



**PORT of
vancouver**

PROJECT AND ENVIRONMENTAL REVIEW REPORT

**PER NO. 19-218
CITY OF DELTA STORMWATER OUTFALL**

Prepared for:
Director, Environmental Programs

Table of Contents

Table of Contents.....	i
1 INTRODUCTION.....	1
2 PROJECT DESCRIPTION.....	1
2.1 Proposed Works.....	2
2.2 Proposed Construction Methods.....	2
3 VANCOUVER FRASER PORT AUTHORITY INTERNAL REVIEWS.....	3
3.1 Planning.....	3
3.1.1 Land Use Designation.....	3
3.2 Engineering.....	3
3.3 Marine Operations.....	3
4 STAKEHOLDER CONSULTATION.....	4
4.1 Municipal Consultation.....	4
4.2 Federal, Provincial, Regional Agency Consultation.....	4
4.3 Adjacent Tenant Consultation.....	4
4.4 Port Community Liaison Committee Community Liaison Group Notification Activities.....	4
5 PUBLIC ENGAGEMENT.....	4
6 INDIGENOUS CONSULTATION.....	4
7 ENVIRONMENTAL EFFECTS REVIEW.....	11
7.1 Scope of Environmental Review.....	11
7.2 Environmental Effects and Mitigation Summary.....	12
7.3 Environmental Effects Review Decision.....	17
8 CONCLUSION.....	17
APPENDIX A Location Plan.....	19
APPENDIX B List of Information Sources.....	21

 PORT of vancouver Vancouver Fraser Port Authority		VANCOUVER FRASER PORT AUTHORITY PROJECT AND ENVIRONMENTAL REVIEW REPORT
PER No.:	19-218	
Tenant:	City of Delta	
Project:	City of Delta Stormwater Outfall	
Project Location	8600 River Road, Delta	
Vancouver Fraser Port Authority SID No.:	DEL319	
Land Use Designation:	Commercial, Conservation	
Applicant(s):	City of Delta	
Applicant Address:	4500 Clarence Taylor Crescent, Delta	
Category of Review:	C	
Recommendation:	That PER No. 19-218 for City of Delta Stormwater Outfall be approved.	

1 INTRODUCTION

The Vancouver Fraser Port Authority (the “Port Authority”), a federal Port Authority, manages lands under the purview of the *Canada Marine Act*, which imparts responsibilities for environmental protection. The Port Authority accordingly conducts project and environmental reviews of works and activities undertaken on these lands to ensure that the works and activities will not likely cause significant adverse environmental effects. This project and environmental review report documents the Port Authority’s project and environmental review of PER No. 19-218: City of Delta Stormwater Outfall (the “Project”) proposed by the City of Delta (the “Applicant”).

This project and environmental review was carried out to address the Port Authority’s responsibilities under the *Canada Marine Act*, and to meet the requirements of the *Impact Assessment Act*, as applicable. The proposed Project is not a “designated project” under the *Impact Assessment Act* and an impact assessment as described in the *Impact Assessment Act* is not required. However, Port Authority authorization is required for the proposed Project to proceed and in such circumstances, where applicable, Section 82 of the *Impact Assessment Act* requires federal authorities to assure themselves that projects will not likely cause significant adverse environmental effects. The project and environmental review process is designed to provide that assurance. In addition, the Port Authority considers other interests, impacts and mitigations through the project and environmental review.

The project and environmental review considered the application along with supporting studies, assessments and consultations carried out or commissioned by the Applicant, as well as other information provided by the Applicant. In addition, this project and environmental review considered other information available to the Port Authority and other consultations carried out by the Port Authority. A full list of information sources germane to the review is provided in Appendix B.

This project and environmental review report is NOT a project authorization. This project and environmental review report summarizes the review outcome, and provides the basis for approval or denial. Should the project be approved, the report is accompanied by a project permit (the “Permit”) and the conclusions described in this report require compliance with the conditions in the Permit.

2 PROJECT DESCRIPTION

The City of Delta proposes to install a new stormwater outfall at 8600 River Road, Delta. The outfall will capture runoff from a 15 hectare catchment allowing for redevelopment of a former landfill site into a new industrial complex. The proposed industrial development is located outside lands managed by the Port Authority. The City

of Delta also proposes to remove woody debris in two nearby areas of marsh as habitat offsetting in support of a *Fisheries Act* Authorization for the project.

