



**Wastewater
Treatment** Project

Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: August 2019

TABLE OF CONTENTS

1	Executive Summary.....	1
1.1	Introduction	1
1.2	Dashboard.....	2
2	Wastewater Treatment Project Progress	4
2.1	Safety	4
2.2	Environment and Regulatory Management.....	7
2.2.1	Environment	7
2.2.2	Regulatory Management	8
2.3	First Nations	8
2.4	Stakeholder Engagement	9
2.5	Resolutions from Other Governments	10
2.6	Schedule.....	10
2.6.1	30 day look ahead.....	12
2.6.2	60 day look ahead.....	14
2.7	Cost Management and Forecast	18
2.7.1	Commitments	18
2.7.2	Expenses and Invoicing	18
2.7.3	Contingency and Program Reserves	18
2.7.4	Project Funding.....	18
2.8	Key Risks and issues	19
2.9	Status (Engineering, Procurement and Construction)	24
2.9.1	Wastewater Treatment Plant (McLoughlin Point WWTP)	24
2.9.2	Residual Solids Treatment Facility.....	27
2.9.3	Conveyance System	30
Appendix A- Construction Notice- Residual Solids Conveyance Line: Interurban Road Pump Station (Aug 9, 2019)	44	
Appendix B- Construction Notice- Macaulay Force main Installation: Bewdley Avenue Update (August 12, 2019)	45	
Appendix C- Construction Notice- Residual Solids Conveyance Line: Marigold Road (August 16, 2019)	46	
Appendix D- Clover Force main Progress Map (August 14, 2019)	47	
Appendix E- Residual Solids Conveyance Line Progress Map (August 23, 2019).....	48	
Appendix F- Monthly Cost Report (August)	49	

1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of August 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: marine outfall pipe anchor protection and rock reef construction; off-site utilities; concrete pouring in the Operations and Maintenance building and the Process building; and electrical and piping installation in the Process building.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing design and construction activities including: completing the Issued for Construction (IFC) drawings; completed construction of the Digested Solids Storage Tank; continued equipment installation and erecting structural steel for the Residuals Handling Building; continued installation of the process mechanical piping in the Other Municipal Solids Receiving Facility; and slabs poured for the water storage tank, water pump house, and foundation of the Residuals Effluent Storage Tank and Equalization Building.

The Conveyance System is anticipated to be 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 design and construction activities over the reporting period including: continued to assess outstanding design comments before submitting the final Issued for Construction (IFC) package; shop drawing reviews in advance of equipment deliveries; process piping and electrical installations; and installation of the roofing membrane.
- Macaulay Point Pump Station and Force main: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed design and construction activities over the reporting period including: continued assessment of outstanding design comments before submitting the final IFC package; shop drawing reviews in advance of equipment deliveries; installation of approximately 155m of force main (on Bewdley Ave from Anson

to Peter Streets); and forming and pouring of concrete for exterior walls and interior slabs.

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

- Clover Forcemain: Windley Contracting Ltd. (“Windley” as the Construction Contractor) completed the installation of the forcemain through the following activities: installation of approximately 160m of forcemain (from Olympia Ave to Douglas St.); filled and tested the Ogden Point section of the forcemain; completed final watermain connection at Dallas Road and Paddon Avenue including reconnection of residential water services; and completed all sanitary and storm sewer relocations.
- Residual Solids Conveyance Line (“RSCL”): The RSCL is being delivered through three construction contracts, with work progressing as follows:
 - RCSL 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 1.7 km of pipes.
 - RCSL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including installation of 630m of pipes on Willis Point Road; site preparation work at Pump Station No. 2 and 3, and commencing construction of the Colquitz Creek crossing.
- Arbutus Attenuation Tank (“ATT”): North American Constructors Ltd. (“NAC” as the Construction contractor for the Arbutus Attenuation Tank) continued excavation of the tank area to prepare a working pad for the secant piling equipment, completed dewatering test wells, and commenced drilling and concrete placement for the secant piles.
- Trent Forcemain: Stantec (as the design consultant for the Trent Forcemain) progressed the design by implementing CRD and City of Victoria comments and developing the Issued for Tender documents.

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 1.6 at the end of the last report period (July 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. 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 Projects budget by \$10M to \$775 M.

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*.	Yellow	Green	Green	Yellow	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.	Green	Green	Green	Green	An environmental incident occurred over the period: while preparing to install the Residual Solids Conveyance Line under the Colquitz River there were sediment releases associated with the contractor's isolation and dewatering efforts that resulted in short-term increases in turbidity. The water quality has remained within BC Water Quality Guidelines, but instream work has been temporarily-suspended while the construction plan is revised.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.	Green	Green	Green	Green	No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.	Green	Green	Green	Yellow	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.	Green	Green	Green	Green	No schedule issues.
Cost	Deliver the Project within the Control Budget (\$765 million).	Red	Green	Green	Red	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
Red	KPI unlikely to be met
Yellow	KPI at risk unless correction action is taken
Yellow	KPI at risk but corrective action has been identified/is being implemented
Green	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 Force main, Residuals Solids Pump Stations, Residuals Solids Pipes and Arbutus Attenuation Tank.

18 safety incidents occurred during the month of August: 3 near-miss, 1 first-aid, and 14 report-only. 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
August 2, 2019	McLoughlin Pt WWTP	Near Miss	Kevlar sling failed during one of the test lifts conducted prior to lifting/lowering pipe section into the trench with an excavator on Peter Street	The sling was new and within the load rating for the lift. Rigging re-configured to remove interaction between Kevlar slings and any bucket edges.	Additional test lifts performed prior to final lift/lower. Review of proper rigging with Kevlar slings was undertaken with the crew.
August 6, 2019	McLoughlin Pt WWTP	Near Miss	Worker dropped nail puller from pouch when coming down a ladder.	The tool dropped approximately 25 feet into lower BAF gallery and approximately 4 feet from the worker below.	Tool-box discussion re: the importance of the proper securing of tools when carrying them up/down ladders.
August 11, 2019	McLoughlin Pt WWTP	Report Only	Worker felt pain in left arm but did not report pain until the following day,	No First Aid treatment rendered.	Tool-box talk on reporting injuries the day of incident.
August 12, 2019	McLoughlin Pt WWTP	First Aid	Worker received a hand injury while cutting a piece of Deck	Leather gloves were cut which caused a small laceration to right index finger. First Aid was rendered and bandage was applied.	Tool-box talk to discuss assessing hazards in close proximity when working around sharp edges.
August 13, 2019	McLoughlin Pt WWTP	Report Only	Worker struck hand while installing rebar	Hand became swollen. Worker was wearing gloves at time of incident.	Workers reminded to be aware of where their hands are in proximity to fixed objects or pinch points.
August 13, 2019	RCSL200	Report Only	An excavator came into contact with a communications line.	There was no observable damage to the lines and no repair was required.	Tool-box talk with crew in regards to working in close proximity to Utility lines and the need to have a spotter.
August 14, 2019	RCSL 100	Report Only	Crew hit a communication line that was not shown on the utility locates plan.	Communications line and conduit repaired by Utility Company.	Communication line location was added to the utility locates plan.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
August 14, 2019	Macaulay Point Pump Station	Report Only	A laborer from a temporary labor company became aggressive with the site superintendent	The worker was removed from site and proceeded to damage the sub-contractors property. Police were called to prevent any further incident or property damage by individual.	Labor company was notified and worker permanently removed from the project site and from their employment
August 15, 2019	McLoughlin Pt WWTP	Report Only	A subcontracted worker fell forward approximately 3 feet off of a small concrete wall into a handrail.	Worker struck the back of their head on the concrete wall edge resulting in laceration that needed medical attention.	Worker was requested to perform a Drug and Alcohol test. No results were provided by the sub-contractor. The worker did not return to the McLoughlin site. Tool-box talk to bring awareness to the incident and to ensure workers remain aware of their surroundings was held.
August 19, 2019	RCSL100	Report Only	While installing the RSCL two workers were exposed to a small amount of material which sloughed into the excavation which was less than one meter deep.	No one was injured and the workers were able to safely remove the material. A Geotechnical report had been completed prior to work commencing. There was no requirement for a shoring cage to be used.	Sloughed material was removed from excavation A secondary Geotechnical Assessment performed and work was approved to continue.
August 19, 2019	McLoughlin Pt WWTP	Report Only	Top of excavator boom made contact with overhead cable line while moving.	The boom caught the low hanging line. Line was immediately repaired.	Tool-box talk discussing the need for spotters when moving equipment
August 21, 2019	RCSL200	Report Only	An equipment operator was stung by a wasp and had an allergic reaction to the sting	Ambulance was called to check on the operators well being	Tool-box talk to discuss what to do in the event of an allergic reaction
August 21, 2019	McLoughlin Pt WWTP	Report Only	Worker dropped a bolt from approximately 20 feet up a wall panel to a catwalk below.	The bolt fell to a lower elevation making contact with another worker's arm on the way down. No injuries were sustained.	Verbal warning issued to worker for not controlling overhead hazard Control zone established on catwalk in the event anything was to fall Tool-Box talk to discuss the hazards of objects falling from overhead
August 21, 2019	RTF	Report Only	A waterline was being filled to prepare for a line test when water began flowing out of the end cap on a valve.	Cap was re-secured correctly to prevent a release of water during test	Tool-Box talk outlining importance of following test procedures was held.
August 22, 2019	RCSL100	Report Only	Gas line was struck during excavating.	Inaccurate Utility Locates Plan had been provided to the Contractor by the locate company. Fire Department and Police attended to secure the area. Fortis immediately called to fix damaged gas line	Fortis performed a secondary Utility Locates for Prime Contractor to ensure the correct location of other lines had been established

