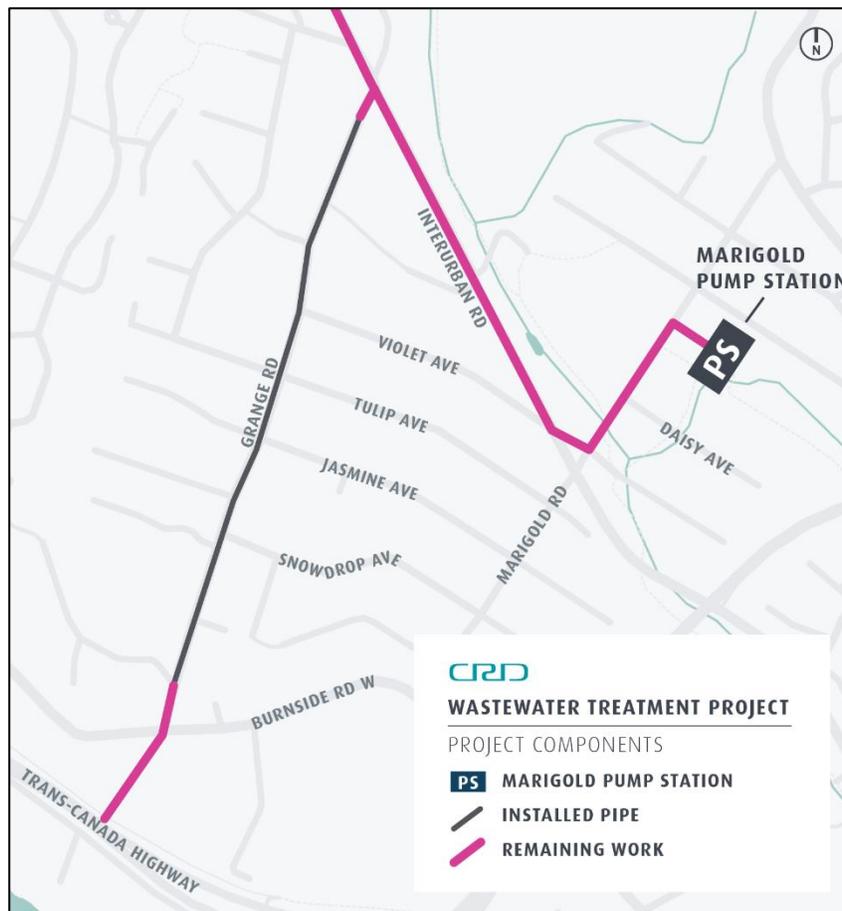
As part of the Wastewater Treatment Project, construction on Interurban, Marigold, and Grange roads will impact traffic as pipes are installed for the Residual Solids Conveyance Line. This work requires single lane alternating traffic and is anticipated to be complete in January 2020. Please expect traffic delays, especially during the morning and afternoon commutes. We appreciate your patience as this work is being completed.

### Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Occasional Saturday work may be required from 7:00 a.m. to 7:00 p.m.

### Traffic Impacts

- There will be single lane alternating traffic in the work zones controlled by flaggers.



**Any questions about the work, please contact the Project Team.**



**24/7 Phone Line**  
1.844.815.6132



**Email**  
wastewater@crd.bc.ca



**Website**  
wastewaterproject.ca

## **Appendix C– Residual Solids Conveyance Line: Tillicum Bridge Lane Closure (October 10, 2019)**



October 10, 2019

## Residual Solids Conveyance Line: Tillicum Bridge Lane Closure

As part of the Wastewater Treatment Project, a pipe will be installed under the Tillicum Bridge (see map on reverse). This work is anticipated to start on October 15 and take approximately 6-8 weeks to complete. The remaining pipe installation on Tillicum Road between Selkirk and Vincent avenues is scheduled to take place later in the fall.

### What to Expect

- Scaffolding will be erected on the side of the bridge and a pipe will be installed under the bridge.
- Noise associated with this work includes construction machinery and truck back-up beepers.

### Traffic Impacts

- Southbound traffic will be reduced to one lane between 9:00 a.m. and 3:00 p.m.
- Northbound traffic will retain two lanes.
- West sidewalk will be closed with a detour and signage in place.
- Pedestrian access will be maintained on the east side of Tillicum Bridge.
- The work zone will be controlled by flaggers.

### Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.

### Background

Construction of the Residual Solids Conveyance Line is progressing well with over 70% of the pipes installed. There are multiple crews working along the 19km alignment. Construction of the conveyance line is anticipated to be complete in spring 2020. A regularly-updated progress map can be found at [wastewaterproject.ca](http://wastewaterproject.ca).

### About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

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Any questions about the work, please contact the Project Team.



24/7 Phone Line  
1.844.815.6132



Email  
[wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)



Website  
[wastewaterproject.ca](http://wastewaterproject.ca)

### Tillicum Bridge Crossing



Any questions about the work, please contact the Project Team.



24/7 Phone Line  
1.844.815.6132



Email  
wastewater@crd.bc.ca



Website  
wastewaterproject.ca

## **Appendix D– Clover Point Pump Station: Overnight Work (October 22, 2019)**

October 22, 2019

## Clover Point Pump Station: Overnight Work

Construction of the Clover Point Pump Station requires some overnight work to connect portions of the expanded pump station to the existing pump station. This work is scheduled to begin today and take approximately three weeks to complete.

### What to Expect

- Noise associated with construction will be ongoing overnight.
  - For a portion of this work, diesel-powered pumping units located on the Dallas Road Waterfront Trail close to the existing pump station will be in operation. The pumps are equipped with acoustic enclosures to reduce noise.
  - Construction equipment will be in operation at the pump station site below the embankment.
- Flood lights will be used to safely illuminate the work area.
- Increased short-term odour may occur during this work.

### Work Hours

- Construction is required overnight for this phase of work.
- Some of this work is weather dependent which may affect the duration of construction.
- Once this work is complete, normal work hours will resume Monday to Friday from 7:00 a.m. to 7:00 p.m. and Saturday from 10:00 a.m. to 7:00 p.m.

### Traffic Impacts

- There will be no traffic impacts.
- The closure of the Dallas Road Waterfront Trail between the Clover Point Pump Station and the crosswalk at Memorial Crescent remains in effect until January 2020. The next stage of work will include installing a pipe along the pathway.

