



**REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF THURSDAY, JUNE 27, 2019**

SUBJECT **Wastewater Treatment Project May 2019 Monthly Report**

ISSUE

To provide the Core Area Wastewater Treatment Project Board with the Wastewater Treatment Project May 2019 Monthly Report

BACKGROUND

On May 25, 2016 the Regional Board of the CRD:

- i) Adopted by resolution the Core Area Wastewater Treatment Project Board Terms of Reference (Project Board Terms of Reference) for the purposes of establishing principles governing the Core Area Wastewater Treatment Project (the Wastewater Treatment Project or the WTP);
- ii) Established the Core Area Wastewater Treatment Project Board (Project Board) under Bylaw 4109 (the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016) for the purposes of administering the Core Area Wastewater Treatment Project; and
- iii) Delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016).

On September 14, 2016 the Regional Board of the CRD:

- i) Received the final report of the Project Board with respect to its recommendation for the CAWTP, dated September 7, 2016 (the Final Report); and
- ii) Approved the business case attached as Appendix 1 (the Business Case) to the Final Report.

DISCUSSION

The Core Area Wastewater Treatment Project Board (the Project Board) Terms of Reference requires, amongst other things: that the Project Board provide the CRD Board with monthly progress reports and a comprehensive quarterly report on the Project.

The monthly report for the period of May 2019 is attached as Appendix A.

RECOMMENDATION

That the Core Area Wastewater Treatment Project Board approve the following resolution:

RESOLVED that:

The Staff Report, 'Wastewater Treatment Project May 2019 Monthly Report', be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.



Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project



Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project May 2019 Monthly Report

ES:er



Wastewater Treatment Project

Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: May 2019

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1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of May 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 WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing: engineering of the WWTP and construction at McLoughlin Point, including: continuing concrete pours for the process building, tertiary building and operations maintenance building; continuing assembly of the outfall pipe in Nanoose Bay; and continuing off-site utility work on Peters Street.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing: engineering including development of the overall 100% design, submission of issued for construction (IFC) early works packages and the submission of an application for an Operational Certificate; and construction, including: concrete slab placement in the residual solids tanks #1 and #2, erection of formwork and the installation of reinforcing steel for the dryer building slab, as well as rebar in the residuals 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: providing supplemental final design information to the (100%) design, and the final Hazard and Operability report; completed the construction of the suspended slab for odour control and screening rooms, completed transform walls and roof and installed steel pipe supports in the pump room.
- Macaulay Point Pump Station and Forcemain: Kenaidan Contracting Ltd. (“Kenaidan” as the Design-Build Contractor) progressed design, and construction activities over the reporting period, including: continued progress on the second lift of exterior walls; completed the inlet channel concrete and vortex degritter topping slab; and formwork, reinforcing steel installation and concrete is ongoing for interior walls and in the vortex degritter.

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: installation of 534m of forcemain (from San Jose Avenue to Lewis Street and from Camas Circle to Douglas Street)
- 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: utility pre-locates and potholing, soil assessment survey and installation of approximately 2,160 m of RSCL pipeline.
 - RSCL 200 Residual Solids Pump Stations: Knappett Project Inc. (“Knappett” as the Construction Contractor for Residual Solids Pump Stations) commenced preconstruction activities including preparation and submission of work plans, shop drawings and permit applications as well as initial site preparations including clearing and grubbing at pump station 3 site, and installing fencing at pump stations 1 and 3.
 - RSCL 300 Saanich Infrastructure Improvements: the Project Team is arranging for Parsons (as the design consultant) to complete a preliminary conceptual design for the infrastructure improvements, which include sidewalks along the east side of Grange Road and the west side of Esson Road and a traffic circle at the intersection of Vincent and Bodega Streets.
- Arbutus Attenuation Tank (“AAT”): North American Constructors Ltd. (“NAC” as the Construction Contractor for the Arbutus Attenuation Tank) commenced pre-construction activities, including preparation of work plans.
- Trent Forcemain: detailed design was commenced, and surveys and geotechnical investigations were planned to inform the final design and alignment.

























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 (“KPIs”) that were defined within the Project Charter.





There were no changes made to the KPIs over the reporting period. The safety KPI for the Project overall and the conveyance system remains yellow. Over the reporting period 17 safety incidents occurred and the total recordable incident frequency increased to 1.7. 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 the Project at \$775M, or \$10M over the Project’s control budget. Over the reporting period the CRD Board approved increasing 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*.					Two recordable incidents occurred in May. Site inspections are ongoing and recommendations from the independent review of safety management have been implemented.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.					Three minor environmental incidents occurred in May: each incident was a low-volume hydraulic fluid leak, and in each case the hydraulic fluid was contained and none entered the sewer system or environment.
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 in 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).					<p>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.</p> <p>Over the reporting period the CRD Board approved increasing the Project's budget by \$10M, to \$775M.</p>

* 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 and RSCL sites.

Seventeen safety incidents occurred during the month of May: four near-miss, two medical aid, four first-aid, and seven report only.

Table 2- Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
May 6, 2019	RSCL	Near Miss	Cyclist entered an excavator swing zone :the excavator operator saw the cyclist and turned the bucket the other way; at the same time, the cyclist stopped some feet from the bucket when they saw the excavator was moving towards them	No contact occurred	An onsite meeting was held with Traffic Control Personnel for better communication if anyone has to enter an active area. Tool-box talk also held with crew
May 6, 2019	RTF	Near Miss	During a quality check it was noticed upon a visual inspection that a bolted tank jig for lifting the roof rafter appeared to be bent and the center column not aligned. Workers were under the load at the time of discovery.	Work was immediately stopped to access situation and an engineer established the stability of the jig	New engineered jig was designed to eliminate any bending
May 7, 2019	McLoughlin Point WWTP	First Aid	While tying rebar a worker scraped their knuckles on adjacent rebar.	Worker had the scrape cleaned and bandaged at First Aid	Tool-box talk in regards to the use of gloves for this type of task
May 8, 2019	McLoughlin Point WWTP	Report Only	Water leak while performing a piping pressure test.	No one was in the area when the leak occurred	Water was drained, leak was located, and fitting tightened to prevent any further leaks.
May 13, 2019	McLoughlin Point WWTP	Medical Aid	Worker pinched their finger between rebar and dunnage while putting dunnage under a bundle of rebar, resulting in a small	Worker received medical attention requiring a few stitches on the top of finger	Tool-box talk to review pinch points and keeping out of the “bite” while loads are being lowered.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
			flap of skin being removed from the tip of their finger.		
May 16, 2019	McLoughlin Point WWTP	First Aid	Worker drilling concrete pillar in BAF Gallery was removing PPE when some dust went in their eye.	Worker reported to First Aid after eye was flushed and a visible speck of dust removed from the eye.	Tool-box talk with crew in regards to windy conditions and removing PPE in active work area
May 16, 2019	McLoughlin Point WWTP	First Aid	Worker on concrete corbel wall erecting scaffolding was carrying a shore post when worker tripped on their lanyard while tied off. Worker did not let go of the shore post, and finger was pinched between the post plate and concrete	Worker had a small laceration which was cleaned and bandaged before returning to work.	Tool-box talk was held in regards to proper tie off point above shoulder height if possible to prevent tripping hazards from low hanging fall protection.
May 24, 2019	RTF	Near Miss	Telehandler operator while in the process of placing a load caused the back tires of the unit to lift off the ground.	No injuries were sustained and no property damage. Outriggers were not down at the time	Worker was required to perform a competency test with the telehandler to ensure knowledge when lifting loads. Worker placed on probation and is required to have a Supervisor as a spotter if lifting or moving loads until cleared for unaccompanied duties
May 24, 2019	RCSL	Medical Aid	Worker was cutting some ductile iron piping when they felt a particulate enter under their safety glasses and adhere to their eye	Eyes were rinsed out but did not remove particulate. Referred to medical aid where the particulate was removed	Tool-box talk to review of proper body positioning when using cut-off saw to reduce or eliminate any particulates from blowing towards worker
May 24, 2019	RCSL	Report Only	Worker entered into a newly completed manhole to remove some forms without proper Confined Space protocol being followed as per section 9 of the WorkSafeBC Regulations	Safety bulletin sent out to all Supervision in regards to DME Confined Space rules	Confined Spaces to be discussed at Tool-Box talks Review of DME handbook to ensure confined space rules are understood and followed
May 27, 2019	Macaulay Point Pump Station	Near Miss	Concrete truck delivering concrete to site was backing up without the use of a spotter to assist trucks down the road. The back passenger side wheels of the vehicle went off the road path causing the back end of the vehicle to teeter on the edge of the	The excavation area was evacuated and the truck was secured with an excavator until a tow truck arrived to safely guide the truck back	Concrete lock blocks were spaced along the South side of the site road to prevent any similar incident from occurring Signage posted at gate entrance to ensure spotters are used when backing down the roadway