The Project consists of installing a manhole at the road edge, a pipe below a high productivity intertidal marsh, a headwall at the edge of the marsh, and a rip rap lined channel leading to a channel cut into the mudflat. The marsh area excavated during pipe installation will be reinstated upon completion. The outfall will discharge stormwater runoff largely from roofs and paved areas to the Fraser River. One of two existing pipes located beneath River Road will be reused, with the second being removed. River Road is located outside lands managed by the Port Authority.

2.1 Proposed Works

The proposed works for the new stormwater outfall include:

- installation of a manhole adjacent to the road dedication
- salvage of intertidal marsh vegetation within the Project footprint
- excavation and installation of a pipe extending approximately 30 meters from the manhole to the edge of the intertidal marsh
- installation of a concrete headwall and flap gate at the end of the pipe
- excavation and installation of an approximate 15 meter long by 3 meter wide channel lined with filter fabric and rip rap extending riverward from the headwall
- excavation of an approximate 25 meter long by 1 meter wide channel in the mudflat at the end of the rip rap channel and extending to the river
- restoration of the intertidal marsh area to pre-construction elevation using the salvaged vegetation and augmented with the planting of nursery stock marsh vegetation
- reuse of an existing carrier pipe that was previously installed within the municipal road dedication (outside Port Authority jurisdiction)
- removal of a secondary carrier pipe within the road dedication (outside Port Authority jurisdiction)

The proposed works for the habitat offsetting include:

- removal of woody debris from 645 square meters of marsh at two sites located to the east and west of the Project

2.2 Proposed Construction Methods

Project works are proposed to be conducted in three phases:

- The first phase is anticipated to take one to two days and would involve activities not requiring extreme low tides. Activities would be conducted in the dry and would include site preparation and excavations located above low water, small tide. Installation of the manhole is anticipated to be conducted as part of the first phase.
- The second phase is anticipated to take four to six days and would involve activities implemented during low water, large tide. The outfall pipe, headwall and outfall channel are anticipated to be constructed during the second phase. Activities would be conducted above the surface of the water.
- The third phase is anticipated to take one to two days and would involve activities associated with clean-up and decommissioning of equipment and materials. These activities would be conducted above the surface of the water and would not be constrained by tides.

The overall work program is expected to occur over a period of one to two weeks. The works are proposed to take place during the Port Authority's standard work hours of Monday to Saturday 7:00 a.m. to 8:00 p.m. (excluding holidays).

Equipment will access the Project location from land. Marine access is not anticipated.

The removal of woody debris will be conducted and monitored in accordance with a valid *Fisheries Act* Authorization.

3 VANCOUVER FRASER PORT AUTHORITY INTERNAL REVIEWS

The following Port Authority departments have reviewed the application and have the following project considerations.

3.1 Planning

Planning has reviewed the application and has the following land use comments.

The site is situated on the foreshore of the Fraser River, in the Sunbury area of Delta. To the south of the site is River Road and various industrial properties. To the west of the site is a commercial marina. The works are proposed to take place within a high productivity habitat area.

The use proposed for the installation of a stormwater utility is not anticipated to impact the adjacent marina use, and habitat offsetting is proposed along the shoreline. The proposal provides a service for the upland industrial properties.

3.1.1 Land Use Designation

The proposed stormwater outfall is located within an area designated as “Commercial”, and the habitat offsetting is located within an area designated as “Conservation” in the VFPA Land Use Plan (2020). The installation of a stormwater outfall does not represent a change in use of the site and is compatible with the primary commercial use of the site. The habitat offsetting is consistent with the primary uses under the conservation designation. The Project is therefore compliant with the Land Use Plan.

3.2 Engineering

Engineering has reviewed the application and requires the Applicant to conduct/apply/adhere/ensure the following:

- Issued for construction and record drawings are to be submitted.
- Abandoned utilities will be removed and capped at locations of connection to municipal works.

These are reflected in condition no. 16, 23 and 37 in the Permit.

The proposal meets Engineering’s requirements, subject to adherence to the listed project and environmental conditions in the Permit.

3.3 Marine Operations

Marine Operations has reviewed the application and requires the Applicant to conduct/apply/adhere/ensure the following:

- The relevant Canadian Hydrographic Service charts are to be updated.

This is reflected in condition no. 38 in the Permit.

The proposal meets Marine Operations’ requirements, subject to adherence to the listed project and environmental conditions in the Permit.

4 STAKEHOLDER CONSULTATION

The proposed Project was assessed to have potential impacts to stakeholders and the local community and consultation activities were determined to be required. The following sections describe the stakeholder and public consultation activities undertaken by the Applicant and the Port Authority as part of the project and environmental review.

4.1 Municipal Consultation

The City of Delta is the Applicant for the proposal; therefore, no additional municipal consultation was carried out.