Construction at Clover Point is anticipated to be complete by mid 2020.

### About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020

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**Any questions about the work, please contact the Project Team.**



**24/7 Phone Line**  
1.844.815.6132



**Email**  
wastewater@crd.bc.ca



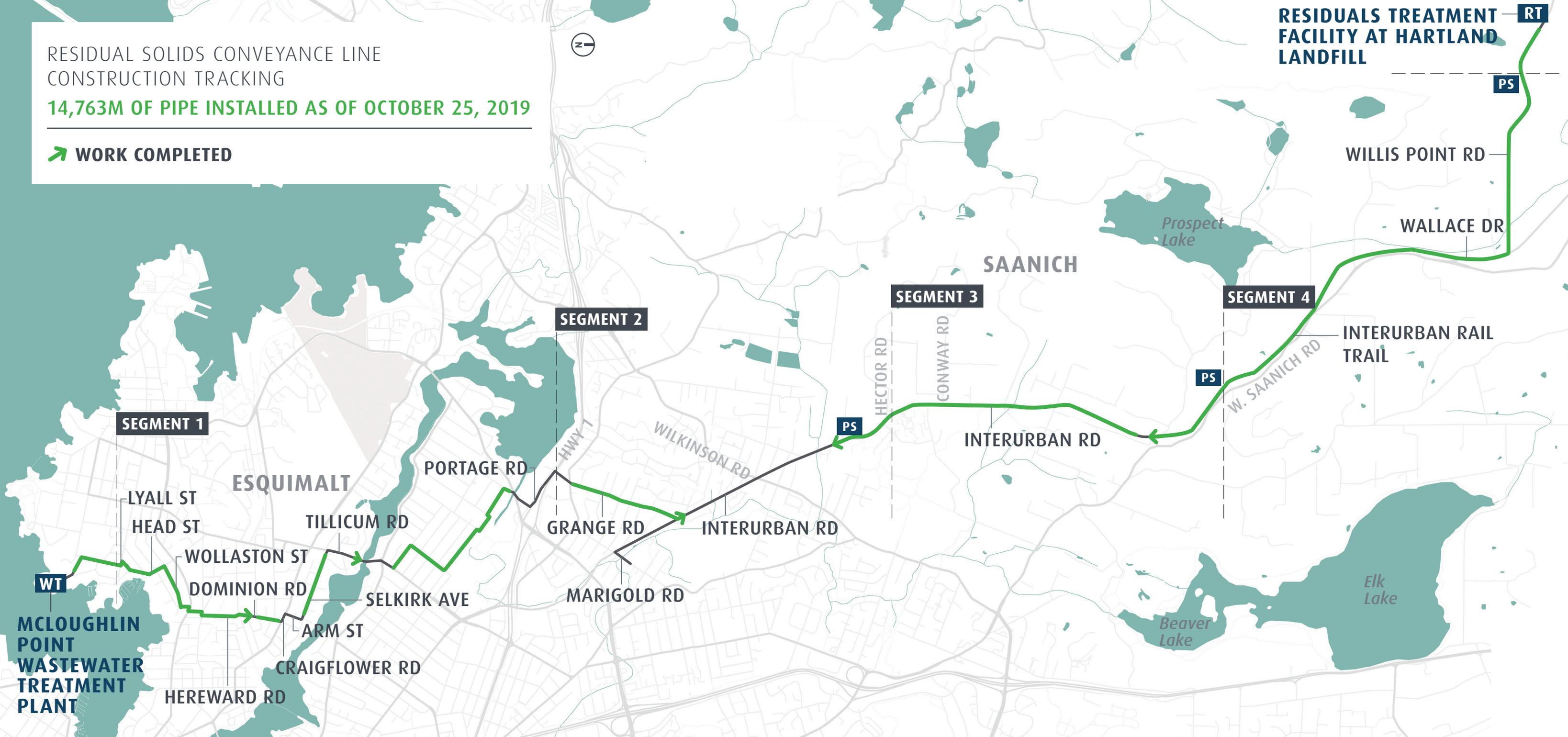
**Website**  
wastewaterproject.ca

## **Appendix E– Residual Solids Conveyance Line Progress Map**

RESIDUAL SOLIDS CONVEYANCE LINE  
CONSTRUCTION TRACKING

14,763M OF PIPE INSTALLED AS OF OCTOBER 25, 2019

➔ WORK COMPLETED



## **Appendix F– Residual Solids Conveyance Line: Admirals Bridge Work (November 15, 2019)**

November 15, 2019

## Residual Solids Conveyance Line: Admirals Bridge Work

As part of the Wastewater Treatment Project, a pipe will be installed under Admirals Bridge. This work is anticipated to start on November 18 and take approximately 6-8 weeks to complete.

### What to Expect

- Scaffolding will be erected on the side of the bridge and a pipe will be installed under the bridge.
- Noise associated with this work includes construction machinery, drilling and hammering, and truck back-up beepers.

### Traffic Impacts

- Two-way traffic will be maintained for the majority of the work. However, occasional single lane alternating traffic may be required.
- The northbound-turn lane from Admirals Road onto Esson Road will be used as a through lane for eastbound traffic.
- Eastbound bike lane will be closed and cyclists will be asked to take the lane.
- South sidewalk will be closed with a detour and signage in place.
- The crosswalk west of the bridge will remain open and pedestrian access will be maintained on the north side of Admirals Bridge.

### Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.



Any questions about the work, please contact the Project Team.



24/7 Phone Line  
1.844.815.6132



Email  
wastewater@crd.bc.ca



Website  
wastewaterproject.ca

## **Appendix G– Arbutus Attenuation Tank: Overnight Bypass Pumping (November 19, 2019)**



November 19, 2019

## Arbutus Attenuation Tank: Overnight Bypass Pumping

Construction of the Arbutus Attenuation Tank requires temporary bypass pumping overnight. This work is scheduled to begin Tuesday, November 19 and is anticipated to be complete by the end of the week.

