



# Wastewater Treatment Project

Treated for a cleaner future

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## CRD Wastewater Treatment Project

### Monthly Report

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Reporting Period: October 2019

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# 1 Executive Summary

## 1.1 Introduction

This monthly report covers the reporting period of October 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 and the Projects Schedule has been updated to delineate 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; and progression of building envelope on Electrical, Blower and Heat Recovery buildings.

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: continuing pipe installation for Digester 2 and Other Municipal Solids receiving facility; continuing construction of the potable water storage tank; enclosing the Residuals Handling Building and Dryer Building, mechanical and equipment installation in the Residual Handling Building and Dryer Building; and completion of tank erection of the Residuals Solids Tanks 1 and 2.

The Conveyance System is being delivered through eight construction contracts: two design-build contracts and six 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: pump and valve installation in the lower pump room; stairways and platforms installed in wet wells; backfill over new structure complete; and modified existing inlet channel to connect to the new storm channel.
- 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 in pump room; poured suspended slab and pump room topping; installed shoring for sanitary sewer in preparation for constructing the new diversion chamber and inlet piping; and completed installation of approximately 115m of forcemain (total of 690m installed to October 31, 2019).

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: successful completion of forcemain pressure testing; paving of the cycle track; road restoration; electrical lighting installation; and watermain lining.
- Residual Solids Conveyance Line (“RSCL”): the RSCL is being delivered through three construction contracts, with work progressing as follows:
  - RSCL 100 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 700m of pipe; valve chamber installation; and restoration.
  - RSCL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: underground civil work at all three pump stations; erection of scaffolding at the Tillicum Bridge; tree removal, blasting and rock removal for the Hartland reservoir; and ongoing installation of the RTF water supply main within the Hartland landfill.
- NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including: installation of secant piles and excavation; maintaining the dewatering system; developing a bypass pumping plan for temporary flows during construction; and coordination with third parties for site water and power.
- 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 commencing the evaluation.

## 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 KPI’s over the reporting period. The safety KPI for the Project and the conveyance system remains yellow. Over the reporting period no reportable safety incidents occurred and the total recordable incident frequency decreased from 1.3 at the end of the last reporting period to 1.2. 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. 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*.					No 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.					One minor environmental incident occurred over the period at McLoughlin Point WWTP. Sediment laden water was found to be entering the storm sewer system through a storm drain that was in proximity to some excavating activity. Additional sediment control measures were implemented and the discharge of sediment laden water 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. 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: Macaulay Point Pump Station, Clover Point Pump Station, McLoughlin Point WWTP, RTF, Clover Forcemain, Residuals Solids Pump Stations, Residuals Solids Pipes and Arbutus Attenuation Tank.

Over the reporting period 9 safety incidents occurred in total: comprising three near-miss, and six report-only, no recordable. The incidents are 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	RCSL200	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 23, 2019	RSCL100	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	RCSL200	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.
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

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
<b>October 30, 2019</b>	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
<b>October 31, 2019</b>	RSCL200	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

Key safety activities conducted during October included:

- WWTP 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.

Table 3: WTP Safety Information

	Reporting Period (October 2019)	Project Totals
<b>Person Hours</b>		
PMO	3 787	121 141
Project Contractor	92 940	1 163 009
Total Person Hours	96 727	1 284 150
<b>PMO</b>	32	
Project Contractors (& Project Consultants) working on Project Sites	514	
Total Number of Employees	546	
<b>Near Miss Reports</b>	3	36
High Potential Near Miss Reports	0	5
Report Only	6	101
First Aid	0	31
Medical Aid	0	3
Medical Aid (Modified Duty)	0	2
Lost Time	0	3
Total Recordable Incidents	0	8
		Project Frequency (from January 1, 2017)
First Aid Frequency		4.8
Medical Aid Frequency		0.8
Lost time Frequency		0.5
Total Recordable Incident Rate		1.2

## 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.

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.

Over the reporting period HRP 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.