4.2 Federal, Provincial, Regional Agency Consultation

The proposed Project was assessed by the Port Authority to be of potential interest to other regulatory agencies. The Project requires habitat offsetting under a *Fisheries Act* Authorization issued by Fisheries and Oceans Canada (DFO).

4.3 Adjacent Tenant Consultation

The proposed Project was assessed to have potential impacts to adjacent Port Authority tenant operations. A referral letter was sent to Kajla Investments Ltd. on January 19, 2021 notifying them of the proposed Project. Kajla Investments Ltd. responded to advise that they have no objections to the proposal.

4.4 Port Community Liaison Committee Community Liaison Group Notification Activities

The proposed Project was assessed to be of potential interest to the Port Community Liaison Committee community liaison group (PCLC). The proposed project was discussed at the March 2, 2021 PCLC meeting.

The Port Authority did not receive any comments from the PCLC group.

5 PUBLIC ENGAGEMENT

To meet requirements of section 86 of the *Impact Assessment Act*, the Port Authority posted a description of the Project and notice of public participation to the Canadian Impact Assessment Registry to provide the public 30 calendar days to comment on the project and provide community knowledge. The comment period ran from January 26 to February 27, 2021. At the close of the 30 calendar day public comment period, no comments were received from the public.

The proposed Project was assessed by the Port Authority to have minimal or no potential impacts to community interests in the surrounding area once the Project is complete. Therefore no public engagement was required to be conducted by the Applicant.

6 INDIGENOUS CONSULTATION

The Port Authority reviewed the proposed works and determined that the project may have the potential to adversely impact Aboriginal or Treaty rights.

The following Indigenous groups were consulted:

- Katzie First Nation
- Kwantlen First Nation
- Kwikwetlem First Nation
- Musqueam Indian Band
- Semiahmoo First Nation
- S'ólh Téméxw Stewardship Alliance

- Tsleil-Waututh Nation
- Tsawwassen First Nation
- Cowichan Tribes
- Halalt First Nation
- Lyackson First Nation
- Penelakut Tribe
- Stz'uminus First Nation
- Ts'uubaa-asatx (Lake Cowichan) First Nation

The following consultation activities were conducted:

- Consultation letters and participation funding agreements were sent to each Nation mentioned above. Within the consultation letters, Nations were notified that detailed project information was available on their online FTP site.
 - FTP site information included:
 - Envirowest Stormwater Management Plan 19-218
 - Delta Engineering Ltr to VFPA PER 19-218
 - Delta Response to Submission Checklist PER 19-218
 - Envirowest Emergency and Spill Response Plan PER 19-218
 - Envirowest Spill Prevention Plan PER 19-218
 - DFO Ltr to Delta Storm Outfall Authorization Required PER 19-218
 - Sources Memo Archaeological Background PER 19-218
 - DFO Ltr to Delta Application_Incomplete_20-HPAC-00726 (19-218)
 - CEMP version 1.0
 - Envirowest Response to DFO and FAA Application
 - Memo Morphology Fraser River Outfall 19-218
 - Delta Contact List PER 19-218
 - Delta Stormwater Outfall Design Drawing PER 19-218
 - Location Plan Delta Stormwater Outfall PER 19-218
- Email correspondence relating to comment reminders to Nations and addressing project questions from Nations
- Response tables provided to Nations who commented on the project

Below is a table summarizing comments received by the Port Authority from Indigenous groups and how they were considered as part of the project and environmental review.

Issue	Mitigations and Permit Conditions	Rationale
Archaeology & Cultural Heritage		
Request confirmation that ground disturbing works will be monitored by a qualified archaeologist under a <i>BC Heritage Conservation Act</i> Permit	The Port Authority will create a permit condition requiring the Applicant to have an archaeology monitor present during project activities to ensure appropriate measures are in place to minimize and monitor potential impacts to archaeological resources. In addition, a Chance Find Procedure will also be required from the Applicant.	The <i>Heritage Conservation Act</i> (HCA) does not apply on federally managed lands. While the Port Authority does not administer the HCA, we do consider the HCA as a system of standards and best practices. The Port Authority has drawn from the HCA as well as federal legislation in developing our own approach to archeological management that is applied in the project and environmental review (PER) process and our guidelines document.
Involvement of Indigenous groups in development of archaeological chance	The Port Authority will create permit conditions requiring the Applicant to have an archaeology monitor present during project activities to ensure appropriate measures are in place to	As part of the PER consultation process, Indigenous groups have the opportunity to comment and provide feedback on the project. A copy of the Archaeological Chance Find Procedure can be provided if