### What to Expect

- A temporary bypass pumping system has been installed next to the site.
- Noise associated with construction will be ongoing overnight. Diesel-powered pumping units will be in operation and are equipped with acoustic enclosures to reduce noise.
- Flood lights will be used to safely illuminate the work area.
- Temporary closure of trail sections in Haro Woods.

### Work Hours

- Construction is required overnight.
- Once this work is complete, normal work hours will resume Monday to Saturday from 7:00 a.m. to 7:00 p.m.

### Background

The Arbutus Attenuation Tank will be an underground concrete tank that will temporarily store wastewater flows during high volume storm events to reduce the number of sewage outflows. The Tank is located on CRD-owned land in Haro Woods that was already partially cleared and previously disturbed during the construction of existing sewers. Once construction is complete, the site will be planted with vegetation appropriate for the local woodland setting.

### About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

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**Any questions about the work, please contact the Project Team.**



**24/7 Phone Line**  
1.844.815.6132



**Email**  
wastewater@crd.bc.ca



**Website**  
wastewaterproject.ca

## **Appendix H– Traffic Advisory: 24-Hour Single Lane Traffic on Interurban Road (November 19, 2019)**



Making a difference...together

## Traffic Advisory

For Immediate Release

November 19, 2019

### 24-Hour Single Lane Traffic on Interurban Road

**Saanich, BC-** This week, single lane alternating traffic will be required 24 hours a day on Interurban Road between Charlton and North roads due to construction for the Wastewater Treatment Project. This work will take approximately one week to complete.

Multiple crews continue to work on Interurban during the day, currently near the intersections of Quayle, Grange and Marigold.

Please expect delays, especially during the morning and afternoon commute. We appreciate your patience as the work is being completed.

For more information about the Wastewater Treatment Project, please visit [wastewaterproject.ca](http://wastewaterproject.ca) and follow us on Twitter [@crd\\_bc](https://twitter.com/crd_bc). For updates on alerts, please visit [www.crd.bc.ca/alerts](http://www.crd.bc.ca/alerts).

-30-

#### For media inquiries, please contact:

Andy Orr, Senior Manager

CRD Corporate Communications

Tel: 250.360.3229

Cell: 250.216.5492

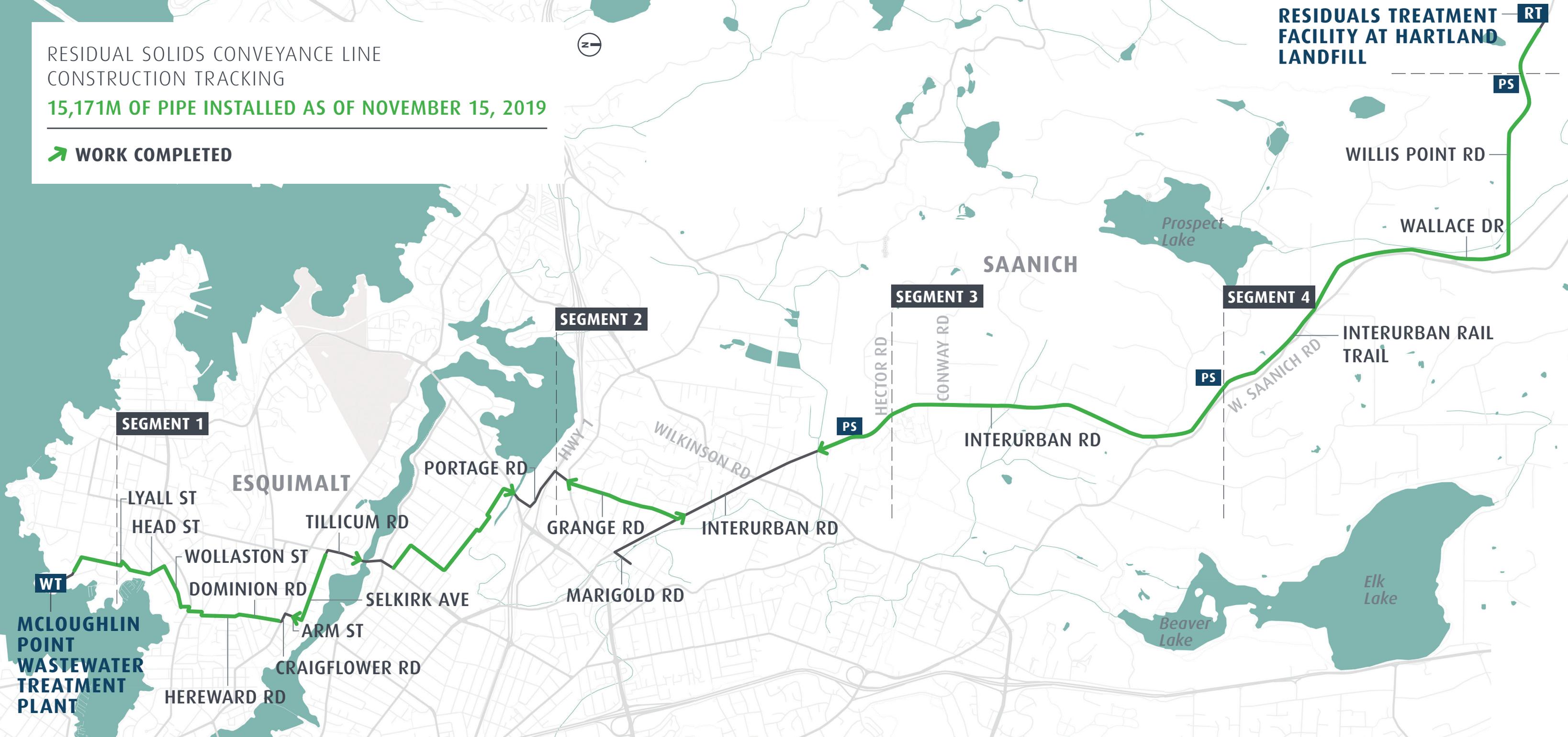


## **Appendix I– Residual Solids Conveyance Line Map (November 15, 2019)**

RESIDUAL SOLIDS CONVEYANCE LINE  
CONSTRUCTION TRACKING

15,171M OF PIPE INSTALLED AS OF NOVEMBER 15, 2019

 WORK COMPLETED



## **Appendix J– Overnight Work: Interurban and Wilkinson Intersection (December 5, 2019)**

December 5, 2019

## Overnight Work: Interurban and Wilkinson Intersection

Construction of the Residual Solids Conveyance Line on Interurban Road is approaching the five-way intersection at Wilkinson Road. Construction from North Road through the five-way intersection will be done at night from 7:00 p.m. to 7:00 a.m. to limit traffic impacts.