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
August 26, 2019	RCSL200	Near Miss	Traffic Control Person did not have proper control of the traffic in the area of the worksite. A near miss occurred when a vehicle travelling east on Willis Point Road changed lanes to avoid an excavation and moved into the oncoming traffic lane.	The Traffic Control Person was wearing a hoodie that blocked their peripheral vision, and was holding their sign incorrectly confusing traffic.	The incident was reported to Prime Contractor Situation was discussed with the Traffic Control Supervisor and the employee. A senior Traffic Control Person was assigned to manage the area.
August 26, 2019	McLoughlin Pt WWTP	Report Only	Worker felt pain in knee after climbing formwork and reported to First Aid.	Knee was assessed with no treatment provided, the worker returned to work.	Tool-box talk with crew in regards to micro-stretching before climbing or performing awkward tasks
August 27, 2019	RCSL 100	Report Only	Backhoe reversed onto uneven ground near a trench. The right rear wheel slid into the trench causing the backhoe to tip.	Worker was wearing their seatbelt and was able to exit the cab. Worker received a medical assessment, no further treatment was required.	Backing procedure updated to emphasize the hazards of operating equipment near an open excavation. Tool-box talk with crews on the importance of wearing seatbelts.

Key safety activities over the period:

- closed out quality assurance audit with Windley on the Clover Force main
- hosted CRD WWTP Prime Contractors Safety Meeting
- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP and Knappett and NAC
- weekly project update meetings with prime contractors: HRMG;
- incident investigations review;
- sent out a “Safety Recall” Notice;
- reviewed site specific safety plans and high risk tasks; 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 (August 2019)	Project Totals
Person Hours		
PMO	3 543	113 920
Project Contractor	85 475	972 980
Total Person Hours	89 018	1 086 900
PMO	32	
Project Contractors (& Project Consultants) working on Project Sites	511	
Total Number of Employees	543	
Near Miss Reports	3	30
High Potential Near Miss Reports	0	
Report Only	14	84
First Aid	1	30
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		5.5
Medical Aid Frequency		0.9
Lost time Frequency		0.6
Total Recordable Incident Rate		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.

Key environmental management activities completed in August included:

- Stantec completed an Overflow Environmental Impact Study (EIS) for submission as part of the Project's application for registration under the Municipal Wastewater Regulation. The Overflow EIS evaluates the environmental impact of overflows from the CRD's conveyance system following completion of the WTP. Through the construction and operation of the Project components the CRD will reduce the number of overflow locations and the frequency of overflow events. When overflows do occur they are not expected to result in significant effects;
- McElhanney Consulting Services (as the qualified environmental professional for Knappett, the Construction Contractor for Residual Solids Pump Stations) completed fish

salvage from the Colquitz Creek prior to construction of the crossing.

An environmental incident occurred over the period. Knappett (the Construction Contractor for Residual Solids Pump Stations), was preparing to install the Residual Solids Conveyance Line under the Colquitz Creek and experienced challenges with dewatering and isolation of the work area, leading to sediment releases that resulted in short-term increases in turbidity. The sediment releases were reported to federal and provincial authorities and instream work has been temporarily-suspended while the construction plan is revised.

The water quality remained within BC Water Quality Guidelines, and due to the short duration of the turbidity increases, it is unlikely that there were any adverse effects on fish or fish habitat. The remaining work is anticipated to take approximately one week to complete, and regular water quality monitoring will continue while the work is suspended and until the work is complete.

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 August included:

- The CRD, Stantec and HRP continued to complete deliverables for the MWR Registration, for submission to the BC Ministry of Environment and Climate Change Strategy (ENV).

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 have been no changes to Table 4 from that in the Project's July 2019 Monthly Report.

Table 4- Key Permits Status

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

Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations along the Clover forcemain route and 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, Paquachin, 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, and a meeting has been scheduled for October.

Additionally, the WSÁNEĆ Leadership Council requested a meeting with the CRD to discuss cultural monitoring during construction of the RSCL, and a meeting has been scheduled for September. On August 13th the Tsartlip Nation demonstrated at the Hartland Landfill to highlight WSÁNEĆ Nations concerns regarding cultural monitoring during construction of the RSCL.

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

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

- Residual Solids Conveyance Line: Interurban Road Pump Station (August 9, 2019) (Appendix A);
- Macaulay Forcemain Installation: Bewdley Avenue Update (August 12, 2019) (Appendix B); and
- Residual Solids Conveyance Line: Marigold Road (August 16, 2019) (Appendix C).

The Project Team hand delivered the three construction notices to residents in close proximity to the work for these segments of the Project. A letter regarding a temporary truck traffic route change was also delivered to 52 residences in Esquimalt near the Macaulay Point and McLoughlin Point construction sites.

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project. Three construction notices were posted. The photo gallery section was updated with additional photos. Maps showing the progress of construction along the Clover Force main (Appendix D) and the Residual Solids Conveyance Line (Appendix E) were updated regularly, noting the Clover Force main installation was completed mid-August.

The CRD's Twitter account was used to provide Project updates on construction activities.

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; and
- Greater Victoria Harbour Authority.

Public Inquiries

Table 5 – Project Inquiries- August 2019

Inquiry Source	Contacts for August
Information phone line inquiries	31
Email inquiries responded to	18

Key themes of the public inquiries were as follows:

- Concerns about noise from traffic travelling over the temporary road surface (steel plates and gravel) on Grange Road;
- Questions about timeline for restoration along the RSCL and Clover Force main; and
- Questions about Willis Point Road traffic wait times.

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 August. 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 remains the same as that shown in the July 2019 Monthly Report, however 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 (September) are outlined below by function

Safety

- CRD prime contractor safety quality assurance close out audit with the Residuals Treatment Facility Prime Contractor;
- 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;
- 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 to submit MWR Registration application.

First Nations

- ongoing meetings with the Esquimalt and Songhees Liaisons; and
- meeting with WSÁNEĆ Leadership Council to discuss concerns regarding the use of WSÁNEĆ cultural monitors during RSCL construction.

Stakeholder Engagement

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

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare for Q3 financial close and interim audit; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue concrete walls and suspended slabs in all areas;
- continue installation of bypass piping;
- continue installation of cable trays;
- install steel supports for walkways and equipment;
- install exhaust fans and unit heaters in secondary treatment;
- install process equipment in BAF area;
- install pipe rack and backwash air piping header in BAF gallery;
- install structural steel and deck in blower and heat recovery rooms;
- install boilers and buffer tank in heat recovery room;
- install storage tanks in level one tertiary pump room;

- install programmable logic controllers, interior switchgear, variable frequency drives and Air Conditioning units in the electrical room;
- install doors and miscellaneous metal works in the electrical room;
- install exterior transformers and switchgear; and
- install exterior doors, steel stud framing and construct interior masonry walls.

Clover Point Pump Station

- place storm water pumps;
- install and test bypass pumping system;
- install screening area bin room walls and suspended slab;
- commence installation of exterior north retaining walls;
- commence installation of check valves, knife gate valves in pump room;
- install air handling unit;
- commence installation of discharge piping; and
- commence installation backwash and surge piping.

Macaulay Point Pump Station

- continue forming, rebar and pouring walls and suspended slabs;
- commence installation of wet well, pump room, and screen room platforms and walkways;
- install discharge header;
- install slide gates in effluent channels;
- continue forcemain installation on Bewdley Street between Anson and Peters Streets; and
- re-instate asphalt and concrete curbs on Anson Street.