## 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.

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*

<i>Permit/Licence</i>	<i>Anticipated Date</i>	<i>Status</i>	<i>Party Responsible for Obtaining Permitting</i>
<i>McLoughlin Point WWTP</i>			
Municipal Wastewater Regulation ("MWR") Registration	Q1 2020	Submitted September 2019	CRD
<i>McLoughlin Point Harbour Crossing</i>			
Transport Canada Lease	Following completion of construction	On Track	HRP
<i>McLoughlin Point Outfall</i>			
Transport Canada Lease	Following completion of construction	On Track	HRP
<i>Residuals Treatment Facility</i>			
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, Macaulay Point and McLoughlin 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.

In June the CRD shared 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, and offered 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 WSÁNEĆ Leadership Council accepted the CRD's offer and asked that the CRD present to the WSÁNEĆ Technical Advisory Committee. In October CRD and HRMG met with the WSÁNEĆ 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.

## 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.

### **Construction Communications**

Four construction notices were issued to stakeholders in the reporting period:

- 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.

### **Project Website**

Over the reporting period, 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.

### **Community Meetings**

Over the reporting period 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;

## Public Inquiries

*Table 5 – Project Inquiries- October 2019*

Inquiry Source	Contacts for October
Information phone line inquiries	23
Email inquiries responded to	22

Key themes of the public inquiries were as follows:

- 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; and
- inquiries about timing and extent of restoration along the Residual Solids Conveyance Line and Clover Forcemain.

## 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. The schedule 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 (November) are outlined below by function

#### Safety

- “Shift into Winter” program for the Project team;
- attend CRD corporate occupational health and safety coordination committee meeting;
- attend weekly and bi-weekly prime contractor progress meetings;
- office/site inspections with contractors and CRD corporate at all active sites;
- 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; and
- incident reporting review with prime contractors at active work locations.

#### Environment and Regulatory Management

- CRD, Stantec, HRP and Lorax to meet with ENV to present results of McLoughlin Point WWTP outfall dispersion modelling and discuss ENV review of Outfall EIS and Overflow EIS.

#### First Nations

- ongoing engagement with First Nations; and
- distribute Call to Artists for design of architectural shroud for Clover Point pump station exhaust stack.

#### Stakeholder Engagement

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

#### Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- interim audit auditors on site; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

#### Construction

##### McLoughlin Point

- install perimeter water line for hydrants;
- install pig receiver piping and harbour crossing connection;
- install sewage influent piping;
- complete construction of tsunami wall 5;
- construct odour control envelope wall and roof slab;
- install stairs in odour control;
- install carbon filters 1 and 2 and carbon filter tank 1;
- continue construction of walls and slabs in the primary area envelope;
- install supports for Suez walkways;
- install process mechanical equipment in Densadeg 1 and 2;
- continue MBBR channel walls and slabs;

- install ducting, exhaust fans and air handling units in secondary treatment;
- continue installation of electrical cable trays, and power and control cables;
- install switchgear, harmonic filters, PLC and transformers in Blower room;
- install process mechanical in Heat Recovery Room;
- continue tertiary area walls and slabs;
- install process mechanical equipment in Pump Rooms level 1 and 2;
- install process electrical equipment in the electrical room;
- install Operations & Maintenance (O&M) building elevator;
- install O&M building green roofing;
- install O&M building envelope and interior finishes; and
- complete marine outfall.

#### Clover Point Pump Station

- install 1200mm sanitary forcemain;
- commence installation of Pig launching chamber;
- install 1500mm gravity sewer;
- modify overflow and inlet channels for connection of new 1500mm gravity sewer;
- install pipe supports in pump room;
- install doors and hardware on new pump station;
- continue installation of process mechanical equipment in pump room;
- install discharge, backwash and surge piping; and
- install HVAC equipment and ducting.

#### Macaulay Point Pump Station

- install transformer and fuel tank pad;
- commence construction of walls and roof;
- install sanitary pumps and piping;
- install vortex grit removal equipment;
- install odour control unit and associated ducting and fans;
- install cranes in Odour Control, Bin and Pump rooms;
- install cable trays in pump, generator and electrical rooms;
- install tie-in of Macaulay forcemain at Peter Street; and
- continue restoration of Anson and Bewdley Streets.