### North Road to Dunsterville Avenue

From December 9 - 20, Interurban Road will be closed to traffic overnight between North Road and Dunsterville Avenue to accommodate pipe installation. Pedestrian and cyclist access will be maintained and a detour will be in place for traffic. Interurban Road will reopen during the day.

### Wilkinson Intersection

Pipe installation through the five-way intersection will take place in January for approximately three weeks with single lane alternating traffic in place overnight. All lanes will be open during the day.

No work is scheduled for this section of Interurban from December 21 to January 1 and all lanes of traffic will be open.

### What to Expect

- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored prior to 7:00 a.m.
- Final restoration will take place early in 2020 after the section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Construction lights will be used to illuminate the work zone for safety and traffic control.
- Pipes and equipment will be temporarily stored in the area while this work is completed.

### Traffic Impacts

- Interurban Road will be open during the day allowing for regular traffic flow.
- Expect traffic impacts overnight from 7:00 p.m. to 7:00 a.m.
- During night work in the five-way intersection, traffic lights will be turned off and flaggers will direct traffic through the intersection.

### Work Hours

- Monday to Friday from 7:00 p.m. to 7:00 a.m.
- Occasional daytime work may be required from 9:00 a.m. to 3:00 p.m.

### Background

Construction of the Residual Solids Conveyance Line is progressing well with over 75% of the pipes installed. There are multiple crews working along the 19km alignment. Construction of the conveyance line is anticipated to be complete in spring 2020. A regularly-updated progress map can be found at [wastewaterproject.ca](http://wastewaterproject.ca).

*Thank you for your patience as this work is completed.*

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**Any questions about the work, please contact the Project Team.**



**24/7 Phone Line**  
1.844.815.6132



**Email**  
[wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)



**Website**  
[wastewaterproject.ca](http://wastewaterproject.ca)

## **Appendix K– Residual Solids Conveyance Line: Tillicum Road (December 9, 2019)**



December 9, 2019

## Residual Solids Conveyance Line: Tillicum Road

As part of the Wastewater Treatment Project, pipe installation on Tillicum Road will start December 9 and take approximately 8 to 10 weeks to complete. There will be two crews working on Tillicum Road, with one crew starting at Selkirk Avenue, and a second crew starting on Vincent Avenue. This work will connect the pipe that is being installed under Tillicum Bridge to the rest of the Residual Solids Conveyance Line.

### What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored at the end of each work day.
- Final restoration will take place after the section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.

### Traffic Impacts

- North and southbound traffic will be reduced to one lane in each direction during this work.
- To minimize traffic impacts, there will be no lane closures during the morning and afternoon commute (7:30-9:00 a.m. and 3:00-5:00 p.m.).

### Work Hours

- Regular work hours are Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Overnight work will be required at the Gorge Road intersection from 7:00 p.m. to 7:00 a.m.
- Occasional Saturday work may be required.
- No work is scheduled from December 21 to January 1.

### Background

Construction of the Residual Solids Conveyance Line is progressing well with over 80% of the pipes installed. There are multiple crews working along the 19km alignment. Construction of the conveyance line is anticipated to be complete in spring 2020. A regularly-updated progress map can be found at [wastewaterproject.ca](http://wastewaterproject.ca).

### About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

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**Any questions about the work, please contact the Project Team.**