find procedure	minimize and monitor potential impacts to archaeological resources and that interested Indigenous groups are able to send a monitor to that work.	requested.
Request for the Port Authority to apply for First Nations Cultural Heritage Permits for the project work	None	The Port Authority, as a federal entity, does not apply for First Nation Cultural Heritage Investigation Permits, nor do we require our tenants or consultants to do so. We do, however, encourage sharing of archaeological information with Indigenous groups, and encourage our consultants to involve Indigenous groups in the planning and assessment process where appropriate.
Lack of known or documented archaeological deposits within the project area does not preclude the possibility of archaeological deposits within the Project footprint. Request that all workers on site will be trained in chance find procedures and all affected First Nations and the BC Archaeology Branch be notified in the event of a chance find	<p>The permit will include the following condition:</p> <p><i>The Permit Holder shall submit an Archaeological Chance Find Procedure for the Project site, to the Port Authority's satisfaction. The Permit Holder shall carry out the Project in accordance with this Procedure, and any subsequent updates made to the Port Authority's satisfaction.</i></p> <p>The Port Authority will notify this Nation in the event the Applicant indicates a possible chance find has occurred.</p>	The HCA does not apply on federally managed lands. While the Port Authority does not administer the HCA, we do consider the HCA as a system of standards and best practices. The Port Authority has drawn from the HCA as well as federal legislation in developing our own approach to archeological management that is applied in the project and environmental review (PER) process and our guidelines document.
Environment		
Confirmation that a Qualified Professional (QP) will be used to complete any soil and groundwater testing for contaminants during construction. Inquiry as to whether a preliminary site investigation or detailed site investigation has taken place	None	<p>The Applicant has confirmed that a QP will conduct any required soil and/or groundwater testing during construction.</p> <p>A preliminary site assessment was completed by Envirowest as part of the preparation for the Construction Environmental Management Plan (CEMP).</p>
What role will Indigenous communities have in the development of an Erosion Sediment Control Plan	None	As part of the PER consultation process, Indigenous groups have the opportunity to comment and provide feedback on the Project. A copy of the Erosion Sediment Control Plan can be provided if requested.
Concern around using non-biodegradable materials such as flagging tape and geotextile barriers in	None	The Applicant has committed to implementing this request.

<p>sediment control. Request to remove these materials following construction</p>		
<p>Requests for a Species at Risk section be included in the CEMP and mitigation strategies implemented</p>	<p>Mitigation measures in the <i>Fisheries Act</i> Authorization will be implemented to avoid potential effects on aquatic species.</p>	<p>The CEMP includes sections on fish and fish habitat (section 5.13) and vegetation and wildlife (section 5.14) that are considered to also be protective of species at risk.</p>
<p>Recommendation to include Best Management Practices for invasive species management and removal</p>	<p>Mitigations are in place to manage invasive species encountered during the lifetime of the Project. This includes:</p> <p>The area of restored marsh would be inspected for non-native invasive species including, but not limited to:</p> <ul style="list-style-type: none"> • reed canary grass (<i>Phalaris arundinacea</i>) • yellow flag (<i>Iris pseudacorus</i>) • purple loosestrife (<i>Lythrum salicaria</i>) <p>Non-native invasive plant species would be manually removed upon detection. Removed plants would be disposed of at a facility permitted to accept non-native invasive plant material.</p> <p>The permit will include the following condition:</p> <p><i>The Permit Holder shall manage invasive plants in a manner that prevents their spread. Invasive plants and potentially affected materials, such as soil, shall be appropriately contained, collected and disposed of.</i></p>	<p>Not applicable</p>
<p>Request for Indigenous Environmental Monitors to be present during project work</p>	<p>The permit will include the following condition:</p> <p><i>The Permit Holder shall provide opportunities for interested Indigenous groups to monitor and be present on the Project site at all times during ground disturbing activities with the potential to intrude into native soils.</i></p>	<p>Not applicable</p>
<p>Concern that a spill in a Fraser River Estuary may not be easily contained due to river hydraulics. Spill prevention is critical and</p>	<p>None</p>	<p>Section 5.5. Emergency Response of the CEMP provides the requirements in the event of a spill during project work.</p>