#### Residuals Treatment Facility

- complete piping installation in Digester 1;
- continue piping installation in Digester 2;
- commence concrete foundation for Digester 3;
- commence structural steel erection at Digester Building;
- continue foundation construction of Operations Building;
- continue piping installation at Other Municipal Solids Receiving Facility;
- roofing installation, and cladding installation for the Residuals Handling Building;
- commence masonry and cladding at the Dryer Building;
- continue mechanical and building system installations for Residuals Handling Building;
- continue equipment installation in Dryer Building;
- continue building construction of Equalization Building;
- commence construction of Water Pump House;
- complete erection of Residual Effluent Holding Tank; and
- continue erection of Water Storage Tank.

### Clover Forcemain

- final connection of Clover Forcemain at the Harbour Crossing;
- road reconstruction Ogden Point to Niagara St;
- road reconstruction Douglas St to Camas Circle;
- road/cycle track construction Paddon Ave to Olympia Ave;
- road/cycle track construction Olympia Ave to Douglas St;
- road/cycle track construction Montreal St to Dock St;
- road/cycle track construction Douglas St West to Douglas St East; and
- road/cycle track construction Government St to Paddon Ave.

### Residual Solids Conveyance Line

- continue RSCL installation at Craigflower Rd to Arm St to Selkirk Ave to Tillicum Rd;
- commence RSCL installation at Tillicum Rd to Tillicum bridge;
- continue RSCL installation at Grange Rd from Highway 1 to Burnside Rd;
- continue installation of RSCL on Interurban Rd from Grange Rd to Wilkinson Rd;
- continue installation of RSCL on Interurban Rd from Hector Rd to Wilkinson Rd;
- continue installation of line, drain and air valves; and
- continue restoration of roads and trails as required.

### Residual Solids Pump Stations and Bridge Crossings (RSCL 200)

- install CRL on Marigold Street from Colquitz Creek to Interurban Rd;
- install CRL on Interurban Rd from Grange Rd to Marigold Rd;
- commence installation of RTF control valve chamber;
- continue installation of Tillicum bridge supports and piping;
- commence installation of scaffolding for Admirals Bridge crossings;
- install pump station #4 process mechanical and electrical;
- install pump station #3 substructure, retaining wall and water service;
- continue with the RTF watermain installation; and
- continue with rock blasting / removal for new Hartland Reservoir.

### Arbutus Attenuation Tank (AAT)

- ongoing operation for drilling of secant piles;
- continue ongoing 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
- excavate remainder of tank footprint to facilitate additional secant pile construction.

### Procurement

#### Trent Forcemain

- complete tender evaluation.

## 2.6.2 60 day look ahead

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

### Safety

- promotion of Traffic Awareness of the Project;
- safety notice developed for “Heading into the holidays” and site safety awareness;
- attend CRD corporate occupational health and safety coordination committee meeting;
- 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; and
- incident reporting review with prime contractors at active work locations.

### Environment and Regulatory Management

- CRD, Stantec and HRP to meet with ENV to discuss ENV review of Outfall EIS and Overflow EIS.

### First Nations

- Ongoing engagement with First Nations.

### Stakeholder Engagement

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

### Cost Management and Forecast

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

## Construction

### McLoughlin Point

- form and pour planter wall 1;
- form and pour tsunami wall 6;
- install structural steel curtain wall, stairs, glazing, roofing system, plumbing drains and sprinklers and air handling units in Primary Odour Control;
- install fans, ducting and dampers in Secondary Odour Control;
- hydro test Densadeg 2 and 3 tanks;
- install HVAC and air handling units in screen room and south pump room;
- install process mechanical in Densadeg 2 and 3, Dirty Backwash, BAF and BAF gallery;
- install electrical cable trays and pull cables throughout;



- install BAF tank covers;
- continue was walls and suspended slabs in Tertiary area; and
- continue with building envelope, steel stud framing, and insulation and CMU masonry walls in the O & M building.