Residuals Treatment Facility

- prepare base for Administration Building;
- continue equipment installation in Residuals Drying Facility;
- form and pour concrete slab for Water Pump House and Odour Control;
- commence installation of cladding, doors and roof at the Residuals Handling Building;
- commence erection of Residual Solids Tanks 1 and 2; and
- commence erection of Residual Effluent Holding Tank and fire/potable water tank.

Clover Force main

- continue with paving of the cycle path;
- complete installation of transition tie-in to under harbour crossing pipe;
- clear and grub cycle track at foot of Douglas Road; and
- curb and gutter installation and base course paving from Douglas Road to Clover Point.

Residual Solids Conveyance Line

- continue installation of RSCL at Craigflower Road and Arm Street to Selkirk Avenue;
- continue installation of RSCL on Interurban Road between Grange and Roy Roads;
- continue installation of RSCL on Grange Road from Lavender Ave to Interurban Rd; and
- continue installation of RSCL on Interurban Road from Hector Rd. to Camosun College.

Residual Solids Pump Stations and Bridge Crossings (RCSL 200)

- complete construction of the RSCL crossing of the Colquitz Creek;
- commence install of RSCL on Interurban Rd from Grange to Marigold Rd; and from Colquitz Creek to Grange Road;

- commence installation of RSCL at pump station #2 and pump station #3;
- continue with construction of pump station #3;
- commence excavation at pump station #2;
- excavation and removal of archaeological soils at pump station #1;
- commence installation of the RSCL crossing of the Tillicum Bridge; and
- commence construction of the RTF water supply main.

Arbutus Attenuation Tank (AAT)

- installation of well system for dewatering;
- continue ongoing drilling operation for secant piles; and
- continue ongoing concrete pour operations for reinforced and plain secant piles.

Engineering

McLoughlin Point WWTP

- submit revised Training Plan.

Clover Point Pump Station (CPS)

- finalise Issue for Construction (IFC) submission.

Macaulay Point Pump Station (MPS)

- finalise Issue for Construction (IFC) submission.

Trent Force main (TFM)

- finalise Issue for Tender (IFT) submission.

Procurement

Trent Force main

- Issue Invitation to Tender

2.6.2 60 day look ahead

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

Safety

- attend CRD corporate occupational health and safety coordination committee 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 to meet with ENV to discuss MWR Registration application and determine if ENV requires any additional information or clarifications.

First Nations

- CRD and HRMG to meet with the WSÁNEĆ Technical Advisory Committee to discuss the Technical Assessment Report and construction and operation of the RTF.

Stakeholder Engagement

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

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare Q3 financial close reporting;
- prepare for interim audit; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- install raw sewage influent piping;
- install pig receiver upstream piping and harbour crossing connection;
- install planter wall #1 and #2 and tsunami wall #5;
- install odour control walls, roof slab and stairs;
- hydro test Densadeg 2 and 3;
- install supports for Suez walkways and equipment;
- install influent slide gates;
- continue with secondary area walls and slabs;
- install unit heaters and air handling units in secondary treatment;
- install miscellaneous metals and structural steel decking in blower room;
- install cable trays in heat recovery room;
- continue construction of tertiary walls and slabs;
- install motor control centres, uninterrupted power supply and programmable logic controllers in electrical room;
- install doors and glazing in electrical room;
- continue with Operations and Maintenance(O&M) building walls, columns and slabs;
- install O&M exterior doors, steel stud framing, exterior sheathing and masonry block walls; and
- install insulation, drywall, suspended ceilings, and flooring in O&M building north.

Clover Point Pump Station

- continue installation of 1200mm forcemain;
- install pig launching chamber;
- commence installation of 1500mm gravity inlet sewer;
- install building envelope and exterior finishes to washroom;
- install exterior north retaining wall;
- install concrete pipe supports in pump room;
- install doors in new pump station;
- install knife gates valves and check valves in pump room;
- place storm pumps;

- install air handling unit;
- install backwash and surge piping;
- install discharge piping to header; and
- install electrical and controls for storm pumps.

Macaulay Point Pump Station

- backfill structure to elevation -1.0m;
- continue construction of walls and slabs;
- install double T precast roof;
- install miscellaneous metal stairs, grating and walkways;
- install exterior cross laminated timber (CLT) walls and partitions;
- install discharge header;
- install slide gates in influent channels;
- install monorail and cranes in pump room, bin room and odour control room; and
- install forcemain to Peter Street including the tie in and connection.

Residuals Treatment Facility

- commence construction of Operations Building;
- piping installation at Other Municipal Solids Receiving Facility;
- cladding installation and building systems installations at the Residuals Handling Building;
- erect pre-engineered building structural steel at the Dryer Building;
- commence erection of Digester 3;
- continue erection of Residual Solids Tanks 1 and 2; and
- continue erection of Residual Effluent Holding Tank and fire/potable water tank.

Clover Forcemain

- Dallas Road reconstruction between Ogden Point to Douglas Street;
- cycle track construction in Areas 3 and 4;
- complete installation of transition chamber at harbour crossing; and
- complete City of Victoria watermain lining.

Residual Solids Conveyance Line

- install line valves and low point drain valves;
- complete installation of RSCL from Arm Street to Selkirk Avenue;
- continue installation of RCSL on Interurban Road (from Grange Road working north to Roy Road); and
- continue installation of RCSL on Interurban Road (from Hector Road working south to Alan Road)

Residual Solids Pump Stations and Bridge Crossings (RCSL 200)

- installation of RCSL on Marigold Street from Colquitz Creek to Marigold Pump Station and from Colquitz Creek to Grange Road;
- complete installation of RSCL at pump station #2 and pump station #3;
- pump station #3 final backfill, site grading and road construction;
- pump station #3 electrical installation;
- construct pump station #2 retaining wall;
- install pump station #2 underground electrical;
- install process mechanical and water service at pump station #2;
- continue with substructure construction at pump station #1;

- Marigold Control Valve Chamber complete cast in place foundation;
- Marigold control valve Chamber install suspended slab; and
- commence installation of support and piping under the Tillicum Bridge;

Arbutus Attenuation Tank (AAT)

- commence installation of sanitary piping and manholes to facilitate bypass pumping and overflow routing;
- installation of temporary overflow chamber and metering system;
- continue ongoing drilling operation for secant piles;
- continue ongoing concrete pour operations for reinforced and plain secant piles; and
- commence excavation for valve chamber and install formwork.

Procurement

Trent Force main

- review and respond to tender inquiries, and issue addenda; and
- receive tender submissions and commence tender evaluation.

2.7 Cost Management and Forecast

The monthly cost report for August 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 over the reporting period (on August 14, 2019) the associated amendment to the 2019-2023 Financial Plan was approved. Appendix F includes the approved \$10M increase to the current budget.

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 \$584k . The significant commitments made in the reporting period were contract change orders and the approval of provisional items in contracts.

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

There were no contingency or program reserve draws over the reporting period. The 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
Contingency and Program Reserve (in Control Budget)		\$ 69,318,051
Contingency and Program Reserve Draws to July 31, 2019		\$ (56,685,955)
Contingency and Program Reserve addition (May 2019)		\$ 10,000,000
Contingency and Program Reserve balance as at Aug 1, 2019		\$ 22,632,096
Contingency and Program Reserve draws in the reporting period		\$ -
Contingency and Program Reserve balance as at Aug 31, 2019		\$ 22,632,096

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	-	\$61.3M
Government of Canada (Green Infrastructure Fund)	\$50M	\$2.3M	\$25.5M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	-	-
Federation of Canadian Municipalities	\$346K	-	-
TOTAL	\$459.3M	\$2.3M	\$86.8M

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 July 2019 Monthly Report

Table 8- Project Active Risks Summary

Project	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
	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.	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. 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.	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
McLoughlin Point Wastewater Treatment Plant		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
Conveyance	Unexpected contaminated soil conditions during excavation.	Site has more contaminated soils than initial assessment.		L
		Geotechnical conditions result in redesign and/or higher construction cost than budgeted.		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
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 Force main). 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 Force main), 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



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: marine outfall pipe anchor protection and rock reef construction; off-site utilities; concrete pouring in the Operations and Maintenance building and the Process building; and electrical and piping installation in the Process building.

Engineering

HRP held monthly progress meetings with the Independent Certifier during the reporting period.