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
			excavation while the truck was full of concrete. This caused instability in the load.	onto solid ground	
May 30, 2019	RTF	Report Only	Telehandler operator was standing outside of their machine when they noticed the window of the door had popped off the clip holding it open.	Operator went to re-clip it into place and as they were doing so the window shattered. No injury occurred when the window shattered	Workers reminded to wear all appropriate PPE if trying to fix any equipment
May 30, 2019	RTF	Report Only	Worker was standing on rebar at the edge of the digested sludge storage tank using a rake to remove foot holes in the concrete when they slipped and tweaked their back.	Worker immediately reported incident to First Aid Attendant. No treatment was rendered as the worker only wanted to report the incident.	Tool-box talk to remind workers of good awareness to their surroundings and proper footing when performing task
May 30, 2019	Residual Solids Pump stations and Bridge Crossing	Report Only	A load of pipe was offloaded by a crane truck without a tagline attached to it	The load end furthest from the crane swung partially out into a traffic lane. No cars were present and no one was injured.	Tool-box talk in regards to ensuring that all loads are to have taglines and to keep load within control zone area.
May 31, 2019	Residual Solids Pump stations and Bridge Crossing	Report Only	A backhoe operator was observed driving quickly and erratically.	The worker was approached by an Inspector for another Prime Contractor working in the same area to discuss the excessive speed while driving in a shared work area. Operator responded with aggressive language and an aggressive demeanor	Operator was removed from site All workers have been notified that care and attention must be exercised when operating equipment and that aggressive behavior will not be tolerated

Key safety activities conducted during May included:

- CRD prime contractor safety quality assurance audit of HRP;
- closed out Don Mann safety quality assurance audit;
- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP and Knappett;
- weekly project update meetings with prime contractors: HRMG;
- Incident Investigations review;
- CRD WTP Incident log updated;
- submitted monthly safety report to CRD Corporate;
- reviewed site specific safety plans and high risk tasks;
- CRD Prime Contractor orientation for Arbutus Attenuation Tank ; and
- WTP Safety Manager and/or Construction Manager conducted regular site inspections at all active Project work sites.

Table 3 – WTP Safety Information

	Reporting Period May 2019)	Project Total to-Date (from January 1, 2017)
Person Hours		
PMO	3745	102 534
Project Contractor	80 364	711 067
Total Person Hours	84 109	813 601
PMO	31	
Project Contractors (and Project Consultants) working on Project sites	483	
Total Number Of Employees	514	
Near Miss Reports	4	24
High Potential Near Miss Reports	0	4
Report Only	7	51
First Aid	4	23
Medical Aid	2	2
Medical Aid (Modified Duty)	0	2
Lost Time	0	3
Total Recordable Incidents	2	7
		Project Frequency (from January 1, 2017)
First Aid Frequency		5.7
Medical Aid Frequency		0.9
Lost Time Frequency		0.7
Total Recordable Incident Rate		1.7

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 May included:

- McElhanney Consulting Services (as the qualified environmental professional for Knappett, the Construction Contractor for Residual Solids Pump Stations) completed pre-clearing bird

nest searches at the Knappett sites that require clearing. The purpose of the searches was to determine the presence or absence of active bird nests in proximity to the work sites. The searches located a number of active nests, and McElhanney prepared nest management plans to allow work to continue where it would not impact nesting birds; and

- HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) finalized their air dispersion modelling and Technical Assessment Report in support of an application for an Operational Certificate for the RTF (see further information in Section 2.2.2).

Over the reporting period, there were three minor environmental incidents:

- On May 10, Don Mann (as the Construction Contractor for the Residual Solids Pipes) had a hydraulic fluid leak from a rock drill. The volume released was less than 10 litres, and was therefore not reportable to authorities. The spill was contained to the pavement, and spill pads were used to prevent hydraulic fluid from entering the sewer system. The spill pads were disposed of at an appropriate facility. No hydraulic fluid entered the sewer system or environment.
- On May 28, Windley Contracting (the Construction Contractor for the Clover Forcemain) had hydraulic fluid leak from a backhoe. The volume released was approximately 10 litres, and was therefore not reportable to authorities. The hydraulic fluid was contained to the pavement on Dallas Road and was immediately removed from site for disposal at an approved facility. No hydraulic fluid entered the sewer system or environment.
- Also on May 28, HRP (the Design-Build Contractor for the WWTP) had a hydraulic fluid leak from a cement truck. The volume released was less than 20 litres, and was reported to the Department of National Defence (DND) as the leak was on their property. The hydraulic fluid was contained to the pavement, and DND staff along with an HRP sub-contractor cleaned up the hydraulic fluid and disposed of it at an appropriate facility. No hydraulic fluid entered the sewer system or environment.

2.2.2 Regulatory Management

In May, 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 May included:

- Knappett (the Construction Contractor for Residual Solids Pump Stations) applied to the District of Saanich for a tree-cutting permit; and
- HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) submitted an application for an Operational Certificate for the RTF to the BC Ministry of Environment and Climate Change Strategy (ENV). The Operational Certificate is the Province's mechanism to regulate discharges. In the case of the RTF, there are two forms of discharge:
 - i. to the air: the air discharges are limited by the facility's capture and use of biogas, and its environmental controls; and
 - ii. the Class A Biosolids that will be produced by the facility: these are intended to be transported off-site for beneficial use, as outlined in the CRD's Biosolids Beneficial Use Strategy.

The CRD is supporting the application by making agency referrals (e.g. to the Vancouver Island Health Authority), completing public notification requirements and providing documentation related to First Nations engagement.

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.

Updates to Table 4 from the Project's April 2019 Monthly Report are as follows:

- ECI/Trent Twinning: removed Notice from the Director to Construct under Section 40 of the MWR as over the reporting period ENV confirmed that a Notice is not required; and
- Residuals Treatment Facility: removed District of Saanich Phased Building Permits, as the final permits were received in the last reporting period.