**24/7 Phone Line**  
1.844.815.6132

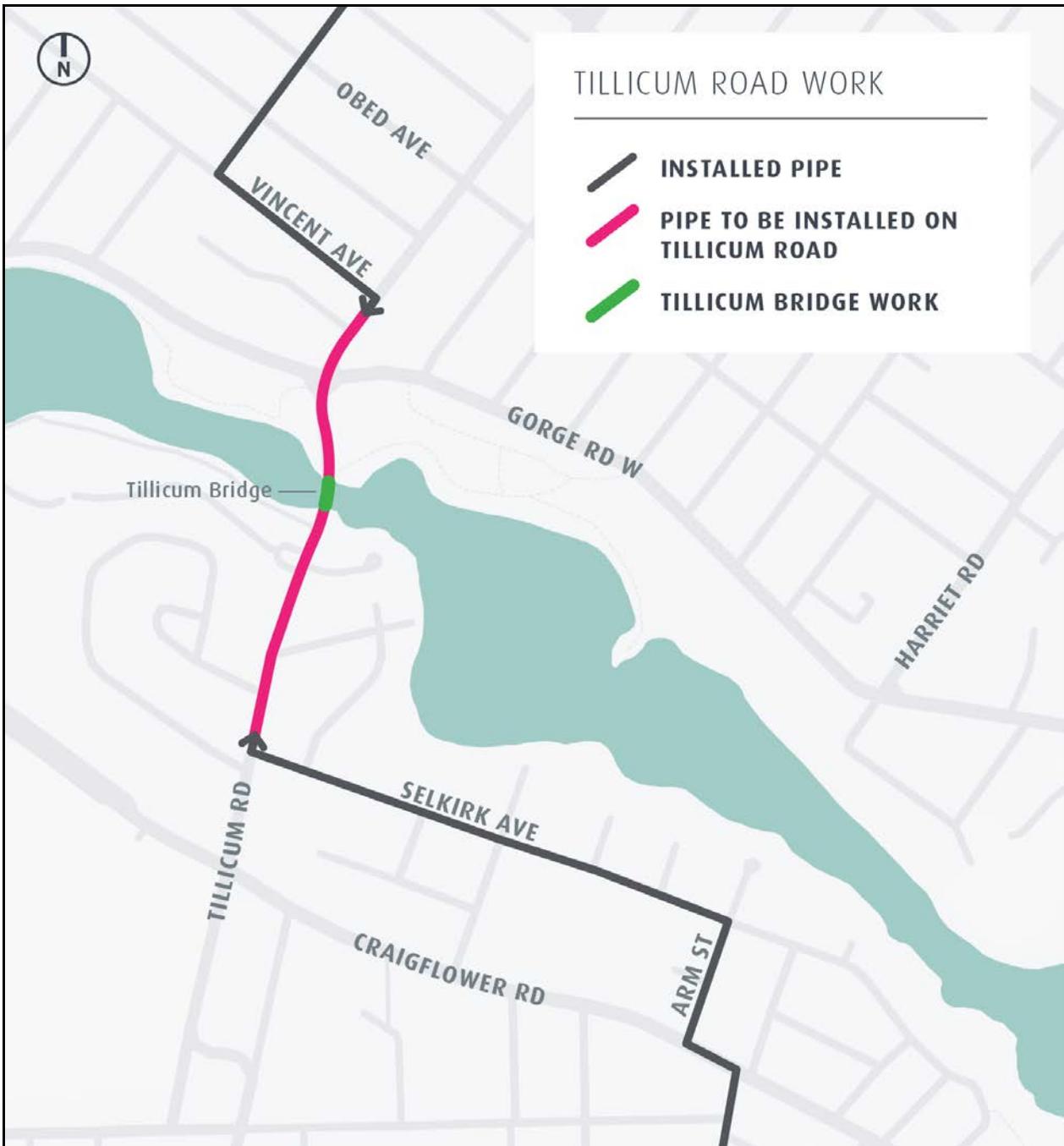


**Email**  
[wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)



**Website**  
[wastewaterproject.ca](http://wastewaterproject.ca)

Tillicum Road



Any questions about the work, please contact the Project Team.



24/7 Phone Line  
1.844.815.6132



Email  
wastewater@crd.bc.ca



Website  
wastewaterproject.ca

## **Appendix L– Project Update #8 (December 2019)**

## Wastewater Treatment Project

The Wastewater Treatment Project is on schedule to be complete by the end of 2020.

2019 has been the peak year of construction with over 550 people working across 23 active construction sites. Construction on the Residual Solids Pump Stations and the Arbutus Attenuation Tank began in the summer.

Key milestones were reached on the Project in 2019 including installation of the 1.9km outfall at the McLoughlin Point Wastewater Treatment Plant in July and completion of pipe installation for the Clover Forcemain in August.

2020 will be another busy year for the Project with completion of construction and transitioning to commissioning to begin treating the core area's wastewater by the end of the year.

### Construction Updates

#### MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT

Construction of the McLoughlin Point Wastewater Treatment Plant in Esquimalt is progressing well. The new ocean outfall was completed in July. Over 95% of concrete has been placed and all concrete is anticipated to be complete by March 2020. Major equipment is being installed on site such as chemical tanks, the primary clarifiers, and secondary filters. Mechanical and electrical work are currently the main activities on site.



*The outfall pipe being installed in July is 2.25m in diameter and 1.92km long.*

#### CLOVER POINT PUMP STATION

A new roof has been installed over the expanded Clover Point Pump Station and all the structural concrete is complete. The majority of the work is now inside and is focused on equipment installation. All the large pumps have been installed. In November, work began for pipe installation to connect the Clover Forcemain to the pump station. As well, construction is underway on the public washroom that is being built as part of the public amenities that are being added to the area.



*View of the upper pump room in the Clover Point Pump Station.*

**MACAULAY POINT PUMP STATION AND FORCEMAIN**

With the majority of concrete placed at the Macaulay Point Pump Station, the above-ground structure is currently being constructed. The pumps have been installed and equipment continues to arrive on site each week. The Macaulay Forcemain is nearing completion with over 90% of pipe installed.



*The above-ground timber structure is being constructed at Macaulay Point Pump Station.*

**CLOVER FORCEMAIN**

The Clover Forcemain installation was completed in August 2019. Construction since then has focused on cycle path construction and restoration work, and will continue through the spring. The cycle path has been paved up to Douglas Street and will be open in the summer once the entire stretch from Dock Street to Clover Point is complete. Construction will continue from Douglas Street to Ogden Point and includes paving the road, reinstalling curbs, constructing the cycle path and landscaping. Landscaping is underway from Clover Point to Douglas Street with new trees and vegetation planted near Cook Street.

**ARBUTUS ATTENUATION TANK**

Construction began in Haro Woods for the Arbutus Attenuation Tank, a 5,000m<sup>3</sup> underground concrete tank that will store wastewater during high storm events. Concrete piles are currently being installed around the perimeter of the tank. Once construction is complete, the site will be planted with vegetation appropriate for the woodland setting.



*Concrete caisson piles are being installed at the site of the Arbutus Attenuation Tank.*

**RESIDUALS TREATMENT FACILITY**

Significant progress has been made at the Residuals Treatment Facility. All major equipment has been installed including the heat exchangers, dewatering and dryer equipment. Two of the digesters are complete with work progressing on the remaining tanks. Concrete work is nearing completion and construction of the operations building is underway.



*Aerial view of construction at the Residuals Treatment Facility.*

### TRENT FORCEMAIN

The Trent Forcemain is the final component of the Wastewater Treatment Project to be procured and construction is anticipated to begin in early 2020 and take approximately 10 months to complete. The Trent Forcemain will be a 1.9km extension of an existing pipe in the City of Victoria from the intersection of Chandler Ave and St Charles Street to the Clover Point Pump Station. The Trent Forcemain will increase the capacity of the eastern part of the wastewater system.



Map of the Trent Forcemain.

### RESIDUAL SOLIDS PUMP STATIONS

Three small pump stations are being built along the Residual Solids Conveyance Line to pump residual solids to the Residuals Treatment Facility. All three are currently under construction with completion anticipated in spring 2020.



Scaffolding on the Tillicum Bridge to install the RSCL pipe.

### RESIDUAL SOLIDS CONVEYANCE LINE

Construction of the Residual Solids Conveyance Line is over 80% complete. The majority of the remaining work is on Interurban Road which currently has four crews working on it. Please expect single lane alternating traffic while this work is completed. The upcoming work at the five-way intersection at Wilkinson Road will be done at night starting in January to limit traffic impacts. Pipe installation is anticipated to be complete in the spring.