Construction

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

- commenced structural steel erection in heat recovery room;
- commenced steel stud framing in electrical room;
- installed exterior sheathing on electrical room;
- installed masonry block walls in Operations & Maintenance building;
- Peter Street reopened to traffic;
- blower room slab poured;
- west entry slab poured;
- work commenced on fine screen channel walls;
- 30" BAF backwash water piping installed;
- benching in Densadeg 1 commenced;
- commence BAF cell toppings; and
- continued installation of forcemain pipe in Patricia Way.

Photographs of construction progress at McLoughlin Point are shown in Figures 2-6.

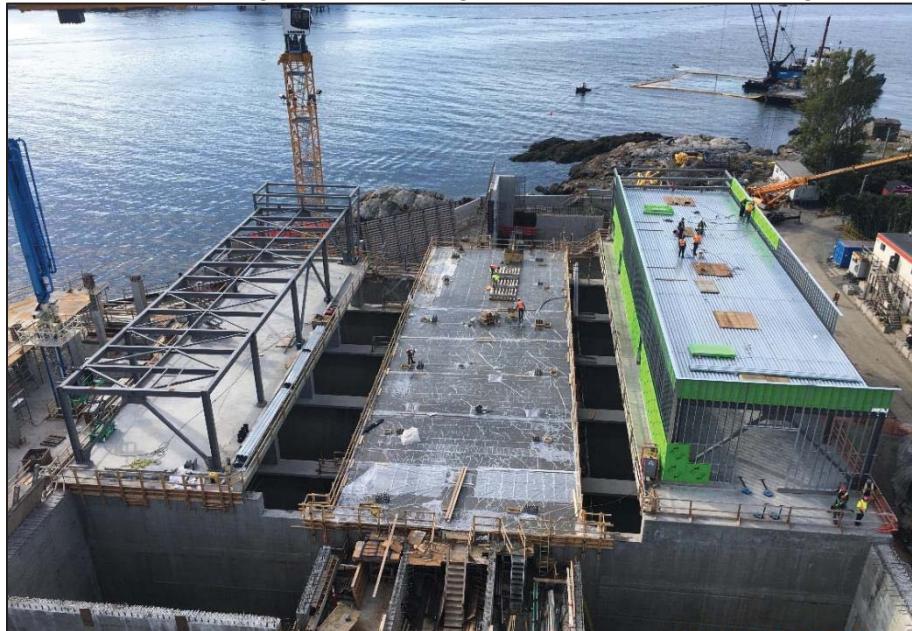


Figure 2- McLoughlin Point Wastewater Treatment Plant- View of secondary treatment from tower crane B.



Figure 3– McLoughlin Point Wastewater Treatment Plant- View of operations and maintenance building from tower crane B.

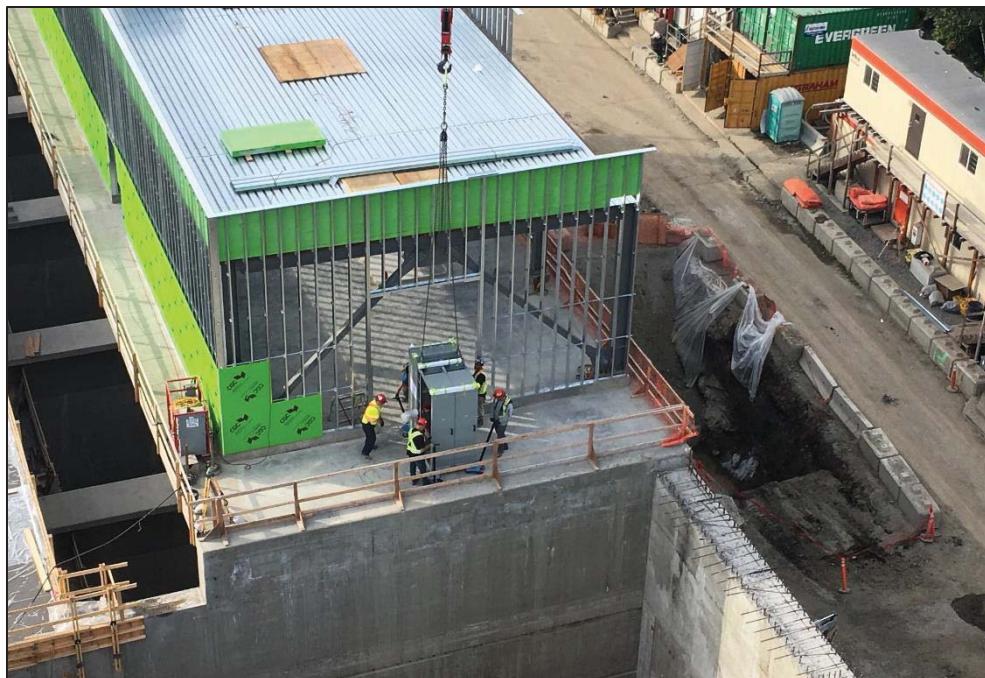


Figure 4– McLoughlin Point Wastewater Treatment Plant- Lifting motor control centres into electrical room.

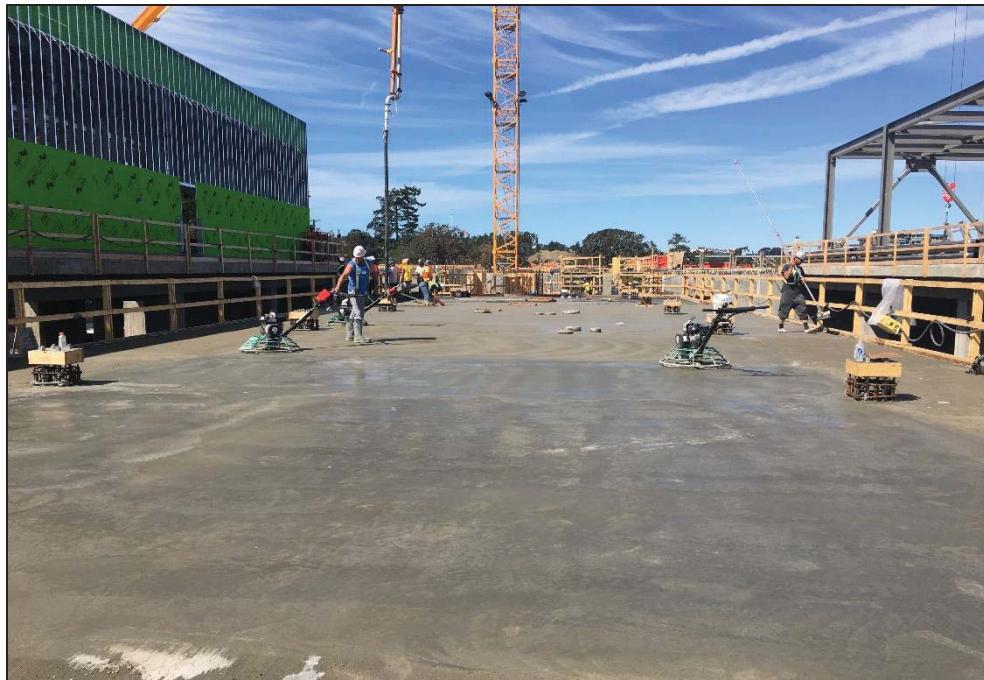


Figure 5– McLoughlin Point Wastewater Treatment Plant- Pouring and finishing BAF blower room slab.



Figure 6– McLoughlin Point Wastewater Treatment Plant- Installing exterior sheathing for electrical room and room parapet.

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 design and construction activities including: completing the Issued for Construction (IFC) drawings; completed construction of the Digested Solids Storage Tank; continued equipment installation at the Residuals Handling Building; continued installation of the process mechanical piping in the Other Municipal Solids Receiving Facility; and slabs poured for the water storage tank, water pump house, and foundation of the Residuals Effluent Storage Tank and Equalization Building.

Engineering

HRMG progressed planning and design activities during the reporting period including:

- Submission of the Issued for Construction (IFC) drawings;
- monthly progress meetings with independent certifier; and
- working on resolution of outstanding minor design items.

Construction

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

- commenced digest 1 piping;
- completed erection of digester 2;
- completed erection of Digested Solids Storage Tank;
- completed the Digester Building foundation;
- continued installation of process mechanical piping in Other Municipal Solids Receiving Facility;
- commenced masonry block walls at the Residuals Handling Building;
- continued equipment installation at the Residuals Handling Building;
- completed steel erection at the Residuals Drying Facility;
- poured concrete foundations for Residuals Effluent Storage Tank and Equalization Building;
- continued reinforcing steel installation for the foundation slab of the Water Storage Tank;
- base slab was poured for the Water Storage Tank; and
- water pump house base slab was poured.