Table 4 - Key Permits Status

Permit / Licence	Anticipated Date	Status	Party Responsible for Obtaining Permit
<i>McLoughlin Point WWTP</i>			
Municipal Wastewater Regulation ("MWR") Registration	Q4 2019	On track	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	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 Macaulay Point. Additionally, the CRD met with employment counselors from the Esquimalt and Songhees Nations to discuss future employment and contracting opportunities at the McLoughlin Point WWTP.

Millennia Research (as the Project's archaeological advisor) provided archaeological monitoring training to members of the WSÁNEĆ Nations. The training was in anticipation of upcoming archaeological work associated with the residual solids pipes and residual solids pump stations.

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 reporting 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

One information bulletin and three construction notices and updates were issued to stakeholders in the reporting period:

- Arbutus Attenuation Tank Contractor Selected (May 10, 2019) (Appendix A);
- Residual Solids Conveyance Line: Pipe Installation Update (May 15, 2019) (Appendix B);
- Macaulay Forcemain Installation Update (May 24, 2019) (Appendix C); and
- Trent Forcemain: Geotechnical Work (May 27, 2019) (Appendix D).

The Trent Forcemain: Geotechnical Work construction notice was circulated to residents in close proximity to the anticipated alignment: 160 were hand-delivered to residents and businesses in Fairfield. It was also sent by email to more than 400 residents and stakeholders.

The following information sheet was updated and posted to the website:

- McLoughlin Point Wastewater Treatment Plant (Appendix E).

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project. One information bulletin, three construction notices and updates, and an information sheet was posted. The photo gallery section was updated with the addition of seven new photos. Maps showing the progress of construction along the Clover Forcemain and the Residual Solids Conveyance Line were updated weekly.

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:

- Applied Science Technologists & Technicians of British Columbia;
- BC Water and Waste Association Conference, Technical Tour;
- City of Victoria Technical Working Group;
- Dallas Road Time Trial;
- District of Saanich Technical Working Group; and
- Township of Esquimalt Liaison Committee;

The Project Team worked with the James Bay Neighbourhood Association Gardening Advocate to donate three of the planters at Ogden Point and relocated them into the James Bay community for long-term use. As well, the Project Team attended the CRD's open houses regarding the beneficial use of biosolids produced at the Residuals Treatment Facility, to answer any questions regarding the Residuals Treatment Facility.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1-844-815-6132) are noted in Table 5.

Table 5 - Project Inquiries – May 2019

Inquiry Source	Contacts for May
Information phone line inquiries	28
Email inquiries responded to	23

Key themes of the public inquiries were as follows:

- Questions regarding timing of construction for the RSCL including information on final restoration;
- Concerns about traffic lining up on Interurban and blocking the intersection at Quayle Road, as a result of construction on the RSCL; and
- Questions regarding impacts of Clover Forcemain construction.

2.5 Resolutions from Other Governments

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

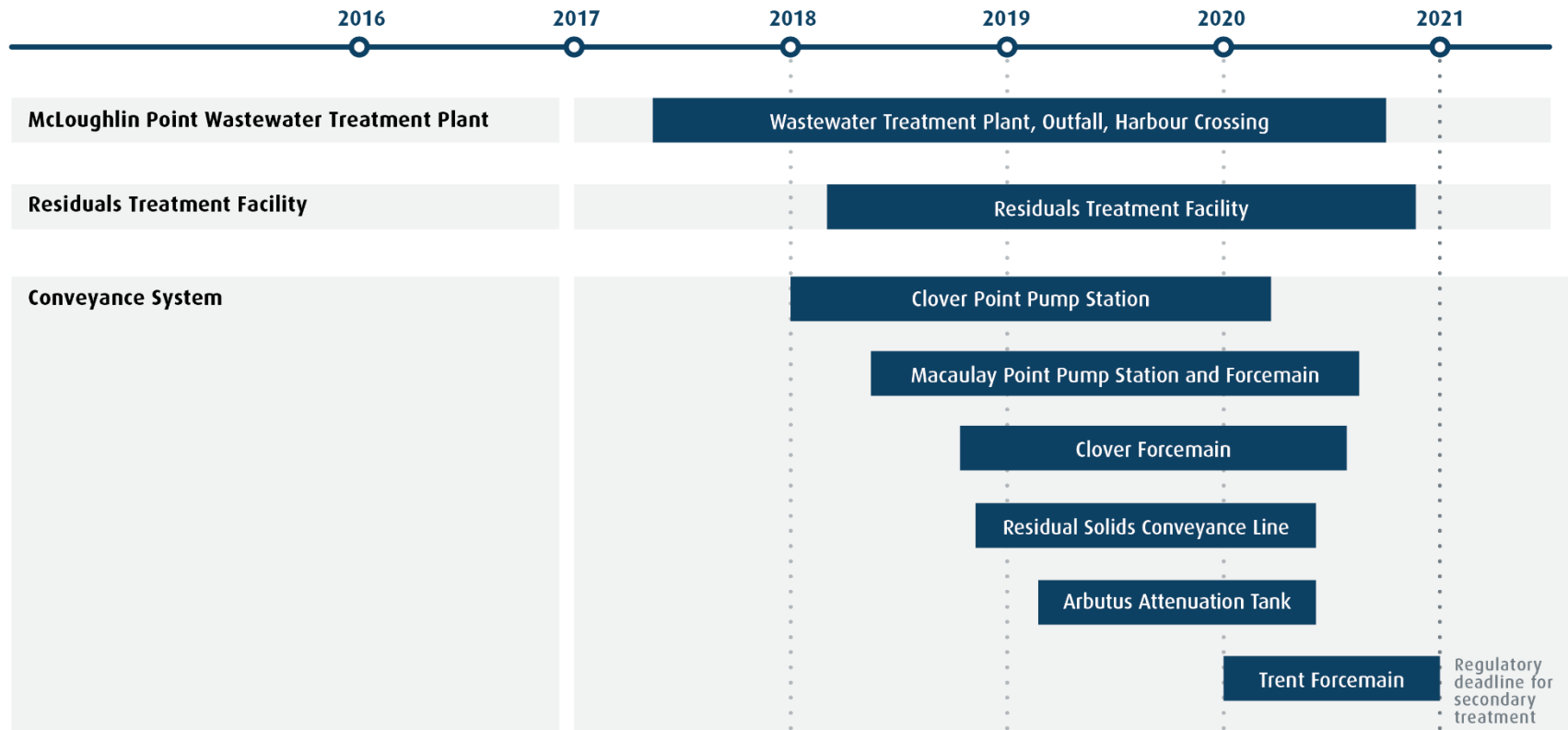
2.6 Schedule

Overall the Project's scheduled activities progressed as planned during May. 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. The schedule remains subject to optimization as the Project and planning progresses. The Project remains on-schedule to meet the provincial and federal regulations for treatment of the Core Area's wastewater by December 31, 2020.

Wastewater Treatment Project Schedule*

Construction + Commissioning



*Schedule subject to updates as Project planning progresses.

Figure 1 - High-Level Project Schedule¹

¹ The schedule remains subject to optimization.

2.6.1 30 day look ahead

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

Safety

- CRD prime contractor safety quality assurance audit on Clover Forcemain;
- 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, Stantec, KWL and HRP to meet with the BC Ministry of Environment to present findings of KWL's flow modelling.