#### Clover Point Pump Station

- commence installation of new discharge piping;
- commence removal of 4 existing pumps and header;
- install pig launching chamber;
- complete installation of 1500 gravity sewer;
- complete tie-in to new inlet channel;
- reinstate seawall walkway;
- install doors and louvers;
- complete termination of power cables and instrumentation and control cables; and
- tie into BC Hydro

#### Macaulay Point Pump Station

- excavate for twin 900 diameter forcemain;
- install incoming 1800 diameter Weolite sanitary line;
- install epoxy line in wet well;
- continue to install cross laminated timber panels (CLT) for walls and roof;
- continue installation of building envelope;
- install slide gates to influent channel;
- install exhaust and air supply ducting in Odour Control, bin room, screen room, and vestibule;
- install bin room bridge crane, odour control room jib crane and pump room jib crane;
- install substation/transformer;
- commence installation of motor control centre, variable frequency drives, low voltage main switchgear and programmable logic controller;
- install cable tray and cabling throughout; and
- install the remaining 60 meters of Macaulay forcemain on Vaughan Street to the pump station.

#### Residuals Treatment Facility

- complete piping installation in Digester 2;
- commence tank erection for Digester 3;
- commence structural steel erection at Digester Building;
- commence piping installation in the Digested Sludge Storage Tank and Residual Effluent Holding Tank;
- continue structure construction of Operations Building;
- continue piping installation at Other Municipal Solids Receiving Facility;
- continue cladding, process piping, and building systems installations at the Residuals Handling Building;
- continue masonry, building systems, and cladding at the Dryer Building;
- continue equipment and electrical installation at Dryer Building;
- commence process and electrical work at Equalization Building;
- continue construction of Water Pump House; and

- commence equipment installation at Odour Control Area.

#### Clover Forcemain

- continue with road restoration;
- continue with Road/Cycle track construction;
- complete Montreal Street upgrades; and
- complete Boyd Street remediation.

#### Residual Solids Conveyance Line (RSCL 100)

- install RSCL on Tillicum Road from Selkirk Ave to Tillicum Bridge;
- install RSCL on Interurban Road from Grange Road to Charlton Road;
- continue installation of drain valves and line valves; and
- continue with road restoration

#### Residual Solids Pump Stations and Bridge Crossings (RSCL 200)

- complete installation of RSCL from Marigold Road to Grange Road;
- continue with installation of pipe hangers and pipes at Tillicum Bridge;
- install scaffolding on Admirals Bridge;
- commence installation of pipe hangers and pipe on Admirals Bridge;
- complete electrical connections at Pump Station 3;
- install submersible sewage pump at Pump Station 3;
- complete back fill and site grading at Pump Station 3;
- complete retaining wall at Pump station 3;
- install process Mechanical at Pump Station 2;
- install submersible sewage pump at Pump Station 2;
- install wet well at Pump Station 1; and
- continue reservoir construction and watermain installation at Hartland site

#### Arbutus Attenuation Tank (AAT)

- complete drilling operation for secant piles;
- complete concrete pour operations for reinforced and plain secant piles;
- complete installation of temporary bypass system and temporary flow monitoring instrumentation;
- continue installation of permanent yard piping and manholes; and
- commence removal of decommissioned yard piping outside of tank footprint.

### **Procurement**

#### Trent Forcemain

- contract execution

## 2.7 Cost Management and Forecast

The monthly cost report for October is attached as Appendix F. The cost report summarizes Project expenditures and commitments by the three 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 \$1.1 million. The significant commitments made in the reporting period were the approval of provisional items in contracts and contract change orders.

### 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 \$100k were made over the reporting period. 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)
<b>WWTP Total Draw</b>		<b>\$ (100,287)</b>
<b>RTF Total Draw</b>		<b>\$ -</b>
<b>Conveyance Total Draw</b>		<b>\$ -</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 draws in the reporting period		\$ (100,287)
<b>Contingency and Program Reserve balance as at October 31, 2019</b>		<b>\$ 22,379,335</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.

*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	\$12.1M	\$83.4M
Government of Canada (Green Infrastructure Fund)	\$50M	\$2.2M	\$27.7M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	-	-
Federation of Canadian Municipalities	\$346K	-	-
<b>TOTAL</b>	<b>\$459.3M</b>	<b>\$14.3M</b>	<b>\$111.1M</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.