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



Figure 7– Residuals Treatment Facility- Crews installing dust collection cyclones in dryer building.



Figure 8– Residuals Treatment Facility- Masonry block wall construction ongoing in residuals handling building.



Figure 9– Residuals Treatment Facility- Installation of mechanical piping for centrifuges ongoing.



Figure 10– Residuals Treatment Facility- Installation of screw conveyors and mechanical piping for gravity belt thickeners.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed design and construction activities over the reporting period including: continued to assess outstanding design comments before submitting the final Issued for Construction (IFC) package; shop drawing reviews in advance of equipment deliveries; process piping and electrical installations; and installation of the roofing membrane.

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

- pump, odour control, and screening rooms electrical installation ongoing;
- commenced interconnecting cable installation for the motor control centres;
- installed lighting and control panels in the transformer and electrical rooms;
- installation of the storm and sanitary process piping and headers ongoing;
- commenced wet well sand blasting and waterproof coating;
- roof membrane installation is ongoing; and
- Miscellaneous metal installation is ongoing throughout the pump station.

Photographs of construction progress at Clover Point are shown in Figures 11-14.

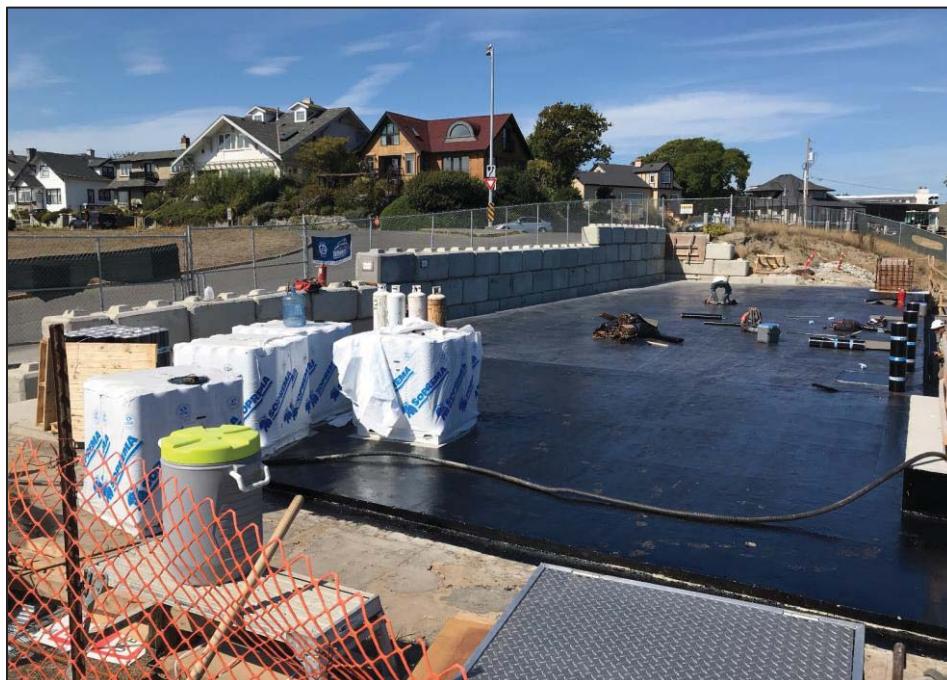


Figure 11—Clover Point Pump Station- roofing material being applied to new pump station roof.

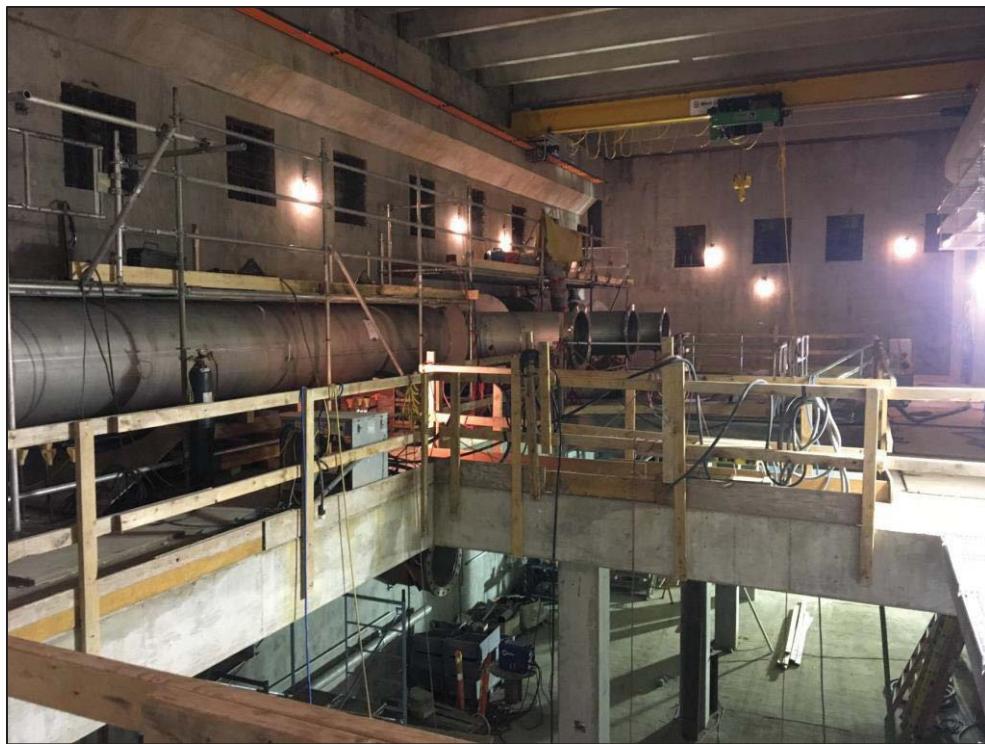


Figure 12–Clover Point Pump Station- upper pump room south view.



Figure 13–Clover Point Pump Station- odour control and screening room.



Figure 14–Clover Point Pump Station- inside the electrical room.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed design and construction activities over the reporting period including: continued assessment of outstanding design comments before submitting the final IFC package; shop drawing reviews in advance of equipment deliveries; installation of approximately 155m of forcemain (on Bewdley Ave from Anson to Peter Streets); and forming and pouring of concrete for exterior walls and interior slabs.

More specifically, key construction activities in progress or completed by Kenaidan over the reporting period were as follows:

- slide gates delivered to site;
- vortex slab and walls poured;
- generator suspended slab formwork completed;
- screen room slab poured; and
- forcemain progressed 155m on Bewdley Ave from Anson Street to Peter St. providing for a total installed length to the end of August of 500m.

Photographs of construction progress at Macaulay Point are shown in Figures 15-16.



Figure 15—Macaulay Point Pump Station- Macaulay forcemain progressing east on Bewdley St to Peter St.

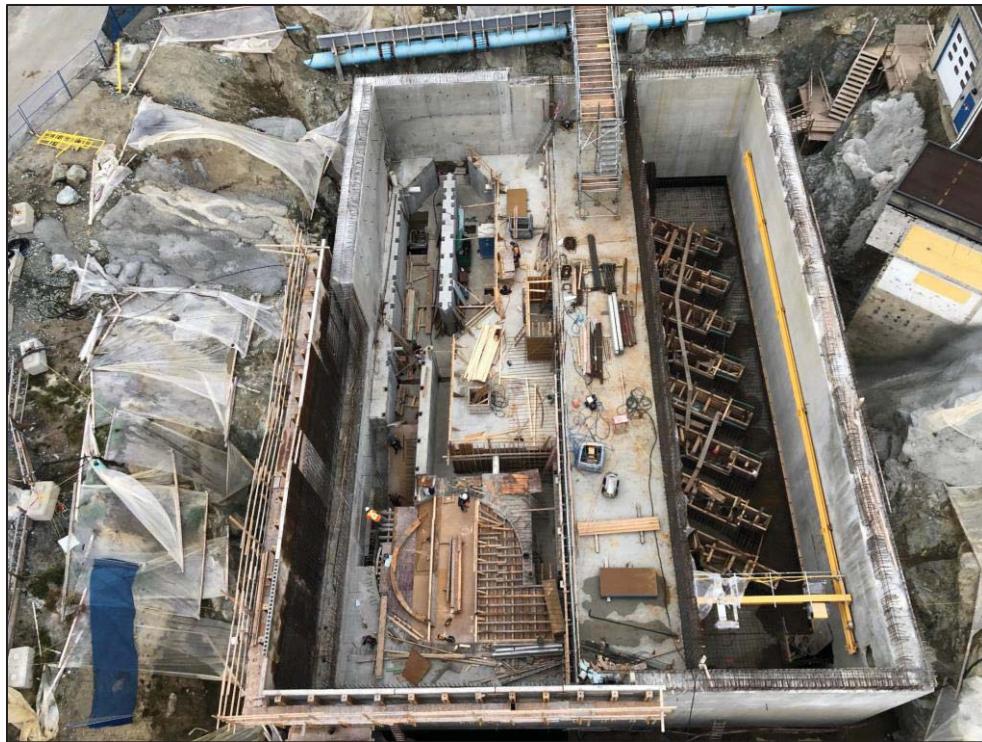


Figure 16—Macaulay Point Pump Station- pump station progression facing east.