#### CONSTRUCTION SUMMARY



**23**

active construction sites



**560**

construction workers



**20,047m**

pipes laid



**41,191m<sup>3</sup>**

concrete poured

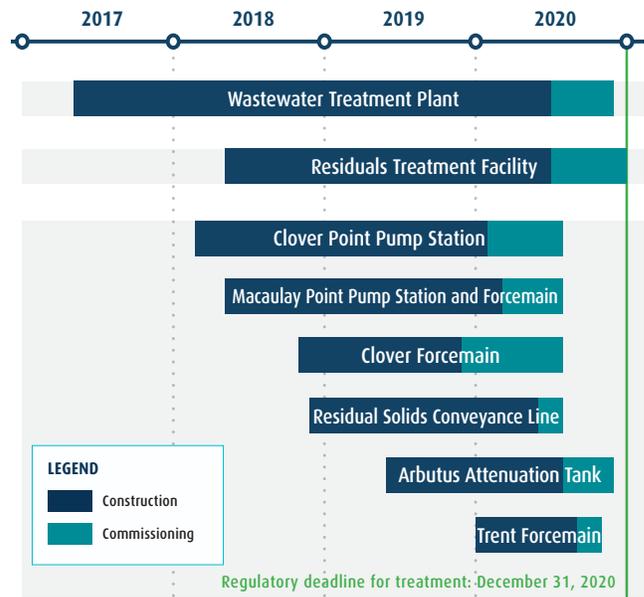
## Looking Ahead to 2020

By the end of next year, the CRD will be treating the core area’s wastewater to a tertiary level. Construction activities will continue in 2020 with the majority of work to be completed by mid-2020. While the main sites will be undergoing the start-up process, known as commissioning, there will still be construction on the Arbutus Attenuation Tank and the Trent Forcemain throughout 2020. These components are being built to add capacity to the system to reduce wet weather overflows. As part of restoration, any area impacted by construction will be returned to as good, or better, condition than when construction started. Restoration work will take place throughout 2020 and into 2021.

### WHAT IS COMMISSIONING?

Once construction is complete, the different parts of the system will be connected together. Commissioning is the process of testing the different parts of the system and connecting them so they are able to operate together.

### Wastewater Treatment Project Schedule\* Construction + Commissioning



\*Schedule subject to updates as Project planning progresses.

## Traffic Impacts

With peak construction for the Project in three municipalities, traffic has been impacted in many areas. Pipe installation often requires single lane alternating traffic controlled by flaggers, signs and cones. We work to limit traffic impacts where possible, but please expect delays.

Safety of not only the workers on site, but also the public, is the top priority for the Project. With road work throughout the region, some simple steps can keep everyone safe.



Slow down and drive with care near a construction zone.



Pay attention to flaggers. Make eye contact and follow their directions.



Follow construction signs.

### For More Information

**Website:** [wastewaterproject.ca](http://wastewaterproject.ca)

**Email:** [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)

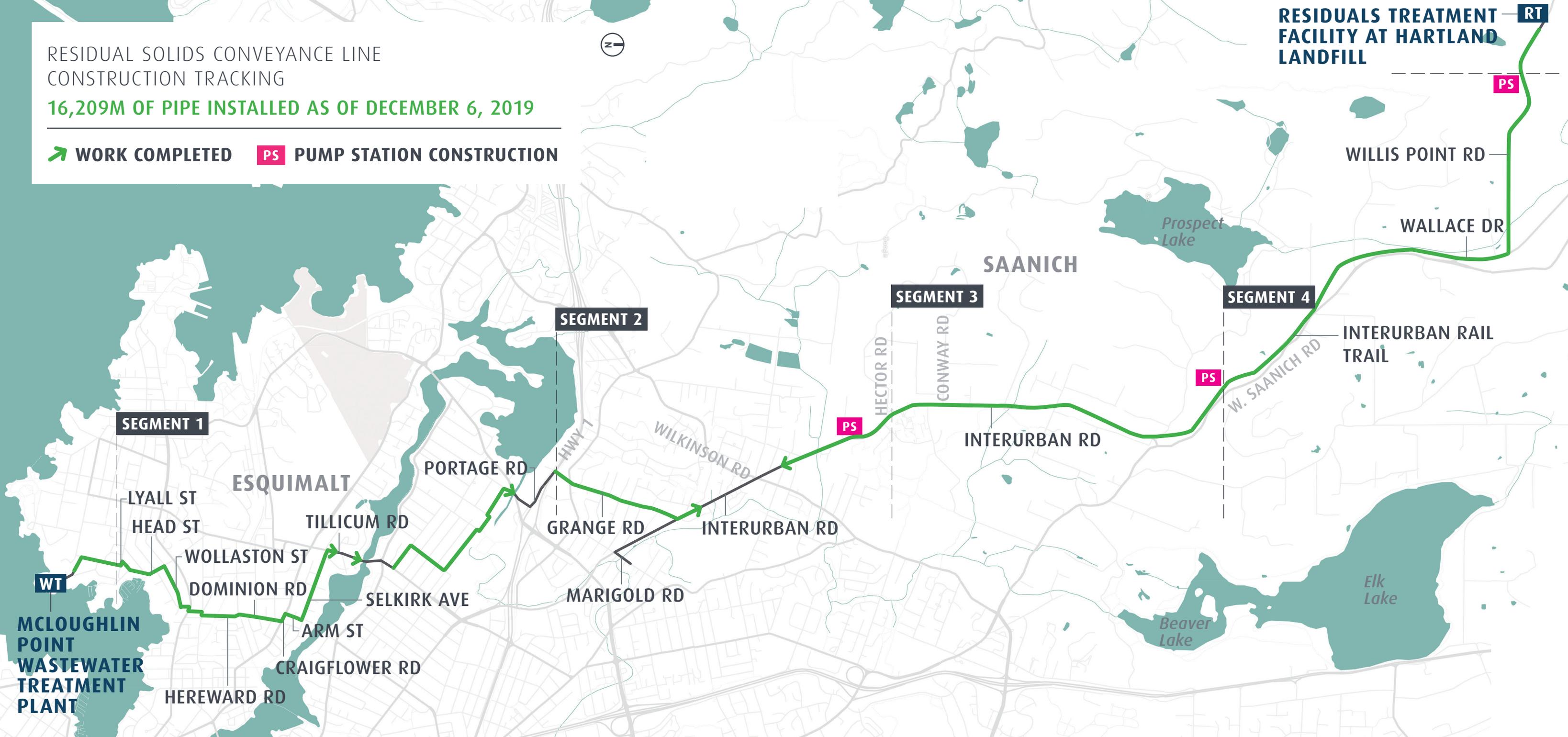
**24-7 Project Information Line:** 1.844.815.6132