There were no changes to the active risks summary from that presented in the Project's Q3 Quarterly Report

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.	<p>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. A work plan and schedule have been developed and the Project Team, MOE and relevant contractors will continue to meet regularly to track progress and discuss issues.</p> <p>MWR Registration application submitted to the Ministry of Environment in September 2019. The Ministry will consult with First Nations as part of their approval process. The Ministry of Environment considers the Wastewater Treatment Project to be a priority and is committed to approving the MWR Registration in time for commissioning. Additionally, the Ministry of Environment will specifically address water quality during commissioning in the approval.</p>	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
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
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.	H	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
<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.	L	No Change
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.	M	No Change
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.	M	No change

<b>Risk Level Key - Assessed risk level (based on likelihood and potential impact)</b>			
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 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; and progression of building envelope on Electrical, Blower and Heat Recovery buildings.

#### **Construction**

Key construction activities in progress or completed by HRP 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 Recover Buildings;

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



*Figure 2– McLoughlin Point Wastewater Treatment Plant- Installing exterior sheathing on Electrical Room*



*Figure 3– McLoughlin Point Wastewater Treatment Plant- Excavation of Macaulay forcemain pipe trench on Victoria View Road*

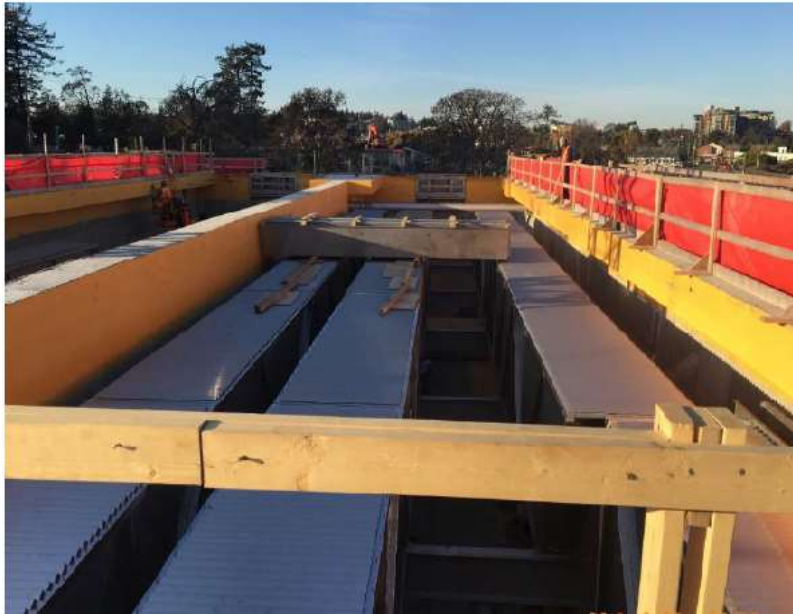


Figure 4- McLoughlin Point Wastewater Treatment Plant- Lamella 1 plate rack installation



Figure 5- McLoughlin Point Wastewater Treatment Plant-Installing reinforcing steel in Dirty Backwash slab



*Figure 6– McLoughlin Point Wastewater Treatment Plant- Installing Monofloor soffit in BAF cell 3*

## 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: continuing pipe installation for Digester 2 and Other Municipal Solids receiving facility; continuing construction of the potable water storage tank; enclosing the Residuals Handling Building and Dryer Building, mechanical and equipment installation in the Residual Handling Building and Dryer Building; and completion of tank erection of the Residuals Solids Tanks 1 and 2.

### Construction

Key construction activities in progress or completed by HRMG during the reporting period included:

- 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.

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



*Figure 7– Residuals Treatment Facility- Installation of insulated metal cladding support members on Digester Equipment Building.*



*Figure 8- Residuals Treatment Facility- Installation of flashing around wall penetrations on east side of Residuals Handling Building*



*Figure 9- Residuals Treatment Facility- Site overview showing Residuals Solids Tanks, Effluent Tank, Water Storage Tank, Equalization Building and Water Pump House.*



*Figure 10– Residuals Treatment Facility- Digesters #1 and #2, Digested Solids Storage Tank and Digester Equipment Building.*

## 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: pump and valve installation in the lower pump room; stairways and platforms installed in wet wells; backfill over new structure complete; and modified existing inlet channel to connect to the new storm channel.