First Nations

- ongoing meetings with the Esquimalt and Songhees Liaisons; and
- Procurement of Indigenous art for placement at Macaulay Point.

Stakeholder Engagement

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

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare CRD WTP annual budget; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue with phase 3 piling in West Densadeg, West entrance and raw sewage valve locations;
- install raw sewage bypass to outfall chamber;
- continue surface runoff/groundwater treatment and discharge;
- construct tsunami wall segment #6;
- continue primary treatment area concrete walls and slabs;
- complete BAF lower channel walls and boxes;
- construct walls and influent channel suspended slabs in Moving Bed Biofilm reactor(MBBR) #1 and #2;

- conduct hydrostatic test on BAF tanks 7 & 9 and MBBR #1 and #2;
- continue concrete walls in tertiary area;
- install structural steel and decking in electrical room; and
- continue with walls, columns and slabs in operations and maintenance(O&M) building.

Clover Point Pump Station

- continue with concrete walls, corbels and suspended slabs;
- install pump room pipe supports;
- receive transformer and odour control equipment; and
- perform cable mapping of the odour control and screening systems in the existing pump station.

Macaulay Point Pump Station

- continue with concrete walls and suspended slabs;
- install precast planks in wet well; and
- commence installation of sanitary forcemain at Vaughn Street and Anson Street.

Residuals Treatment Facility

- slab-on-grade prep for digester building and residuals effluent storage areas;
- continue with concrete placement at residual solids tanks;
- continue installation of underground storm water, sanitary and electrical distribution;
- install process piping at digester and residuals effluent storage areas;
- commence steel erection residuals drying facility building;
- continue erection of steel bolted digester tank 1; and
- commence erection of steel bolted digester tank 2.

Clover Forcemain

- continue with forcemain installation from Douglas Street to Olympia Avenue and from Menzies Street to Government Street;
- continue with utility relocates;
- continue with temporary restoration of pavement and curb, gutter and sidewalks; and
- complete installation of odour control equipment.

Residual Solids Conveyance Line (RSCL)

- commence RSCL installation at Grange Road of Segment 2;
- continue RSCL installation at Interurban Road and Interurban Trail of segment 3;
- complete RSCL installation at Wallace Drive of Segment 4; and
- continue with restoration of asphalt pavement and concrete curb, gutters and sidewalks.

Residual Solids Pump Stations and Bridge Crossings (RSCL200)

- pump station 3 survey layout and recording;
- pump station 3 site clearing and excavation;
- commence utility pre-locates for RSCL at Willis Point Road; and
- commence drilling and blasting at pump station 3 site.

Arbutus Attenuation Tank (AAT)

- mobilize office and crew facilities;
- install site perimeter fencing; and

- commence site preparation and establish erosion and sediment control.

Engineering

- Residuals Treatment Facility: submit overall final (100%) design deliverable;
- Clover Point Pump Station: hold follow up 100% design meeting to close out remaining comments prior to finalizing complete issued for construction (IFC) for overall design;
- Macaulay Point Pump Station: hold follow up 100% design meeting to close out remaining comments prior to proceeding to issued for construction (IFC) for overall design; and
- RSCL300 Saanich Infrastructure Improvements: present District of Saanich with conceptual design.

Procurement

- No procurement activities expected over the next 30 days.

2.6.2 60 day look ahead

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

Safety

- CRD prime contractor safety quality assurance audit on Residuals Treatment Facility;
- 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 an application to ENV for MWR Registration of the wastewater treatment project.

First Nations

- Ongoing meetings with the Esquimalt and Songhees Liaisons; and
- Procurement of Indigenous art for placement at Clover Point and Mcloughlin Point.

Stakeholder Engagement

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

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare CRD WTP annual budget; and

- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue installation of remaining planter and tsunami wall sections;
- continue construction of concrete walls, columns and suspended slabs in primary, secondary and tertiary areas;
- commence installation of exhaust fans in secondary treatment;
- install monoflor - Tank1;
- install scouring air system and baffle assembly and Monoflor nozzles – Tank 1;
- install weir plates and tranquilizer assemblies;
- install pipe rack in BAF gallery;
- install tanks in tertiary pump room;
- install structural steel decking in electrical room;
- construct exterior masonry walls at O&M building;
- install steel stud framing in O&M Building;
- commence installation of thermo spray insulation in O&M building; and
- commence installation of Patricia Way works - Macaulay forcemain, RSCL pipe, water main and gas line.

Clover Point Pump Station

- Commence installation of 1500 mm gravity sewer;
- Install odour control walls and curbs;
- Install precast roof;
- Continue installation of pipe hangers;
- Commence installation of exterior wall waterproofing;
- Install 7.5 ton bridge crane and 1.5 ton monorail support beam and rails;
- Install odour control equipment; and
- commence installation of electrical equipment including cable tray and cabling.

Macaulay Point Pump Station

- backfill structure to -1.0m;
- install equipment and housekeeping pads;
- continue forming, rebar and pouring walls and suspended slabs;
- commence installation of metal platforms and stairs;
- commence installation of pumps;
- commence installation of odour control unit; and
- continue installation of sanitary forcemain.

Residuals Treatment Facility

- complete erection of digester #1 bolted steel tank;
- complete erection of digester #2 bolted steel tank;
- construct footings and foundation walls for scale house foundation;
- continue with steel erection of residuals drying facility building;
- complete concrete slab of digester #3; and
- commence erection of the digested sludge storage tank.

Clover Forcemain

- continue forcemain installation from Olympia Avenue to Government Street;
- commence clearing and grubbing of cycle track; and
- commence installation of Ogden Point transition chamber.

Residual Solids Conveyance Line (RSCL)

- commence installation of RSCL at Peter Street to Wollaston Street in Segment 1;
- continue installation of RSCL at Grange Road – in segment 2;
- continue installation of RSCL at Interurban Trail (2 crews) – in Segment 3; and
- continue with restoration of asphalt pavement and concrete curb, gutters and sidewalks.

Residual Solids Pump Stations and Bridge Crossings (RSCL200)

- clearing and grubbing of pump station 3 access road;
- installation of RSCL pipe at Willis Point Road;
- wet well base prep;
- form, rebar and pour wet well base slab;
- back fill and road pull out construction at the RTF control chamber;
- site grubbing at pump station 2; and
- utility relocates at pump station 1.

Arbutus Attenuation Tank (AAT)

- rough site excavation to 22.5m;
- setup laydown and secant wall prep areas;
- setup Dewatering wells and monitoring;
- civil prep for removal of underground utilities and bypass pumping; and
- secant wall drilling.

Engineering

Residual Solids Conveyance Line (RSCL)

- RSCL300 Saanich Infrastructure Improvements: initiate detail design work.

Clover Point Pump Station (CPPS)

- Finalize IFC package and move any residual items to a tracking form to be addressed in line with construction schedule.

Macaulay Point Pump Station and Forcemain (MPPS)

- Finalize IFC package and move any residual items to a tracking form to be addressed in line with construction schedule.

Arbutus Attenuation Tank (AAT)

- Address review comments by Saanich for Arbutus Road frontage improvements.

Procurement

- No procurement activities expected over the next 60 days.

2.7 Cost Management and Forecast

The monthly cost report for May 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 has been awarded. The Project Team forecast 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 CRD Board's approval to increase the Project's budget by \$10M to \$775M. 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 \$121k, which were primarily associated with project management office expenditures.