spill response should include adequate detail and clarity to ensure fast response to isolate a spill		
Request for notification if a spill event occurs	The Applicant has added these Indigenous groups to the emergency contact list for environmental emergencies	Not applicable
What are the best environmental practices and standards that will be used for training? How do they compare to the proposed response plans?	None	Section 5.1 Training and General Practices in the CEMP indicates that all staff and sub-contractors will receive CEMP training and will be adequately trained in the implementation of best environmental practices and standards before the commencement of overall construction.
It is critical the Environmental Monitor have the authority to order suspension of construction activities in the case of non-compliance with environmental plans or legislation or if the environmental monitor identifies a situation with a high risk of a spill	None	The Applicant has confirmed the Environmental Monitor has the authority to suspend construction activities. Please see Section 3.3 of the CEMP for the roles and responsibilities of the Environmental Monitor.
Concerns related to refueling procedures, hydrocarbon storage, use of drip trays	None	Section 5.4 Equipment and Refueling Procedures of the CEMP provides information on refueling and storage procedures.
Concern related to sediments, debris, concrete (cured or uncured), and concrete wastewater from the project site entering the Fraser River or landside drainage	None	Section 5.9 Concrete provides information related to the use of concrete on site. Confirmation provided by the Applicant that cast-in-place concrete is not associated with this project.
Request for clarification of the exact catchment area of the proposed stormwater outfall	None	The catchment for the stormwater outfall associated with the Project is the 15 hectares of land surrounding the existing temporary outfall. The Applicant has indicated the requirement of a permanent outfall in the area to strengthen the flood resilience in the area and improve the City's stormwater conveyance system.

<p>Who will monitor and certify Contractor compliance in regards to accidental discharges</p>	<p>None</p>	<p>As a Category C application, if approved, this application will have a permit with conditions issued and it will be automatically enrolled in the Port Authority's compliance monitoring and enforcement program.</p> <p>The Port Authority's compliance monitoring and enforcement program has the following objectives:</p> <ul style="list-style-type: none"> • Efficiently and effectively monitor compliance with project permit conditions • Provide an effective deterrent to non-compliance with permit conditions and unauthorized works • Enhance opportunities for amicable resolutions to instances of non-compliance • Increase transparency of the port authority's post-permit monitoring processes, including compliance oversight and enforcement actions <p>Under the program, non-compliance is defined as a failure to act in accordance with a project permit condition. Unauthorized work is work that is undertaken without a project permit which would have required a project permit, or work undertaken that is beyond the scope of what is authorized in a project permit.</p>
<p>Request that the effects of any environmental incident or spill be monitored for at least 5 years following the incident. Should environmental impacts continue to occur, it is requested that clean-up/remediation continues to be conducted in consultation with Indigenous groups</p>	<p>None</p>	<p>Monitoring would be determined on a case-by-case basis. Depending on the specifics of the incident, any required remediation may be subject to a new application and review by the Port Authority, at which time Indigenous groups may be consulted.</p>
<p>Environment – Marsh Restoration and Habitat Offsetting</p>		
<p>Is there a way to sequence the work to minimize impact to intertidal marsh?</p>	<p>The following mitigations will be in place to minimize impact to the intertidal marsh from construction activities:</p> <ul style="list-style-type: none"> • Conducting project work during low tide periods above the water surface (no in-water works) 	<p>Not applicable</p>

	<ul style="list-style-type: none"> • Salvage and restoration of marsh vegetation with augmentation from nursery plant stock, as needed • Phased construction will be implemented to mitigate the areal extent of impacts. The outfall channel will be the first item constructed • Blasting mats and/or timber pads would be used to disperse equipment load in the intertidal • Landward staging of construction aggregates • Utilizing previously placed rock to stage headwall and pipe rather than staging in the marsh • Salvage intertidal marsh as sections of sod and individual plants 	
How will the entire area of impacted marsh be restored when part of that area will be used for the headwall and pipe	The permanent loss or alteration of habitat within the project footprint will be mitigated through habitat offsetting as required under a <i>Fisheries Act</i> Authorization.	The headwall will occupy both marsh and mudflat. That part of the marsh displaced by the headwall will be restored on the mudflat.
Describe the performance measures in place to assess marsh restoration	<p>Monitoring plans and success criteria will be reviewed under the Fisheries and Oceans Canada (DFO) <i>Fisheries Act</i> Authorization.</p> <p>Regarding implementation of measures to avoid and mitigate serious harm to fish - monitoring of reclaimed vegetation will be conducted for 1 to 2 growing seasons, as required, to confirm recovery.</p>	Not applicable
Given the diversity of existing marsh species, why is only Baltic rush considered for restoration?	None	Testing at a natural marsh near the project location will determine types of vegetation used to replant the restored marsh. At minimum, planting will include Lyngby's sedge (<i>Carex lyngbyei</i>) and Baltic rush (<i>Juncus balticus</i>). The types of plants specified for replanting are anticipated to be determined by DFO as part of a <i>Fisheries Act</i> Authorization.
Environment – Fish and Fish Habitat		
Indigenous groups indicate numerous reports of white sturgeon being caught between the river mouth and Chilliwack. Concern regarding the statement “No white sturgeon have been caught	Mitigation measures included in the <i>Fisheries Act</i> Authorization will be implemented to avoid potential effects on white sturgeon and other aquatic species.	The Port Authority is aware that the Project is located in proximity of an important holding area for juvenile and adult white sturgeon in the Fraser River. No in-water works will be conducted as part of the project. Activities will be conducted in the dry at appropriate low tides.