## **Appendix M– Residual Solids Conveyance Line Map (December 6, 2019)**

RESIDUAL SOLIDS CONVEYANCE LINE  
CONSTRUCTION TRACKING

16,209M OF PIPE INSTALLED AS OF DECEMBER 6, 2019

 WORK COMPLETED  PUMP STATION CONSTRUCTION



## **Appendix N– Monthly Cost Report (December)**

**MONTHLY COST REPORT**  
as at December 31, 2019

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to November 30, 2019	Expended over reporting period (December 2019)	Expended to December 31, 2019	Expended to December 31, 2019 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at December 31, 2019	Total Commitment at December 31, 2019	Unexpended Commitment at December 31, 2019	Uncommitted Allocated Budget at December 31, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Allocated Budget
<b>McLoughlin Point Wastewater Treatment Plant</b>	<b>331.4</b>	<b>328.1</b>	<b>262.0</b>	<b>5.6</b>	<b>267.6</b>	<b>82%</b>	<b>60.5</b>	<b>319.9</b>	<b>52.3</b>	<b>8.2</b>	<b>60.5</b>	<b>328.1</b>	-	<b>0%</b>
Construction	306.7	319.6	261.3	5.6	266.9	84%	52.7	319.2	52.3	0.4	52.7	319.6	-	0%
Contingency	14.9	1.6	-	-	-	0%	1.6	-	-	1.6	1.6	1.6	-	0%
Financing	9.8	6.9	0.7	0.0	0.7	10%	6.2	0.7	-	6.2	6.2	6.9	-	0%
<b>Residuals Treatment Facility</b>	<b>159.4</b>	<b>138.8</b>	<b>8.8</b>	<b>0.5</b>	<b>9.3</b>	<b>7%</b>	<b>129.6</b>	<b>137.8</b>	<b>128.6</b>	<b>1.0</b>	<b>129.6</b>	<b>138.8</b>	-	<b>0%</b>
Construction	145.4	137.8	8.7	0.5	9.2	7%	128.6	137.8	128.6	0.0	128.6	137.8	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	0.0	0.0	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
<b>Conveyance System</b>	<b>158.1</b>	<b>216.9</b>	<b>129.6</b>	<b>4.7</b>	<b>134.4</b>	<b>62%</b>	<b>82.4</b>	<b>195.5</b>	<b>61.0</b>	<b>21.4</b>	<b>82.4</b>	<b>216.9</b>	-	<b>0%</b>
Macaulay Point Pump Station	25.4	30.7	20.0	1.2	21.2	69%	9.5	30.7	9.5	-	9.5	30.7	-	0%
Macaulay Forcemain	5.6	7.4	6.0	0.3	6.3	85%	1.1	7.4	1.1	-	1.1	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	-	12.4	100%	0.0	12.4	0.0	0.0	0.0	12.4	-	0%
Clover Point Pump Station	23.7	27.5	23.6	0.4	24.0	87%	3.5	27.5	3.5	-	3.5	27.5	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	9.1	0.6	9.7	40%	14.8	23.1	13.3	1.5	14.8	24.6	-	0%
Clover Forcemain	14.6	32.5	26.2	0.6	26.8	83%	5.7	32.2	5.4	0.3	5.7	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.2	-	0.2	2%	11.1	8.0	7.8	3.3	11.1	11.3	-	0%
Residual Solids Conveyance Line	19.1	35.8	26.3	0.9	27.2	76%	8.5	35.6	8.4	0.1	8.5	35.8	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	19.5	4.9	0.6	5.5	28%	13.9	17.4	11.9	2.0	13.9	19.5	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.5	0.3	-	0.3	60%	0.2	0.5	0.2	0.1	0.2	0.5	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	0.1	0.4	9%	3.7	0.4	-	3.7	3.7	4.1	-	0%
<b>Project Management Office ("PMO")</b>	<b>75.9</b>	<b>77.9</b>	<b>49.5</b>	<b>1.1</b>	<b>50.6</b>	<b>65%</b>	<b>27.3</b>	<b>67.2</b>	<b>16.6</b>	<b>10.7</b>	<b>27.3</b>	<b>77.9</b>	-	<b>0%</b>
Professional Services	29.2	41.9	28.9	0.3	29.2	70%	12.7	35.6	6.4	6.3	12.7	41.9	-	0%
Project Board, Project Team & CRD Allocations	34.7	27.9	16.3	0.8	17.1	61%	10.9	26.5	9.5	1.4	10.9	27.9	-	0%
PMO Support	4.8	3.5	2.0	0.0	2.1	58%	1.5	2.8	0.7	0.8	1.5	3.5	-	0%
PMO start-up costs	2.3	2.3	2.3	-	2.3	100%	-	2.3	-	-	-	2.3	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
<b>BC Hydro</b>	<b>12.9</b>	<b>4.3</b>	<b>2.0</b>	<b>-</b>	<b>2.0</b>	<b>47%</b>	<b>2.3</b>	<b>2.0</b>	<b>0.0</b>	<b>2.3</b>	<b>2.3</b>	<b>4.3</b>	-	<b>0%</b>
<b>Third Party Commitments</b>	<b>8.1</b>	<b>8.1</b>	<b>3.4</b>	<b>0.1</b>	<b>3.4</b>	<b>42%</b>	<b>4.7</b>	<b>6.8</b>	<b>3.4</b>	<b>1.3</b>	<b>4.7</b>	<b>8.1</b>	-	<b>0%</b>
<b>Program Reserves</b>	<b>19.2</b>	<b>0.9</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0%</b>	<b>0.9</b>	<b>-</b>	<b>-</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	-	<b>0%</b>
<b>Core Area Wastewater Treatment Project</b>	<b>765.0</b>	<b>775.0</b>	<b>455.3</b>	<b>12.0</b>	<b>467.3</b>	<b>60%</b>	<b>307.6</b>	<b>729.3</b>	<b>261.9</b>	<b>45.7</b>	<b>307.6</b>	<b>775.0</b>	-	<b>0%</b>