Key construction activities in progress or completed by Kenaidan over the reporting period were as follows:

- pumps are being installed in the lower pump room along with discharge pipe and valves;
- Motor Control Centers, 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.

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



*Figure 11–Clover Point Pump Station- Storm pump.*





*Figure 12–Clover Point Pump Station- upper pump room.*



*Figure 13–Clover Point Pump Station- Storm wet well benching.*



Figure 14- Clover Pump Station - Public washroom in progress.

### 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 in pump room; poured suspended slab and pump room topping; installed shoring for sanitary sewer in preparation for constructing the new diversion chamber and inlet piping; and completed installation of approximately 115m of forcemain (total of 690m installed to October 31, 2019).

#### **Construction:**

Key construction activities in progress or completed by Kenaidan over the reporting period 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.

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



*Figure 15–Macaulay Point Pump Station- Rock removal between diversion chamber and existing pump station.*



*Figure 16–Macaulay Point Pump Station- Lowering vent pipe for construction of ramp.*

### 2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including: successful completion of forcemain pressure testing; paving of the cycle track; road restoration; electrical lighting installation; and watermain lining.

Key construction activities in progress or completed by Windley over the reporting period were as follows:

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

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



*Figure 17–Clover Forcemain- Curb and gutter removals and base preparation along Dallas (South Side - Douglas to Government)*



*Figure 18–Clover Forcemain- Cycle track sub-grade excavation and sub-base & base grade development along corridor at the foot of Douglas.*



*Figure 19–Clover Forcemain– Electrical conduit installs along cycle track corridor (foot of Douglas.)*



*Figure 20–Clover Forcemain- New street light base installation at Dallas/Douglas Intersection.*

### 2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through three construction contracts:

- RSCL 100 Residual Solids Pipes;
- RSCL 200 Residual Solids Pump Stations; and
- RSCL 300 Saanich Infrastructure Improvements.

RSCL 100 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 700m 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.

Photographs of construction progress over the month of October on the Residual Solids Conveyance Line are shown in Figures 21-24.



*Figure 21–Residual Solids Conveyance Line- Backfill and compaction Grange Rd at Interurban Rd.*





*Figure 22-Residual Solids Conveyance Line- Asphalt over cut being completed on Interurban Rd.*



*Figure 23-Residual Solids Conveyance Line- Placing concrete around manhole grade rings and frame on Selkirk Ave*



*Figure 24–Residual Solids Conveyance Line- Backfill and compaction of highway crossing phase 3 pipe sleeves.*

RSCL 200 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 including: erection of scaffolding at the Tillicum Bridge; and ongoing installation of watermain at Hartland.

Key construction activities in progress or completed by Knappett over the reporting period were as follows:

- Colquitz Creek crossing was completed inclusive of spawning gravel placement and site restoration;
- 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.

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



*Figure 25–Residual Solids Pump Stations and Bridge Crossings – Watermain trench backfilled west of gas plant.*



Figure 26 –Residual Solids Pump Stations and Bridge Crossings- Installed pre-cast valve chamber at Pump Station 3



Figure 27–Residual Solids Pump Stations and Bridge Crossings – Commence pipe hanger installation at Tillicum Bridge.

### 2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) has continued construction activities with a focus on civil excavation and structural secant pile construction works. Ongoing activities also include maintaining the dewatering system; developing a bypass pumping plan for temporary flows during construction; and coordination with third parties for site water and power.

Key construction activities in progress or completed by NAC over the reporting period 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.