2.9.3.3 Clover Force main (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) completed installation of the forcemain.

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

- advanced the forcemain 160m from Olympia Avenue to Douglas Street and completed the forcemain installation on August 15, 2019;
- filled and tested the Ogden Point section of the forcemain;
- completed final watermain connection at Dallas Road and Paddon Avenue including residential service transfers;
- cycle track preparation from Clover Point west; and
- completed all sanitary and storm sewer relocations.

Photographs of construction progress on the Clover Force main are shown in Figures 17-20.



Figure 17—Clover Force main-Ogden Point - Weld-Neck Flange and transition chamber.



Figure 18—Clover Force main- Dallas Road curb and gutter installed



Figure 19—Clover Force main—commence excavation for City of Victoria sanitary main relocates.



Figure 20—Clover Force main-Curb and gutter string set.

2.9.3.4 Residual Solids Conveyance Line

The RCSL is being delivered through three construction contracts:

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

RCSL 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 approx. 1.7 km of pipes at the following locations:

- Segment #1: Head St to Gore Street;
- Segment #2: Grange Road from Violet Ave to Gardenia Court;
- Segment #3: Interurban Road from Quayle Road to Goward Road;
- Segment #3: Interurban Trail from Goward Road working north; and
- Segment #4: Interurban trail Hartland Ave to Prospect Lake Drive.

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



Figure 21—Residual Solids Conveyance Line- Compaction tests on Lyall Street.



Figure 22—Residual Solids Conveyance Line- Ongoing backfill and compaction on Interurban Trail running parallel with West Saanich Road.



Figure 23—Residual Solids Conveyance Line- Ongoing backfill and compaction in front of Red Barn Market.



Figure 24-Residual Solids Conveyance Line- In ditch fusion welds completed at Interurban Trail.

RCSL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including installation of 630m of pipes on Willis Point Road.

More specifically, key construction activities by Knappett over the reporting period were as follows:

- continued installation of RSCL along Willis Point Road;
- installed pre-cast concrete wet well barrels at pump station #3;
- commenced construction of access road for pump station #3; and
- mobilised crews to Colquitz Creek and commenced RSCL crossing.

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



Figure 25–Residual Solids Pump Stations and Bridge Crossings –performing a compaction test on Pump Station #2 haul road.



Figure 26 –Residual Solids Pump Stations and Bridge Crossings- Adjusting and stabilizing road plates on Willis Point Road



Figure 27–Residual Solids Pump Stations and Bridge Crossings – Backfilling the Residual Solids Force main at Pump Station 1 in lifts.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) has excavated a portion of the tank area in order to facilitate construction and installation of secant piles. Drawdown testing has been completed using four installed wells, these will then be used for the dewatering system.

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



Figure 28–Arbutus Attenuation Tank- Drilling operation of Secant Pile



Figure 29– Arbutus Attenuation Tank – Placing concrete in Pile 85A

2.9.3.6 Trent Force main

Stantec (as the design consultant for the Trent Force main) progressed the design process as follows:

- implemented CRD and City of Victoria review comments;
- continued developing the Issued for Tender documents; and
- updating geotechnical, arborist and environmental reports.

Appendix A- Construction Notice- Residual Solids Conveyance Line: Interurban Road Pump Station (Aug 9, 2019)



August 9, 2019

Residual Solids Conveyance Line: Interurban Road Pump Station

Three small pump stations are being built along the route of the Residual Solids Conveyance Line for the Wastewater Treatment Project. These pump stations will move residual solids from the McLoughlin Point Wastewater Treatment Plant to the Residuals Treatment Facility at Hartland Landfill for treatment. The contractor, Knappett Projects Inc., is beginning to mobilize and prepare for construction of the pump station located at Interurban Road and Courtland Avenue. This work is anticipated to be complete by spring 2020.

Pump Station Locations

- Interurban Road and Courtland Avenue
- Interurban Rail Trail near West Saanich Road and Observatory Road
- Willis Point Road within the footprint of the Hartland Landfill

What to Expect

- Locating existing utilities within the work area.
- Relocating the existing water main around the pump station site.
- Archaeological work by Millennia Research.
- Installing construction fencing and screening around the perimeter of the work area.
- Establishing a temporary laydown area.
- Site clearing and excavation.
- Rock encountered will be removed by blasting or mechanical means.
- Construction of below and above ground components.
- Site restoration and landscaping
- Noise associated with this work includes excavation, rock removal machinery and truck back-up beepers.

Traffic Impacts

- There will be single lane alternating traffic during work hours on Interurban Road near Courtland Avenue for water main relocation.
- During pump station construction there will be occasional single lane alternating traffic when required.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

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.

Background

Construction of the Residual Solids Conveyance Line is progressing well with over 50% of the pipes installed (see map on reverse). 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.

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



24/7 Phone Line
1.844.815.6132



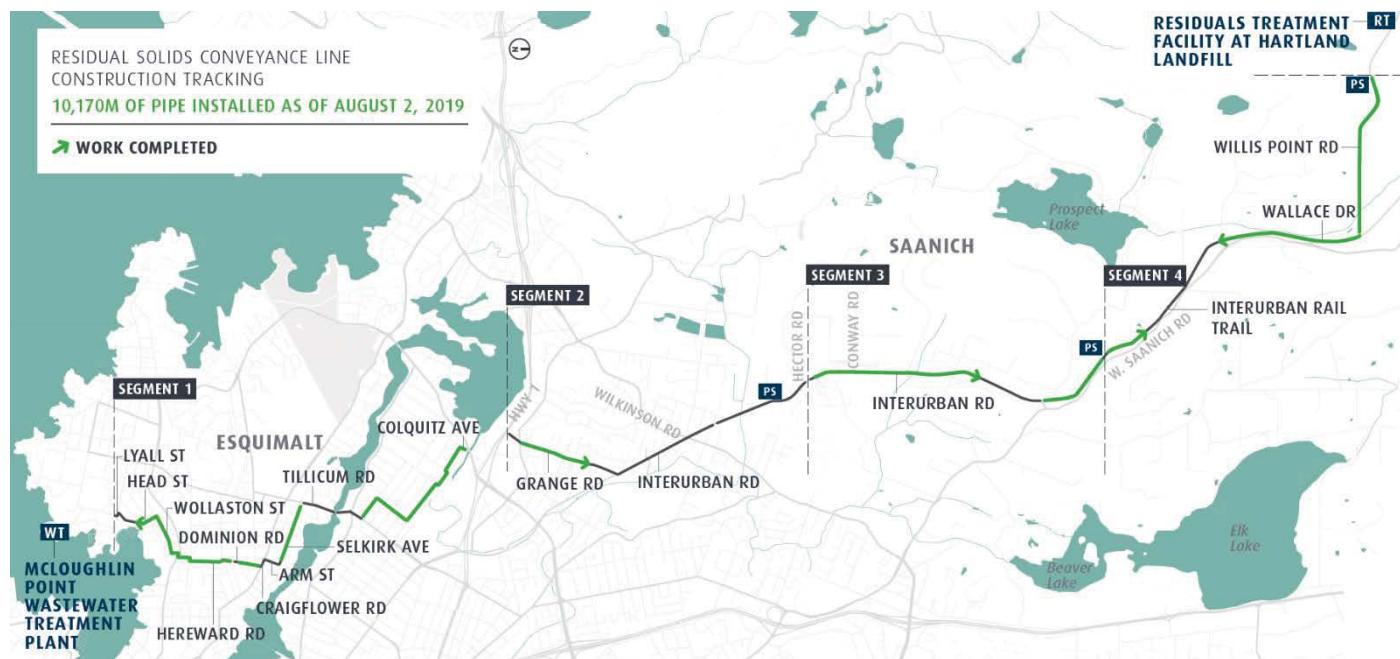
Email
wastewater@crd.bc.ca



Website
wastewaterproject.ca



Artist rendering of the pump station to be located at Interurban Road and Courtland Avenue.