\* Values presented in \$millions, results in minor rounding differences

\*\* Cost report presents approved expenditures

^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design

## Appendix O- Quarterly Cost Report

**QUARTERLY COST REPORT**  
as at December 31, 2019

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to Sept 30, 2019	Expended over reporting period (Q4 2019 Sept - Dec)	Expended to Dec 31, 2019	Expended to December 31, 2019 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at December 31, 2019	Total Commitment at December 31, 2019	Unexpended Commitment at December 31, 2019	Uncommitted Allocated Budget at December 31, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Allocated Budget
<b>McLoughlin Point Wastewater Treatment Plant</b>	<b>331.4</b>	<b>328.1</b>	<b>242.7</b>	<b>24.9</b>	<b>267.6</b>	<b>82%</b>	<b>60.5</b>	<b>319.9</b>	<b>52.3</b>	<b>8.2</b>	<b>60.5</b>	<b>328.1</b>	-	<b>0%</b>
Construction	306.7	319.6	242.1	24.8	266.9	84%	52.7	319.2	52.3	0.4	52.7	319.6	-	0%
Contingency	14.9	1.6	-	-	-	0%	1.6	-	-	1.6	1.6	1.6	-	0%
Financing	9.8	6.9	0.6	0.1	0.7	10%	6.2	0.7	-	6.2	6.2	6.9	-	0%
<b>Residuals Treatment Facility</b>	<b>159.4</b>	<b>138.8</b>	<b>8.4</b>	<b>0.9</b>	<b>9.3</b>	<b>7%</b>	<b>129.6</b>	<b>137.8</b>	<b>128.6</b>	<b>1.0</b>	<b>129.6</b>	<b>138.8</b>	-	<b>0%</b>
Construction	145.4	137.8	8.4	0.8	9.2	7%	128.6	137.8	128.6	0.0	128.6	137.8	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	-	0.0	0.0	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
<b>Conveyance System</b>	<b>158.1</b>	<b>216.9</b>	<b>109.7</b>	<b>24.8</b>	<b>134.4</b>	<b>62%</b>	<b>82.4</b>	<b>195.5</b>	<b>61.0</b>	<b>21.4</b>	<b>82.4</b>	<b>216.9</b>	-	<b>0%</b>
Macaulay Point Pump Station	25.4	30.7	16.9	4.3	21.2	69%	9.5	30.7	9.5	-	9.5	30.7	-	0%
Macaulay Forcemain	5.6	7.4	4.5	1.8	6.3	85%	1.1	7.4	1.1	-	1.1	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	0.0	12.4	100%	0.0	12.4	0.0	0.0	0.0	12.4	-	0%
Clover Point Pump Station	23.7	27.5	21.0	3.0	24.0	87%	3.5	27.5	3.5	-	3.5	27.5	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	6.2	3.5	9.7	40%	14.8	23.1	13.3	1.5	14.8	24.6	-	0%
Clover Forcemain	14.6	32.5	23.7	3.1	26.8	83%	5.7	32.2	5.4	0.3	5.7	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	0.0	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.2	-	0.2	2%	11.1	8.0	7.8	3.3	11.1	11.3	-	0%
Residual Solids Conveyance Line	19.1	35.8	20.9	6.3	27.2	76%	8.5	35.6	8.4	0.1	8.5	35.8	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	19.5	2.9	2.6	5.5	28%	13.9	17.4	11.9	2.0	13.9	19.5	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.5	0.3	0.0	0.3	60%	0.2	0.5	0.2	0.1	0.2	0.5	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	0.1	0.4	9%	3.7	0.4	-	3.7	3.7	4.1	-	0%
<b>Project Management Office ("PMO")</b>	<b>75.9</b>	<b>77.9</b>	<b>46.4</b>	<b>4.2</b>	<b>50.6</b>	<b>65%</b>	<b>27.3</b>	<b>67.2</b>	<b>16.6</b>	<b>10.7</b>	<b>27.3</b>	<b>77.9</b>	-	<b>0%</b>
Professional Services	29.2	41.9	27.0	2.2	29.2	70%	12.7	35.6	6.4	6.3	12.7	41.9	-	0%
Project Board, Project Team & CRD Allocations	34.7	27.9	15.2	1.9	17.1	61%	10.9	26.5	9.5	1.4	10.9	27.9	-	0%
PMO Support	4.8	3.5	1.9	0.2	2.1	58%	1.5	2.8	0.7	0.8	1.5	3.5	-	0%
PMO start-up costs	2.3	2.3	2.3	(0.0)	2.3	100%	-	2.3	-	-	-	2.3	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
<b>BC Hydro</b>	<b>12.9</b>	<b>4.3</b>	<b>2.0</b>	<b>0.0</b>	<b>2.0</b>	<b>47%</b>	<b>2.3</b>	<b>2.0</b>	<b>0.0</b>	<b>2.3</b>	<b>2.3</b>	<b>4.3</b>	-	<b>0%</b>
<b>Third Party Commitments</b>	<b>8.1</b>	<b>8.1</b>	<b>3.3</b>	<b>0.1</b>	<b>3.4</b>	<b>42%</b>	<b>4.7</b>	<b>6.8</b>	<b>3.4</b>	<b>1.3</b>	<b>4.7</b>	<b>8.1</b>	-	<b>0%</b>
<b>Program Reserves</b>	<b>19.2</b>	<b>0.9</b>	-	-	-	<b>0%</b>	<b>0.9</b>	-	-	<b>0.9</b>	<b>0.9</b>	-	-	<b>0%</b>
<b>Core Area Wastewater Treatment Project</b>	<b>765.0</b>	<b>775.0</b>	<b>412.6</b>	<b>54.9</b>	<b>467.3</b>	<b>60%</b>	<b>307.6</b>	<b>729.3</b>	<b>261.9</b>	<b>45.7</b>	<b>307.6</b>	<b>775.0</b>	-	<b>0%</b>

\* Values presented in \$millions, results in minor rounding differences

\*\* Cost report presents approved expenditures

^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design