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.

In May 2019, the CRD Board approved an increase to the budget for the Wastewater Treatment Project from \$765M (as set out in original business case for the Project), to \$775M. The \$10 million has been allocated to the conveyance contingency.

The draws to-date and remaining contingency and program reserve balance 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 April 30, 2019		\$ (52,947,869)
Contingency and Program Reserve balance as at April 30, 2019		\$ 16,370,182
Addition to Contingency		\$ 10,000,000
Contingency and Program Reserve draws in the reporting period		\$ -
Net Contingency and Program Reserve draws to May 31, 2019		\$ (42,947,869)
Contingency and Program Reserve balance as at May 31, 2019		\$ 26,370,182

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 project; 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 a contribution of up to \$346,900 towards the delineation of 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 the 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 Government of British Columbia cannot be claimed until the relevant Project components are substantially complete, which is scheduled to occur in 2020.

Table 7 – Grant Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	\$120M	-	\$52.0M
Government of Canada (Green Infrastructure Fund)	\$50M	\$ 0.9M	\$19.0M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	-	-
Federation of Canadian Municipalities	\$346K	-	-
TOTAL	\$459.3M	\$0.9M	\$71.0M

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 during the reporting period.

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

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 (based on likelihood and potential impact)	Trend in risk level from previous reporting period
Project				
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 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

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level (based on likelihood and potential impact)	Trend in risk level from previous reporting period
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
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

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level (based on likelihood and potential impact)	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
McLoughlin Point Wastewater Treatment Plant				

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level (based on likelihood and potential impact)	Trend in risk level from previous reporting period
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
Conveyance				
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 will be undertaken for the Trent Forcemain as part of the detailed design process.	L	No Change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level (based on likelihood and potential impact)	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 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

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (WWTP)

The WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing: engineering of the WWTP and construction at McLoughlin Point, including: continuing concrete pours for the process building, tertiary building and operations maintenance building; continuing assembly of the outfall pipe in Nanoose Bay; and continuing off-site utility work on Peters Street.

Engineering

HRP progressed planning and design activities during the reporting period including submission of the Control System Programming Plan.

Construction

McLoughlin Point WWTP

Photographs of construction progress at McLoughlin Point are shown in Figures 2 – 8. Key construction activities in progress or completed by HRP in May were as follows:

- completed mining of marine outfall;
- commenced upper BAF channel slabs;
- continued surface runoff/groundwater treatment and discharge;
- commenced upper BAF walls;
- lammella slabs poured;
- commenced Densadeg wall pours;
- densadeg infill slab poured;
- commenced installation marine outfall gravel mattress;
- commenced segment 3 of Peter Street utility work;
- installed scaffolding for heat recovery suspended slab;
- continued Operations and Maintenance footings, columns and walls; and
- continued assembly of the marine outfall pipe in Nanoose Bay.



Figure 2 – Mcloughlin Point Wastewater Treatment Plant – Phase 3 piling completed at pump room at north end of Lamella plate settlers.



Figure 3 - Mcloughlin Point Wastewater Treatment Plant – Rebar completed for Operations & Maintenance building level 2 suspended slab pour



Figure 4 – Mcloughlin Point Wastewater Treatment Plant – 42" BWW header



Figure 5 – Mcloughlin Point Wastewater Treatment Plant – Operations & Maintenance building looking SE from top of Densadeg No. 1.

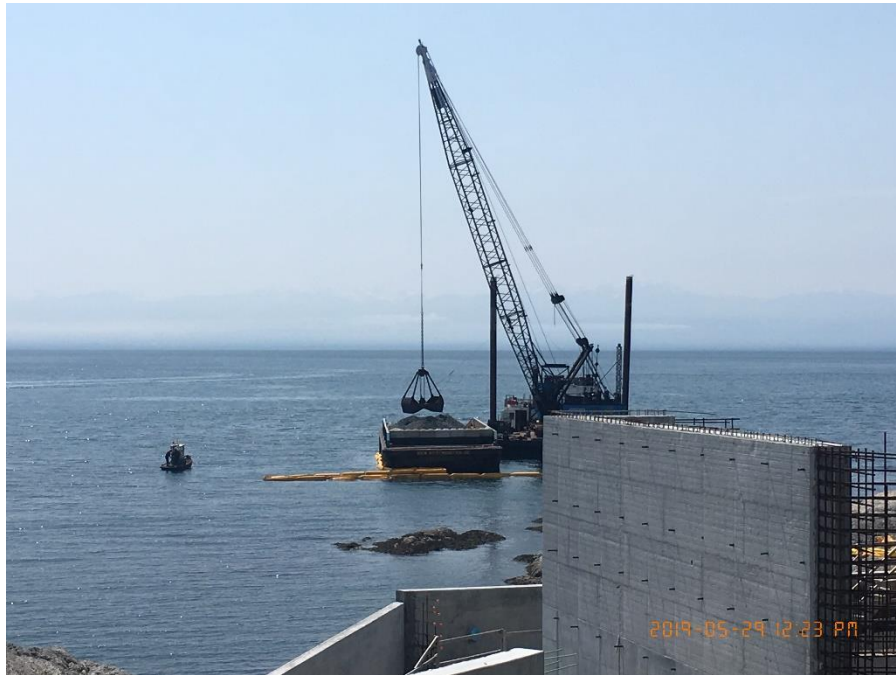


Figure 6 – Mcloughlin Point Wastewater Treatment Plant – placing gravel mattress for marine outfall pipe.



Figure 7 – Mcloughlin Point Wastewater Treatment Plant – installing conduit for Operations & Maintenance building electrical room.



Figure 8 – Mcloughlin Point Wastewater Treatment Plant – Installing scaffolding for heat recovery room suspended slab.

2.9.2 Residuals Treatment Facility (RTF)

The RTF Project Component is continuing with HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing design and construction activities over the reporting period.

Engineering

HRMG progressed planning and design activities in May, including:

- working on overall 100% design submission;
- submission of partial (Part A) 100% design;
- progressed with resolution of outstanding comments on previous design submittals;
- monthly progress meeting with independent certifier;
- progressed with vendor selection;
- submitted revised Early Works Package #8 (Dryer Foundation);
- submitted IFC drawings for Early Works Package #5 (Equalization Building Foundation); and
- submitted application for Operational Certificate to the Ministry of Environment.

Construction

Photographs of construction progress in May at the RTF are shown in Figures 9 to 12. Activities on site included:

- erected formwork and installed rebar services for residuals handling building;
- installed rock anchors in south shear wall;

- installed process and sanitary piping for digester equipment building;
- erection of formwork and installation of reinforcing steel for dryer building slab;
- constructed temporary laydown area; and
- concrete slab placement in the residual solids tanks #1 and 2.



Figure 9– Residuals Treatment Facility – installation of reinforcing steel for Residuals Handling Building slab..