Progress map of Residual Solids Conveyance Line

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.

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

- Residual Solids Conveyance Line: Marigold Road (August 16, 2019) (Appendix C).

Appendix B- Construction Notice- Macaulay Force main Installation: Bewdley Avenue Update (August 12, 2019)

UPDATE

August 12, 2019

Macaulay Forcemain Installation: Bewdley Avenue

Construction of the Macaulay Forcemain is anticipated to progress onto Bewdley Avenue the week of August 19. Due to the alignment of the pipe near the centre of the road, the contractor, Kenaidan Contracting Ltd., will build a temporary road on the south side to provide driveway access for local residents only. Bewdley Avenue will be closed to all other traffic with a detour in place.

What to Expect

- Beginning August 14, gravel will be placed on the edge of properties next to the curb on the south side (odd-numbered addresses) to create a temporary road for residents to access their driveways.
- Steel plates will be used to provide access to homes on the north side (even-numbered addresses) when there is an open trench.
- Extra parking spaces will be available on Anson Street while this work is underway.
- Tree trimming and removal of one tree will be required to facilitate the temporary road.
- Light standards will be temporarily relocated.
- The area will be restored once the work is completed.

Work Hours

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

Thank you for your patience as this work is completed.

Macaulay Forcemain Alignment

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- Construction Notice- Residual Solids Conveyance Line: Marigold Road (August 16, 2019)



August 16, 2019

Residual Solids Conveyance Line: Marigold Road

As part of the Wastewater Treatment Project, Knappett Projects Inc. will be installing a pipe along Interurban Road from the intersection at Grange Road, across the Colquitz River, to the Marigold Pump Station. This work is anticipated to start the week of August 19th and is expected to take approximately one month to complete. There will also be construction activities at the Marigold Pump Station to connect the new pipe to the facility.

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 each section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- The Colquitz River crossing includes a fish salvage, installation of coffer dams and dewatering.
- 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.

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.
- Contractor will schedule work to try to minimize any traffic impact along the work site.
- There will be periodic closures of the Colquitz River Trail with a detour in place.

Access

- Vehicle access to residences will be temporarily restricted when work is underway and will be reinstated at the end of each work day. Residents will be notified of temporary closures in advance.

Thank you for your patience as this work is completed.

Background

Construction of the Residual Solids Conveyance Line includes two pipes and three small pump stations. The first pipe will convey residual solids from the McLoughlin Point Wastewater Treatment Plant to the Residuals Treatment Facility at Hartland Landfill for treatment. The second pipe will return the liquid removed from the residual solids during the treatment process to the Marigold Pump Station, from where it will be returned to the McLoughlin Point Wastewater Treatment Plant through the existing conveyance system.

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



24/7 Phone Line
1.844.815.6132

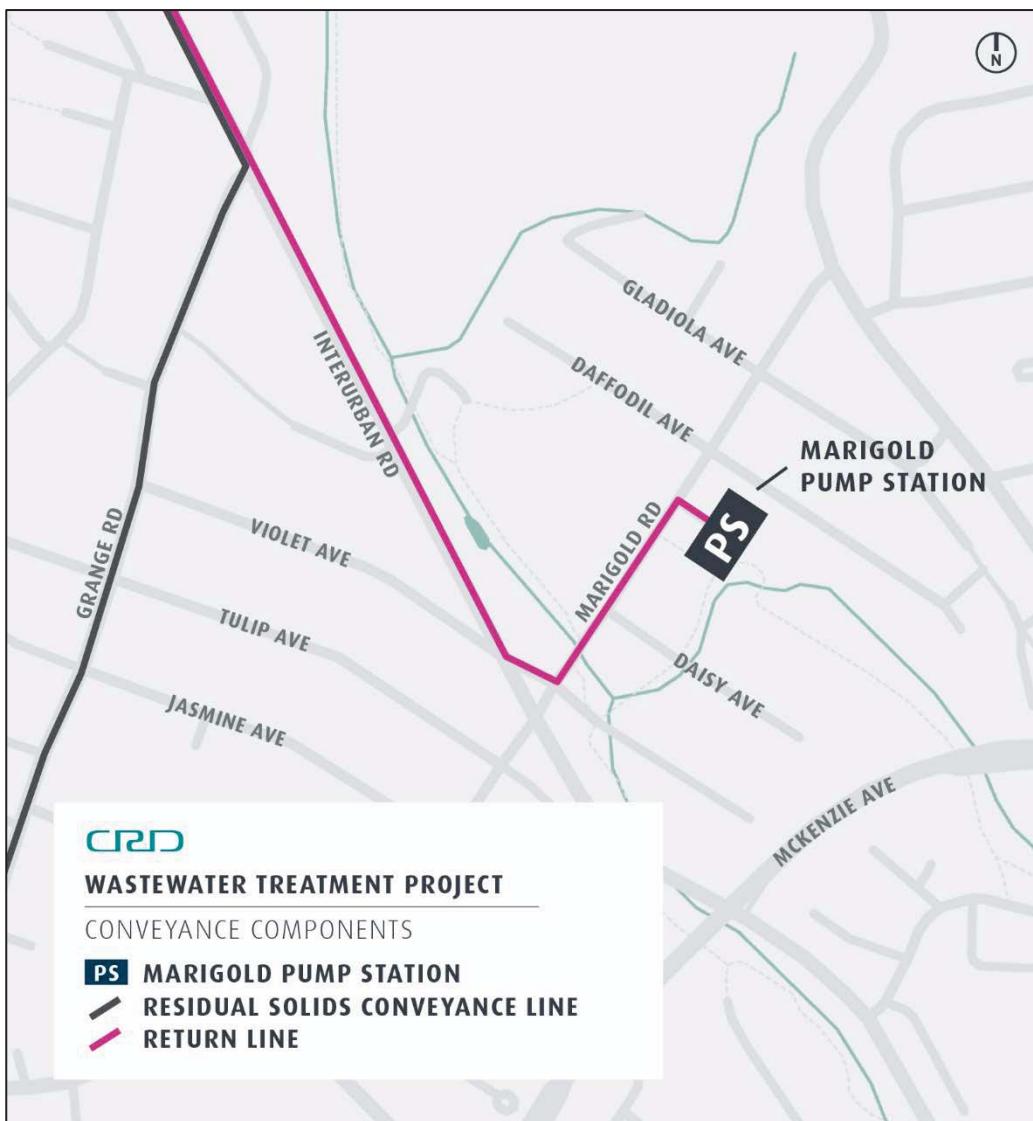


Email
wastewater@crd.bc.ca



Website
wastewaterproject.ca

RSCL Route



CRD

WASTEWATER TREATMENT PROJECT

CONVEYANCE COMPONENTS

- PS** MARIGOLD PUMP STATION
- /** RESIDUAL SOLIDS CONVEYANCE LINE
- RETURN LINE

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.