<p>between the river mouth and Chilliwack in the numerous beach seine surveys (total several hundred hauls) conducted by this author and colleagues over the past 20 years.”</p>		
<p>Request for confirmation that works will happen within the least risk fish window</p>	<p>None</p>	<p>Confirmation provided. Works scheduled between June 16, 2021 and February 28, 2022 to encompass least risk windows for fish.</p>
<p>While this document states that in-water work will not be conducted and no impacts to fish species are expected, DFO states this project is likely to result in HADD. Has the project changed significantly from 2020 when the FAA letter was sent? If not, what explains this discrepancy</p>	<p>The Project will result in impacts to fish habitat which will be mitigated through offsetting as required in a <i>Fisheries Act</i> Authorization.</p>	<p>Minor changes to the project design have occurred since the April 30, 2020 DFO letter was sent. The changes include a slight reduction in the width of the riprap lined channel and the addition of an excavated channel approximately 25 meters long by 1 meter wide at the end of the riprap channel.</p>

The Port Authority has made a meaningful effort to consult with all potentially affected Indigenous groups. Based on the record of consultation, the Port Authority is of the view that the duty to consult has been met.

7 ENVIRONMENTAL EFFECTS REVIEW

To fulfill its responsibilities under the *Canada Marine Act* and the *Impact Assessment Act*, the Port Authority must make a determination on the potential environmental effects of a proposed project on Port Authority managed lands and waters prior to authorizing those works to proceed. To make that determination, the Port Authority considers the residual adverse effects of the Project, that is, the effects after mitigation measures have been taken into account.

This section of the project and environmental review report summarizes the environmental effects review conducted for the Project, and provides the environmental effects decision. The environmental review also considered the information provided in the previous sections of this report.

7.1 Scope of Environmental Review

The environmental review includes consideration of the potential environmental effects of the proposed Project, taking into account mitigation measures to avoid or reduce those effects. This review considered the Project components and physical activities described in Section 2.

The temporal scope of the review includes construction and operation of the stormwater outfall.

The environmental review considered potential adverse environmental and social effects of the Project on 14 environmental components (e.g., species with special status, aquatic species and their habitat, recreational interests, etc.) and from accidents and malfunctions. These environmental components are aspects of the biophysical and socio-economic environment considered to have ecological, economic, social, cultural, archaeological, or historical importance.

Section 7.2 summarizes the results of the environmental effects review and proposed mitigations.

7.2 Environmental Effects and Mitigation Summary

Project information pertinent to the environmental review includes the following:

- Approximately 216 square meters of high productivity intertidal marsh will be temporarily impacted during construction of the stormwater outfall. Intertidal marsh vegetation will be restored upon Project completion and monitored in compliance with a valid *Fisheries Act* Authorization.
- A desktop-based qualitative assessment of the potential morphological effects of the stormwater outfall determined that areas of bed scour that may result during higher flow events are expected to be infilled through depositional processes in typical conditions. Overall, morphological effects of the Project are anticipated to be minimal and, where present, localized in nature.
- A stormwater management plan prepared for the adjacent upland development (outside Port Authority jurisdiction) includes the installation of a hydrodynamic (swirl concentrator) oil/grit separator to treat stormwater prior to discharge through the new outfall.
- The construction environmental management plan (CEMP) submitted as part of the application identified mitigation measures to be implemented during the Project, including: scheduling activities to occur within least-risk work windows for aquatic species, undertaking environmental monitoring by a qualified professional, implementing spill prevention planning, and developing a Project-specific environmental protection plan.

The following table summarizes the potential environmental effects the Project could have on the identified environmental components.