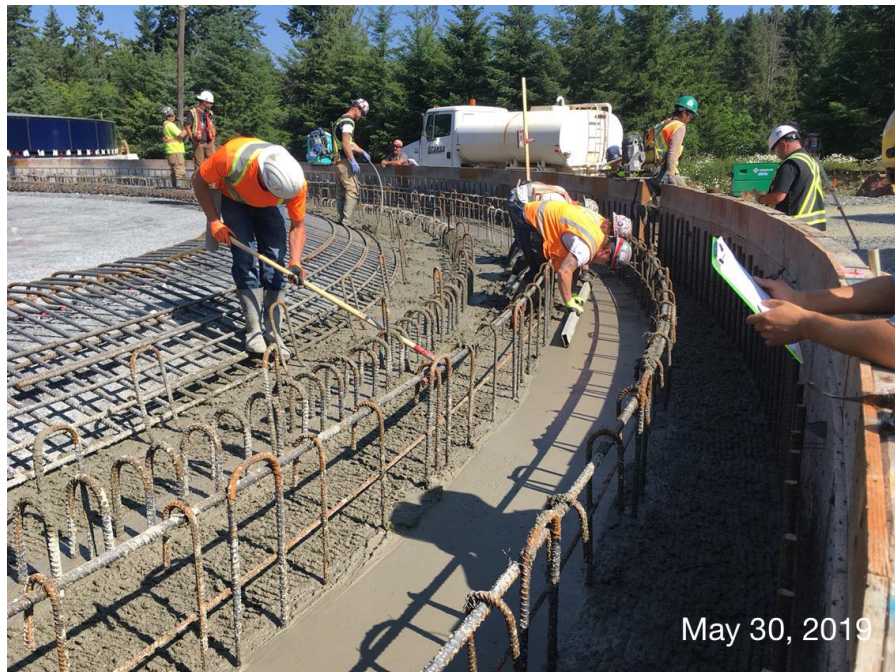


Figure 10 - Residuals Treatment Facility – Concrete placement and finishing for digested sludge storage tank slab first pour.



Figure 11– Residuals Treatment Facility – high density polyethylene process piping assembly installed at south side of residual solids.



Figure 12 –Residuals Treatment Facility – Crew installing floor drains for residuals handling building prior to concrete floor slab pour.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan (as the Design-Build Contractor for the Clover Point Pump Station) progressed design and construction activities over the reporting period, as follows:

Engineering

- KCL provided final design information to supplement the final design package;
- KCL provided final Hazard and Operability report; and
- KCL provided a design for the pigging chamber.

Construction

Photographs of construction progress at Clover Point Pump Station are shown in Figures 13 to 17. Key construction activities in progress or completed in May were as follows:

- completed suspended slab for the odour control and screening rooms;
- completed transform walls and roof;
- installed steel pipe supports in the pump room; and
- continued with concrete finishing and crack injection of wet well and transformer room walls.

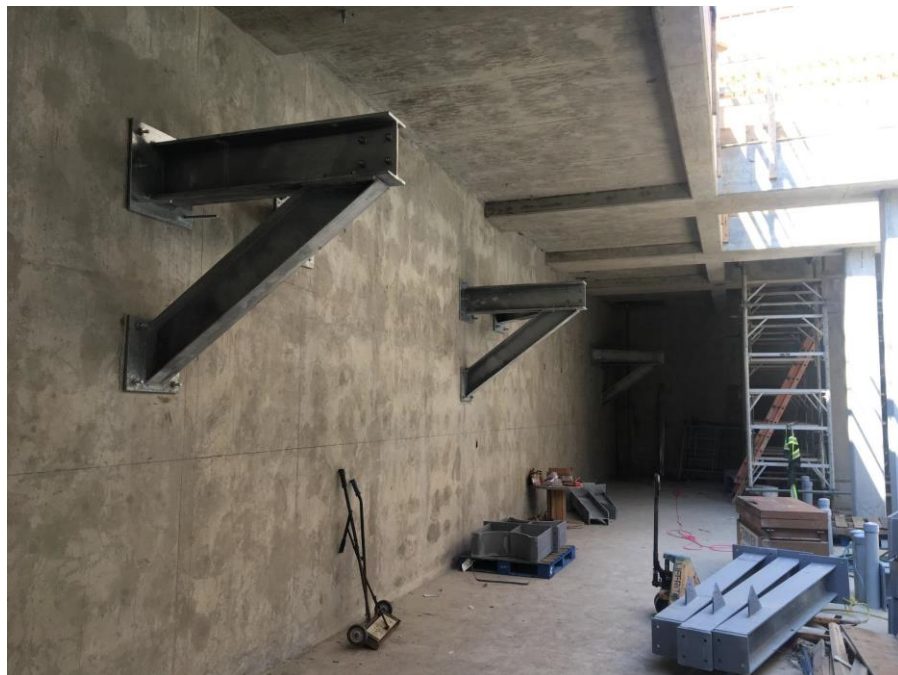


Figure 13 –Clover Point Pump Station – Installation of pipe supports in the pump room



Figure 14 –Clover Point Pump Station – site overview looking north.

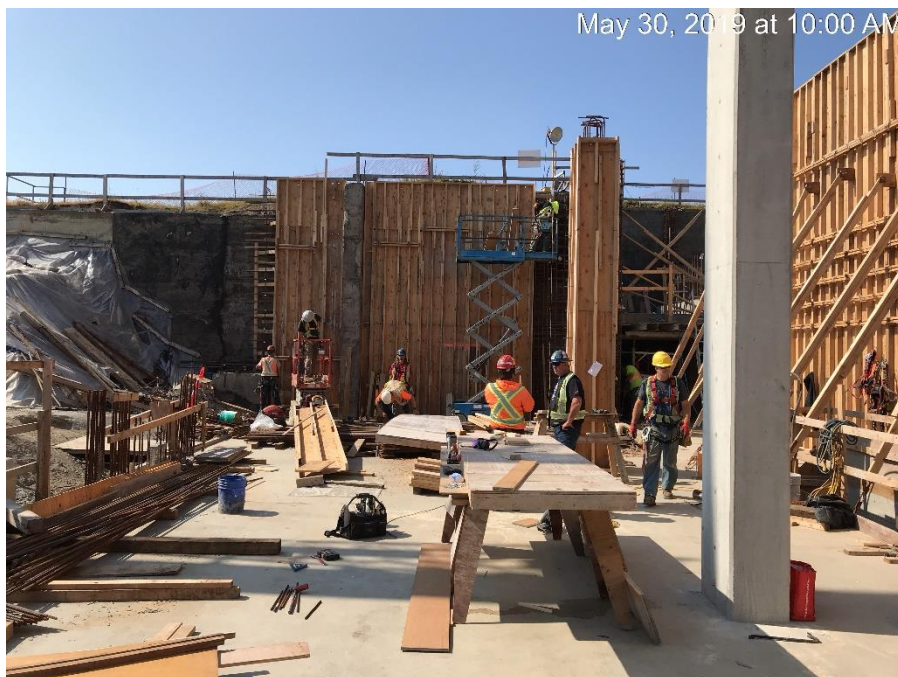


Figure 15 –Clover Point Pump Station – forming walls and column



Figure 16 – Clover Point Pump Station – finishing suspended slab pour



Figure 17 – Clover Point Pump Station – Site overview looking north west.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan (as the Design-Build Contractor for the Macaulay Point Pump Station and Forcemain) progressed design, engineering and construction activities over the reporting period, as follows:

Engineering

- Submitted the final Hazard and Operability Report.

Construction

Photographs of construction progress at Macaulay Point Pump Station and Forcemain are shown in Figures 18 to 20. Key construction activities in progress or completed by Kenaidan in May were as follows:

- continued progress on the second lift of exterior walls;
- completed the inlet channel concrete and vortex degritter topping slab;
- formwork, reinforcing steel installation and concrete is ongoing for interior walls;
- commenced formwork and reinforcing steel installation for the vertical walls in the vortex degritter;
- commenced excavation including drilling and blasting along the Macaulay forcemain alignment; and
- commenced fusion welding of the high density polyethylene sanitary forcemain pipe.