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



*Figure 28–Arbutus Attenuation Tank- Installation of Secant Piles.*



*Figure 29– Arbutus Attenuation Tank –Site overview.*

### 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, and receiving tenders.

## **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

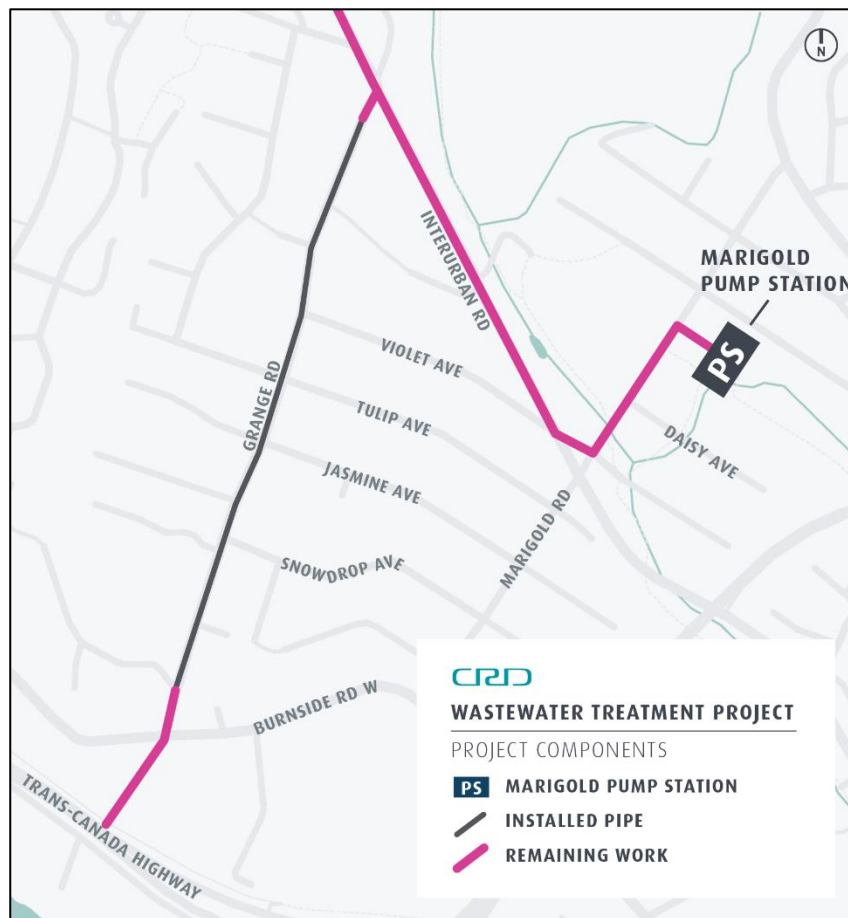
As part of the Wastewater Treatment Project, construction on Interurban, Marigold, and Grange roads will impact traffic as pipes are installed for the Residual Solids Conveyance Line. This work requires single lane alternating traffic and is anticipated to be complete in January 2020. Please expect traffic 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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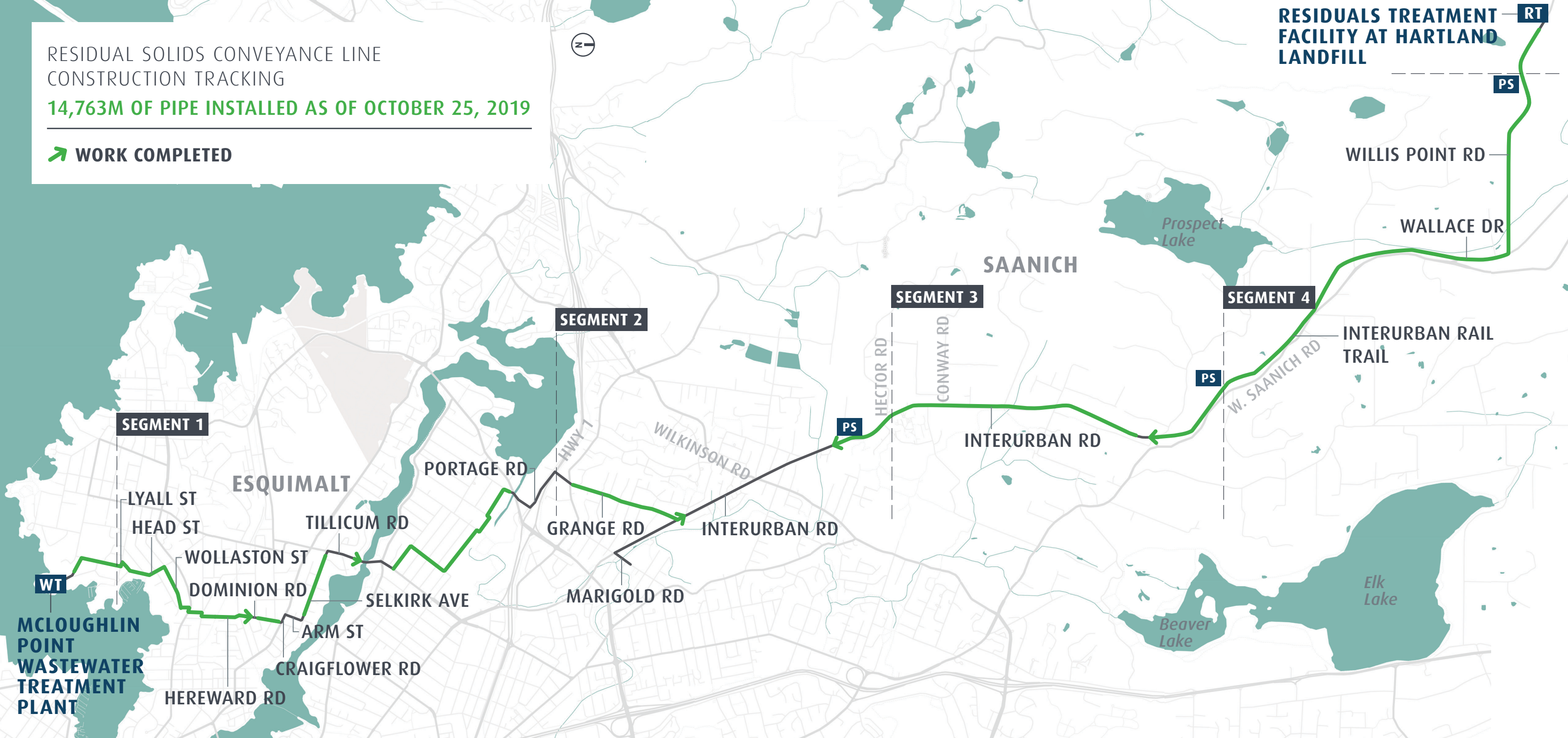
## **Appendix E- Residual Solids Conveyance Line Progress Map**