Environmental Component	Potential Adverse Effects?		Overview of Potential Adverse Effects, Mitigation Measures, and Residual Adverse Effects	Significant Residual Adverse Effects?	
	Yes	No		Yes	No
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on air quality during construction activities from equipment operation. Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan. This includes an idling reduction, turning off emission sources when not in use, and dust control as needed. Construction activities will be temporary and short-term in duration (i.e., intermittent over a two week period).</p> <p>After Project completion, no new air emission sources will remain on site.</p> <p>With mitigation in place, residual adverse effects on air quality are not expected to be significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lighting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No new lighting will be installed as part of the Project.</p> <p>Work will be undertaken during standard construction hours as described in the construction environmental management plan.</p> <p>Adverse effects due to lighting are not anticipated.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Component	Potential Adverse Effects?		Overview of Potential Adverse Effects, Mitigation Measures, and Residual Adverse Effects	Significant Residual Adverse Effects?	
	Yes	No		Yes	No
Noise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse noise effects during construction activities.</p> <p>Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan. Construction noise is anticipated to have minimal adverse effects due to the location of the Project site in an industrial area and works being limited to an approximate two week period.</p> <p>After Project completion, no noise sources will remain on site.</p> <p>With mitigation in place, residual adverse effects on the acoustic environment are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to soil from spills during construction activities.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented during construction to mitigate adverse effects to soils. Clean equipment will be used during construction. A spill prevention, containment and clean-up plan will be implemented prior to works.</p> <p>With mitigation in place, residual adverse effects on soil quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sediments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to sediment from spills during construction activities or from rip-rap placement.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented during construction to mitigate adverse effects to sediments. Clean equipment will be used during construction. A spill prevention, containment and clean-up plan will be implemented prior to works.</p> <p>With mitigation in place, residual adverse effects on sediment quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Component	Potential Adverse Effects?		Overview of Potential Adverse Effects, Mitigation Measures, and Residual Adverse Effects	Significant Residual Adverse Effects?	
	Yes	No		Yes	No
Groundwater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects to groundwater from spills during construction activities.</p> <p>Mitigation measures outlined in the construction environmental management plan will be implemented during construction to mitigate adverse effects to groundwater. Clean equipment will be used during construction. A spill prevention, containment and clean-up plan will be implemented prior to works.</p> <p>With mitigation in place, residual adverse effects on groundwater quality are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Surface water and water bodies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>There is potential for adverse effects on surface water and water bodies during construction activities, including excavation and rip rap placement. Potential adverse effects are anticipated to be limited to water quality effects including total suspended solids (TSS) concentrations.</p> <p>Works in the intertidal zone will be conducted in the dry, above the surface of the water. Rip rap will be clean and free of fines. Clean equipment will be used during construction. A spill prevention, containment and clean-up plan will be implemented prior to works.</p> <p>During operation, stormwater from the adjacent upland development will pass through an oil/grit separator prior to discharge to the Fraser River. Prior to operations, an updated Stormwater Pollution Prevention Plan that outlines analytical sampling to assess the effectiveness of treatment devices will be implemented.</p> <p>Areas of potential bed scour during high flow events are anticipated to infill naturally during typical conditions.</p> <p>With mitigation in place, residual adverse effects on surface water and water bodies are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Component	Potential Adverse Effects?		Overview of Potential Adverse Effects, Mitigation Measures, and Residual Adverse Effects	Significant Residual Adverse Effects?	
	Yes	No		Yes	No
<p>Species/habitat with special status</p> <p>Assessed under section 79 of the <i>Species at Risk Act</i>, as applicable</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The Project is located in proximity to an important holding area for juvenile and adult white sturgeon in the Fraser River.</p> <p>Mitigation measures to reduce the potential for adverse effects will be implemented as detailed in the construction environmental management plan. These include conducting works in the dry, i.e., above the surface of the water, and conducting works during the least-risk fish window (June 16 to February 28).</p> <p>Mitigation measures included in the <i>Fisheries Act</i> Authorization will be implemented to avoid potential effects on white sturgeon and other aquatic species.</p> <p>With mitigation in place, residual adverse effects on species/habitat with special status are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Terrestrial resources (e.g., vegetation, wildlife, etc.)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Approximately 216 square meters of high productivity intertidal marsh vegetation will be impacted during construction. Upon Project completion, the intertidal marsh vegetation will be restored and monitored annually. Remedial measures, such as additional planting, will be conducted as needed based on monitoring.</p> <p>With mitigation in place, residual adverse effects on terrestrial resources are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Wetlands</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The Project is located within the intertidal zone of the Fraser River. Approximately 216 square meters of high productivity intertidal marsh vegetation will be impacted during construction. Upon Project completion, the intertidal marsh vegetation will be restored and monitored annually. Remedial measures, such as additional planting, will be conducted as needed based on monitoring.</p> <p>With mitigation in place, residual adverse effects on wetlands are expected to be not significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Component	Potential Adverse Effects?		Overview of Potential Adverse Effects, Mitigation Measures, and Residual Adverse Effects	Significant Residual Adverse Effects?	
	Yes	No		Yes	No
Aquatic resources (e.g., aquatic plants, fish and fish habitat, waterbirds, marine mammals, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Project-related activities have the potential to disturb aquatic species and fish habitat (e.g., through induced turbidity and other changes to water quality, disruption to migrating fish populations, displacement of habitat for benthic organisms where riprap will be placed, and accidental spills). Potential adverse effects will be reduced through the implementation of mitigation measures outlined in the construction environmental management plan, as well as through avoiding the period of peak juvenile salmonid migration in the area (March to mid-June). The permanent loss or alteration of habitat within the footprint of the outfall channel will be mitigated through habitat offsetting as required under a <i>Fisheries Act</i> Authorization. With mitigation in place, residual adverse effects on aquatic resources are expected to be not significant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Health and socio-economic conditions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on the very low magnitude of residual effects on air and noise, the Project is not expected to cause adverse effects on health or socio-economic conditions of people, including Indigenous people.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Archaeological, physical, and cultural heritage resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is a low-moderate potential for encountering disturbed or re-deposited archaeological resources during ground disturbance activities. A qualified archaeological monitor will be on-site during ground disturbing works. With mitigation in place, residual adverse effects on archaeological, physical, and cultural heritage resources are expected to be not significant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Accidents and malfunctions Assessed as required by the <i>Canada Marine Act</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is potential for adverse effects on surface water, soil, and sediment from accidental equipment leaks or spills. Mitigation measures outlined in the construction environmental management plan will be in place to reduce the potential for adverse, Project-related effects due to accidents. With mitigation measures in place, the effect of an accident or malfunction on the environment, if it were to occur, is predicted to be not significant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Residual adverse effects (i.e., effects that remain with mitigation in place) were identified for the following environmental components:

- Air quality
- Noise
- Soils
- Sediment
- Groundwater
- Surface water and waterbodies
- Species or habitat with special status
- Terrestrial resources
- Aquatic resources
- Archaeological resources
- Accidents and malfunctions

Overall, the residual adverse effects of the Project on the environmental components are characterized as:

- Medium in magnitude and primarily due to the presence of construction equipment in the intertidal zone, physical disturbance of marsh vegetation and mudflat, and associated potential effects on aquatic resources and water quality during temporary construction activities and operations.
- Local in geographic extent, during construction and operations because effects will be limited to the Project area.
- Short-term in duration during Project construction as construction phase will be intermittent and temporary for approximately two weeks. Long-term during operations as the stormwater outfall is anticipated be in operation for decades and will discharge treated stormwater intermittently.
- Continuous (daily to weekly) in frequency during Project construction and operation.
- Reversible/temporary during construction because residual adverse effects of the Project would be reversible once the Project is complete. Irreversible (i.e., permanent) during operations due to stormwater discharge to the Fraser River.

In conclusion, based on the characterization above, the mitigation measures proposed by the Applicant, and the permit conditions, the residual adverse effects from the Project are predicted to be not significant.

7.3 Environmental Effects Review Decision

In completing the project and environmental effects review, the Port Authority has reviewed and taken into account relevant information available on the proposed Project and has considered any adverse impact that the Project may have on the rights of Indigenous peoples, Indigenous knowledge, community knowledge, comments received from the public, and measures that would mitigate any significant adverse environmental effects of the Project. We conclude that with the implementation of proposed mitigation measures and Permit conditions, the Project is not likely to cause significant adverse environmental effects.

ORIGINAL COPY SIGNED

LISA MCCUAIG
MANAGER, ENVIRONMENTAL PROGRAMS

June 18, 2021

DATE OF DECISION

8 CONCLUSION

In completing the project and environmental review, the Port Authority concludes that with the implementation of proposed mitigation measures and conditions described in the Permit, the Project has appropriately addressed all identified concerns.

It is the recommendation of staff that this application be approved subject to conformance with the project and environmental conditions listed in project permit **PER No.** 19-218.

COPY

COPY

**APPENDIX A
Location Plan**



COPY

APPENDIX B
List of Information Sources

The Port Authority has relied on the following sources of information in the project and environmental review of the Project:

- Application form and materials submitted by the Applicant on May 8, 2020.
- Project correspondence regarding PER 19-218 from May 8, 2020 to June 14, 2021.

COPY