Figure 18 –Macaulay pump station & forcemain – drilling and blasting on Anson Street.



Figure 19 – Macaulay pump station & forcemain – pouring the second lift of the exterior wall SW corner.



Figure 20 – Macaulay pump station & forcemain – trench excavation for Macaulay forcemain on Anson Street.

2.9.3.1 Clover Forcemain (CFM)

Windley Contracting Ltd. ("Windley" as the Construction Contractor) continued construction activities including: installation of 534m of forcemain (from San Jose Avenue to Lewis Street and from Camas Circle to Douglas Street).

Photographs of construction progress at Clover Forcemain are shown in Figures 21 to 22. Key construction activities in progress or completed by Windley in May were as follows:

- installed 304 metres of forcemain between San Jose Ave and Lewis Street;
- installed 230 metres of forcemain between Camas Circle and Douglas Street;
- utility relocations; and
- commenced construction of the cycle track from Clover Point working West.



Figure 21 — Clover Forcemain: - installing odour control equipment east of Douglas Street.



Figure 22 – Clover Forcemain: Installing forcemain towards Douglas Street.

2.9.3.2 Residuals Solids Conveyance Line (RSCL)

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: submitting construction work plans and shop drawings, submitting permit applications, continuing to perform utility pre-locates and potholing, soil assessment survey and installation of the RSCL pipeline.

Photographs of construction progress along the RSCL are shown in Figures 23-24. Key construction activities by Don Mann Excavating in May were the installation of 2,160 Meters of pipes at the following locations:

- Segment #1 – continued installation of the Residual Solids Forcemain at Hereward Road, Dominion Road and Selkirk Avenue.
- Segment #3 – continued installation of the Residual Solids Forcemain and the Centrate Return Line at Interurban Road; and
- Segment #4 – continued installation of the Residual Solids Forcemain and the Centrate Return Line at Willis Point Road and Wallace Drive.



Figure 24 – RSCL 100: – Installing equipment inside the Air Valve Chamber on Willis Point Road.

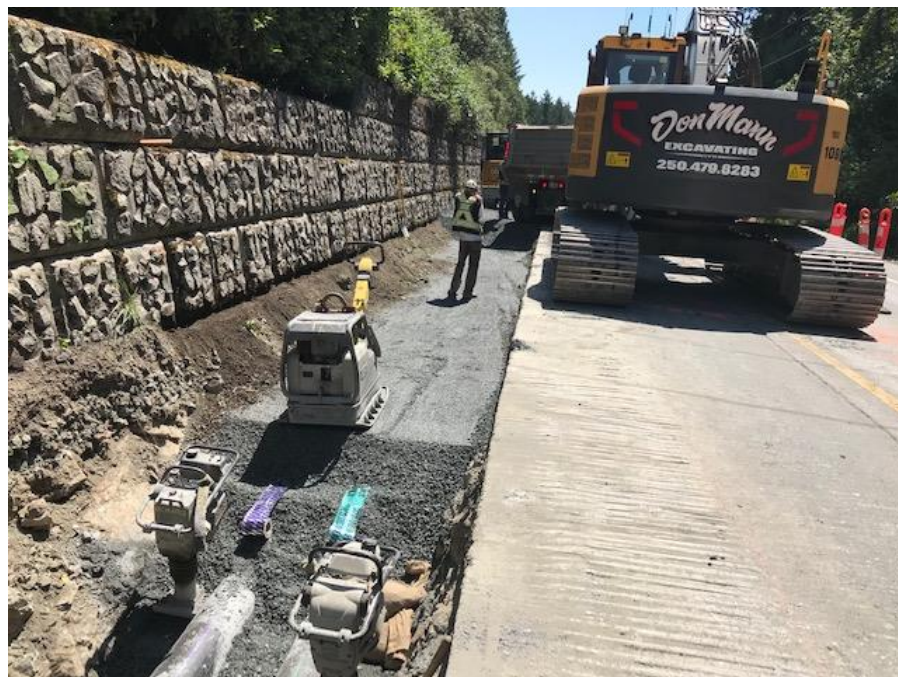


Figure 25 – RSCL100: - Minimum 150mm of pipe bedding placed in rock removal area on Interurban Road.

RSCL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for Residual Solids Pump Stations) commenced preconstruction activities including preparation and submission of work plans, bird sweeps, tree removal and shop drawings and permit applications.

Key construction activities by Knappett Projects Inc. in May were as follows:

- Clearing and grubbing of pump station 3 site;
- Install fencing at pump station 1 and 3 sites;
- Survey the alignment of the RSF and CRL along Willis Point Road; and
- Saw cut the asphalt along the alignment of the RSF and the CRL along Willis Point Road.

RSCL 300 Saanich Infrastructure Improvements: the Project Team is arranged for Parsons (as the design consultant) to complete a preliminary conceptual design for the infrastructure improvements, which include sidewalks along the east side of Grange Road and the west side of Esson Road and a traffic circle at the intersection of Vincent and Bodega Streets.

2.9.3.3 Arbutus Attenuation Tank

North American Constructors Ltd. (“NAC” as the Construction Contractor for the Arbutus Attenuation Tank) commenced pre-construction activities, including preparation of work plans.

2.9.3.4 Trent Forcemain

Detailed design of the Trent Forcemain commenced, and surveys and geotechnical investigations were planned to inform the final design and alignment.

Appendix A– Arbutus Attenuation Tank Contractor Selected (May 10, 2019)



**Wastewater
Treatment Project**

Information Bulletin

For Immediate Release

May 10, 2019

Arbutus Attenuation Tank Contract Awarded

Victoria, BC– The Capital Regional District (CRD) has awarded a \$17.7-million contract to NAC Constructors Ltd (NAC) to construct the Arbutus Attenuation Tank. As part of the Wastewater Treatment Project, the Arbutus Attenuation Tank is a 5,000m³ underground concrete tank that will be located within CRD-owned land in Haro Woods.

During high volume storm events, the Arbutus Attenuation Tank will temporarily store wastewater flows to reduce the number of sewer overflows. Once the high storm flow has passed, the tank will empty back into the sewer system and will be conveyed to the McLoughlin Point Wastewater Treatment Plant for tertiary treatment.

NAC is an employee-owned Canadian firm established in 1993. As a general contractor, NAC has successfully completed projects all across Canada ranging from large-scale municipal and civil projects, to heavy industrial projects.

Construction of the tank is anticipated to begin June 2019 and take 16 months to complete. Site clearing took place in early March before the bird nesting window. During construction, the site and the laydown area will be fenced. Once construction is complete the site will be planted with vegetation appropriate for the local woodland setting.

The Wastewater Treatment Project is being funded by the Government of Canada, the Government of British Columbia and the CRD.

For more information on the Arbutus Attenuation Tank, please visit
<https://www.crd.bc.ca/project/capital-projects/arbutus-attenuation-tank>.