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



24/7 Phone Line
1.844.815.6132



Email
wastewater@crd.bc.ca

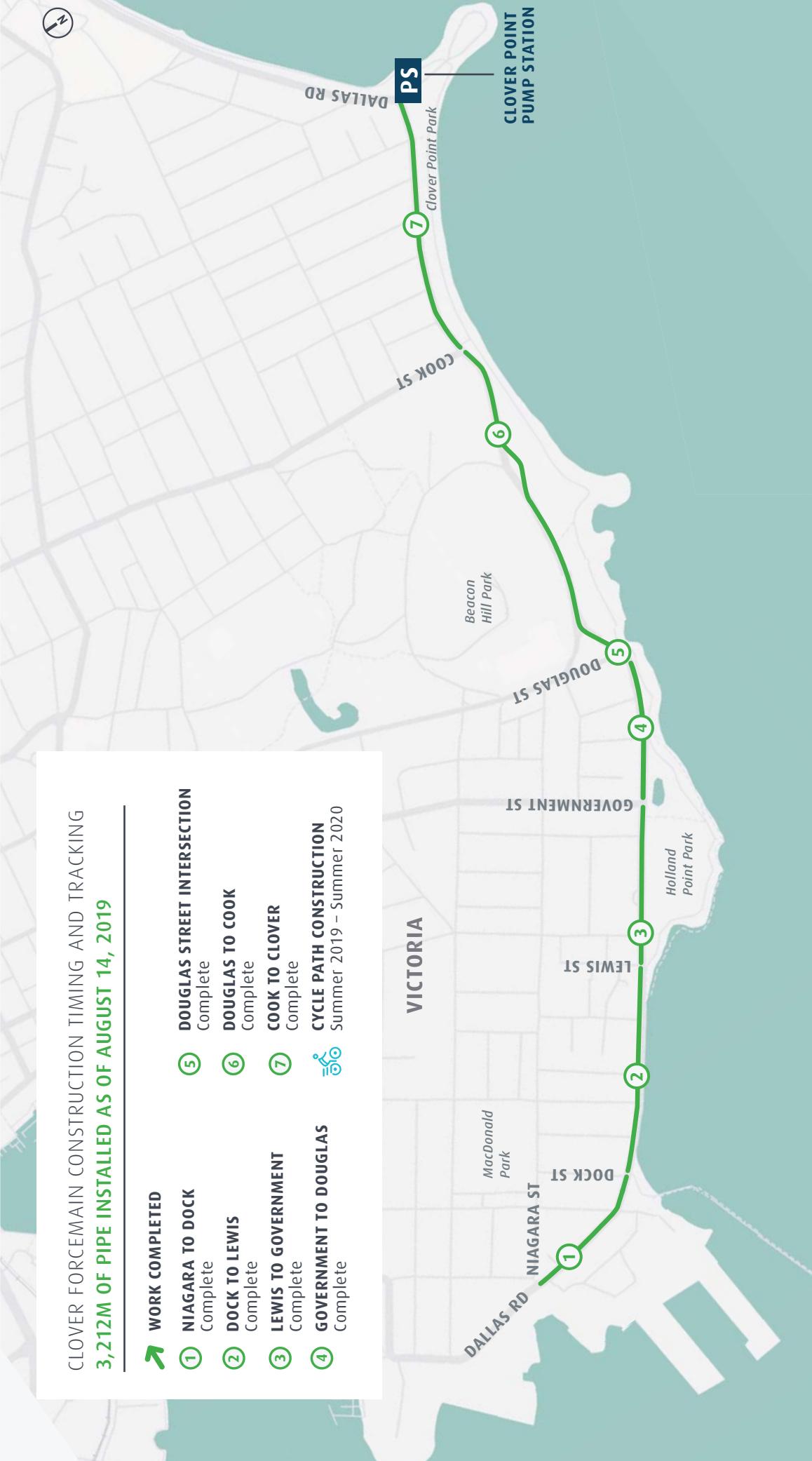


Website
wastewaterproject.ca

Appendix D- Clover Force main Progress Map (August 14, 2019)

CLOVER FORCERMAN CONSTRUCTION TIMING AND TRACKING
3,212M OF PIPE INSTALLED AS OF AUGUST 14, 2019

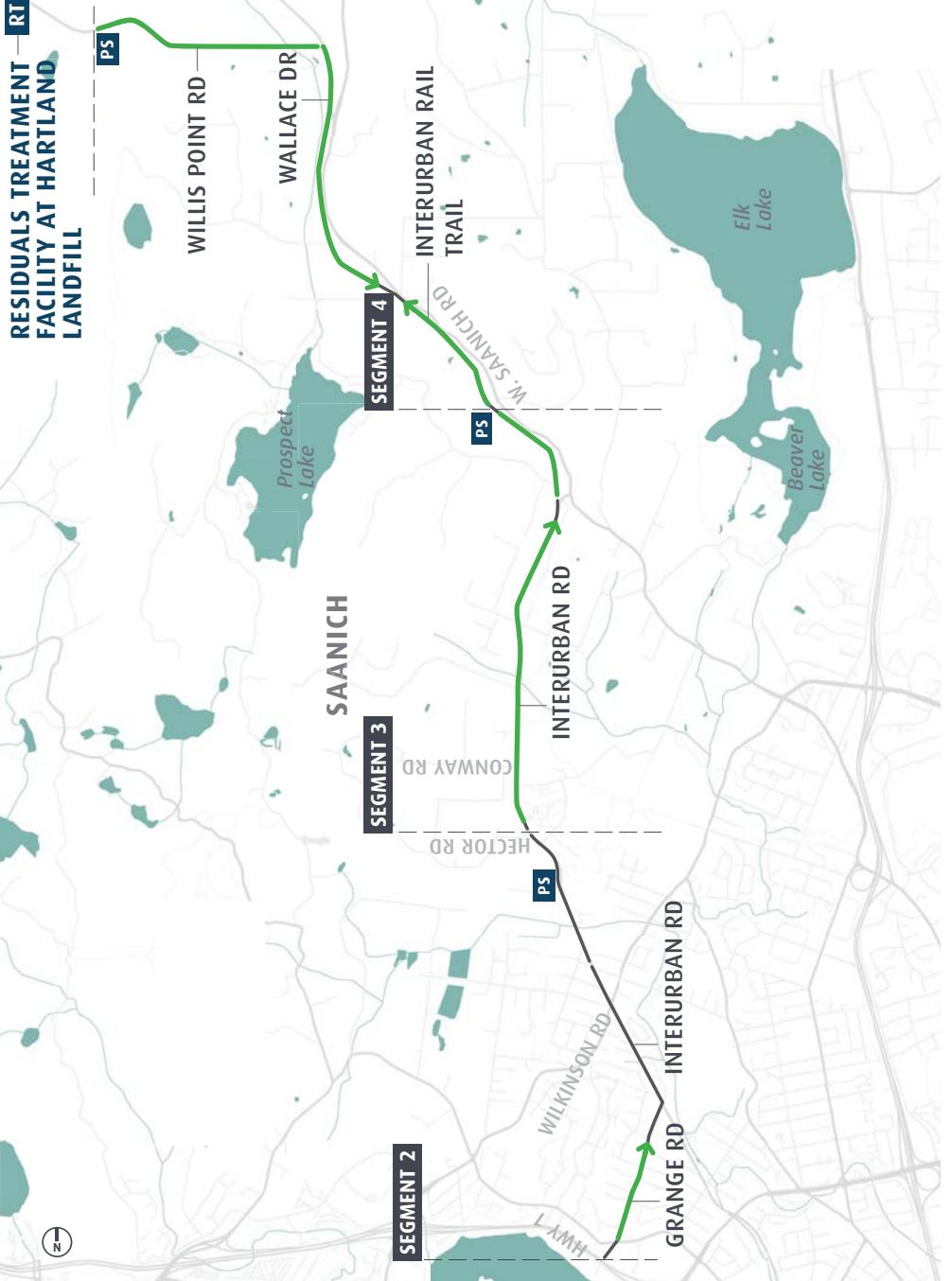
- | WORK COMPLETED | DOUGLAS STREET INTERSECTION | CYCLE PATH CONSTRUCTION |
|-------------------------|-----------------------------|---------------------------|
| ① NIAGARA TO DOCK | DOUGLAS TO COOK | CYCLE PATH CONSTRUCTION |
| Complete | Complete | Summer 2019 – Summer 2020 |
| ② DOCK TO LEWIS | COOK TO CLOVER | |
| Complete | Complete | |
| ③ LEWIS TO GOVERNMENT | GOVERNMENT TO DOUGLAS | |
| Complete | Complete | |
| ④ GOVERNMENT TO DOUGLAS | | |
| Complete | | |



Appendix E- Residual Solids Conveyance Line Progress Map (August 23, 2019)

RESIDUAL SOLIDS CONVEYANCE LINE
CONSTRUCTION TRACKING
11,824M OF PIPE INSTALLED AS OF AUGUST 23, 2019

► WORK COMPLETED



Appendix F- Monthly Cost Report (August)

ASSET MANAGEMENT COST REPORT									
as at August 31, 2019									
Project Component	BUDGET			COST EXPENDED			COMMITMENTS		
	Control Budget	Allocated Budget	Expended to July 31, 2019	Expended over reporting period (August 2019)	Expended to August 31, 2019	Remaining (Unexpended) Budget at August 31, 2019	Total Commitment at August 31, 2019	Unexpended Commitment at August 31, 2019	Forecast to Complete at August 31, 2019
McLoughlin Point Wastewater Treatment Plant^	378.0	364.6	241.4	111.6	253.0	69%	111.5	343.4	90.4
Residuals Treatment Facility^	195.0	157.6	18.5	0.2	18.7	12%	138.9	152.7	134.0
Conveyance System^	192.0	252.8	117.7	8.8	126.5	50%	126.3	213.0	86.5
Total Costs	765.0	775.0	377.6	20.6	398.2	52%	376.7	703.1	310.9
									65.9
									376.7
									775.0
									775.0

A - Includes P&O and Common Costs

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

** Cost report presents approved expenditures