RESIDUAL SOLIDS CONVEYANCE LINE  
CONSTRUCTION TRACKING

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

➔ WORK COMPLETED



## **Appendix F- Monthly Cost Report (October)**

**ASSET MANAGEMENT COST REPORT**  
as at October 31, 2019

Project Component	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to Sept. 30, 2019	Expended over reporting period (October 2019)	Expended to October 31, 2019	Expended to October 31, 2019 as a % of Budget	Remaining (Unexpended) Budget at October 31, 2019	Total Commitment at October 31, 2019	Unexpended Commitment at October 31, 2019	Uncommitted Budget at October 31, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant <sup>A</sup>	378.0	364.6	262.8	8.1	270.9	74%	93.7	343.9	72.9	20.7	93.6	364.6	-	0%
Residuals Treatment Facility <sup>A</sup>	195.0	157.9	18.8	0.4	19.2	12%	138.7	153.1	133.9	4.8	138.7	157.9	-	0%
Conveyance System <sup>A</sup>	192.0	252.5	131.0	12.9	143.9	57%	108.6	214.3	70.5	38.2	108.7	252.5	-	0%
<b>Total Costs</b>	<b>765.0</b>	<b>775.0</b>	<b>412.6</b>	<b>21.4</b>	<b>434.0</b>	<b>56%</b>	<b>341.0</b>	<b>711.3</b>	<b>277.3</b>	<b>63.7</b>	<b>341.0</b>	<b>775.0</b>	<b>-</b>	<b>0%</b>

A - Including PMO and Common Costs  
<sup>\*</sup> Values presented in \$millions, results in minor rounding differences  
<sup>\*\*</sup> Cost report presents approved expenditures