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. The Project will be built so we comply with federal regulations by the end of 2020, and consists of the McLoughlin Point Wastewater Treatment Plant, the Residuals Treatment

Appendix B– Residual Solids Conveyance Line: Pipe Installation (May 15, 2019)



Wastewater
Treatment Project
Treated for a cleaner future

Construction Notice

UPDATE

May 15, 2019

Residual Solids Conveyance Line: Pipe Installation

Construction of the Residual Solids Conveyance Line is making good progress with over 30% of the pipes installed. The contractor, Don Mann Excavating, has multiple crews working along the 19km alignment. The updated progress map and work locations are shown on the next page; please visit wastewaterproject.ca for weekly updates.

What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipes 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.
- Noise associated with this work includes excavation machinery and truck back-up beepers, and will not exceed the municipal noise bylaws.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Occasional Saturday work may be required and hours will fall within each municipality's bylaws.
- Night work may be done at busy intersections to limit impacts to traffic.

Traffic Impacts

- There will be single lane alternating traffic in the work zones controlled by flaggers.
- Two-way traffic will be maintained at busy intersections during rush hour.
- There will be temporary parking impacts when work is being completed. Parking signs will be posted in advance.

Access

- Access to residents and businesses will be temporarily impacted when work is underway and will be reinstated at the end of each work day. Residents will be notified of temporary closures in advance.

Construction of the Residual Solids Conveyance Line is anticipated to be complete in spring 2020.

Thank you for your patience as this work is completed.

(Continued on next page)

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– Macaulay Forcemain Installation Update (May 24, 2019)

**Wastewater
Treatment Project**
Treated for a cleaner future

Construction Notice

UPDATE

May 24, 2019

Macaulay Forcemain Installation

Construction is underway for the Macaulay Forcemain, the pipe that will convey wastewater from the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant. The work began at the pump station and is progressing towards the treatment plant. This work will take approximately 9 months to complete.

What to Expect

- The forcemain will be installed in segments on the following roads: View Point Road, Vaughan Street, Anson Street, Bewdley Avenue, Peters Street, Patricia Way and Victoria View Road (see map on reverse).
- For each segment: a trench will be excavated, the pipe will be lowered into the trench, the trench will be backfilled, and the surface restored.
- When rock is encountered in the trench, rock hammering or blasting will be required.
- Any blasting will be monitored and as a precaution, pre- and post-blast surveys will be conducted when blasting is required. Notification will be provided to residences directly.
- Noise and vibrations are expected during this work.

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.

Traffic Impacts/Vehicle Access

- There will be localized single-lane traffic during forcemain construction.
 - Both lanes will be closed for short periods for each blast.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Vehicle access to residences may be temporarily restricted due to the presence of equipment. Residents will be notified in advance.
- Access to residential driveways will be maintained at the end of each work day.
- Emergency services will have access at all times.
- Garbage and recycling services will be picked up as usual.

Water and Sewer Service Impacts

- Water and sewer service may be interrupted for short periods for some residents along the route. 48 hour notice will be provided prior to any interruption of service.

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– Trent Forcemain: Geotechnical Work (May 27, 2019)

**Wastewater
Treatment Project**
Treated for a cleaner future

Construction Notice

May 27, 2019

Trent Forcemain: Geotechnical Work

The Wastewater Treatment Project includes construction of the Trent Forcemain, a 1.3km extension of an existing pipe from the intersection of Chandler Ave and St Charles Street to the Clover Point Pump Station. This addition to the eastern branch of the CRD's core area conveyance system will increase capacity of the system and help reduce wet weather overflows.

Surveys and geotechnical investigations will be conducted to inform the final design and alignment of the Trent Forcemain. This work is anticipated to begin the week of May 27 and take 4-6 weeks to complete, depending on the weather.

What to Expect

- A truck mounted drilling rig will be used to create boreholes at approximately 100m spacing along the preliminary design alignment:
 - Dallas Road Waterfront Trail;
 - Eberts Street;
 - Memorial Crescent;
 - Fairfield Road;
 - Stannard Avenue;
 - Brooke Street; and
 - St Charles Street.
- There will be some noise associated with the drilling work.
- Each borehole will be filled once the required soil sample has been collected.

Work Hours

- Monday to Friday from 7:00 a.m. to 5:00 p.m.

Traffic Impacts

- Traffic control will be provided for the drilling investigation.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

Construction of the Trent Forcemain is anticipated to begin in early 2020 and take approximately one year to complete.

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.

Map on reverse

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit wastewaterproject.ca. To contact the project, please email wastewater@crd.bc.ca or call 1.844.815.6132.

Appendix E – McLoughlin Point Wastewater Treatment Plant – Information Sheet (May 2019)



McLoughlin Point Wastewater Treatment Plant

Located at McLoughlin Point in Esquimalt, the McLoughlin Point Wastewater Treatment Plant will provide tertiary treatment to the core area's wastewater.

OPERATION

The plant will treat up to 108 megalitres of wastewater per day, providing capacity to accommodate future population growth. Wastewater will go through primary, secondary and tertiary treatment and then be discharged into the ocean through a new outfall approximately 2km from shore and 60m deep. **Primary treatment** is the physical separation of solids from wastewater. **Secondary treatment** is a biological process that removes dissolved and suspended organic compounds in the wastewater. **Tertiary treatment** is a physical process that reduces solids that remain after the secondary treatment process. The plant is being built to post-disaster standards so it will remain operational following a major earthquake. The system is controlled and monitored 24/7.



DESIGN

Situated at the entrance of Victoria harbour, the design of the treatment plant respects the setting and incorporates the highest standards of design, materials and aesthetics. The design includes a multi-level green roof, mature landscaping, observation deck, and education space. The plant is also designed to increase capacity to accommodate future population growth.

NOISE

In accordance with the Township of Esquimalt's Zoning Bylaw, operational noise from the McLoughlin Point Wastewater Treatment Plant will not exceed 60 decibels (dBA) outside of the plant's property line (which is similar to an air conditioner).

ODOUR

The McLoughlin Point Wastewater Treatment Plant has been designed so there will be no detectable odour by residents. It will include the following:

- State-of-the-art odour control;
- 24-hour odour control monitoring system;
- Detailed procedures for responding to odour issues, in the unlikely event that one occurs; and,
- A CRD phone line to report any odour issues 24 hours a day.



Appendix F – Monthly May Cost Report

ASSET MANAGEMENT COST REPORT as at May 31, 2019														
Project Component	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to April 30, 2019	Expended over reporting period (May 2019)	Expended to May 31, 2019	Expended to May 31, 2019 as a % of Budget	Remaining (Unexpended) Budget at May 31, 2019	Total Commitment at May 31, 2019	Unexpended Commitment at May 31, 2019	Uncommitted Budget at May 31, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Budget
McLoughlin Point Wastewater Treatment Plant ^A	378.0	384.6	207.5	9.2	216.7	58%	147.9	343.3	128.6	21.3	147.9	384.6	-	0%
Residuals Treatment Facility ^A	195.0	158.3	17.4	0.2	17.6	11%	140.6	150.5	132.9	7.8	140.6	158.3	-	0%
Conveyance System ^A	192.0	252.1	85.3	11.3	96.6	38%	155.5	208.7	112.1	43.4	155.5	252.1	-	0%
Total Costs	765.0	775.0	310.2	20.7	330.9	43%	444.0	702.5	371.6	72.5	444.0	775.0	-	0%
<div><div>A - Including PMO and Common Costs</div><div>* Values presented in \$millions, results in minor rounding differences</div><div>** Cost report presents approved expenditures</div></div>														