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Construction Environmental Management Plan

Annacis Auto Terminal Optimization Project

Vancouver Fraser Port Authority

Project number: 60661425
Rev B

May 16 2022

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1 Introduction

The following Construction Environmental Management Plan (CEMP) is prepared for the Annacis Automobile Terminal Optimization Project (the Project) led by the Vancouver Fraser Port Authority (VFPA). The CEMP has been prepared in accordance with the VFPA guidance on CEMP requirements and part of the Port's Project and Environmental Review (PER) process.

The following are the main objectives of this CEMP:

- Outline the best management practices (BMPs) for construction and operational management to prevent or reduce the potential environmental impacts as associated with the Project; and
- Outline environmental protection and monitoring measures to be implemented on the project site to detect potential environmental impacts and maintain regulatory compliance with applicable legislation and existing permits.

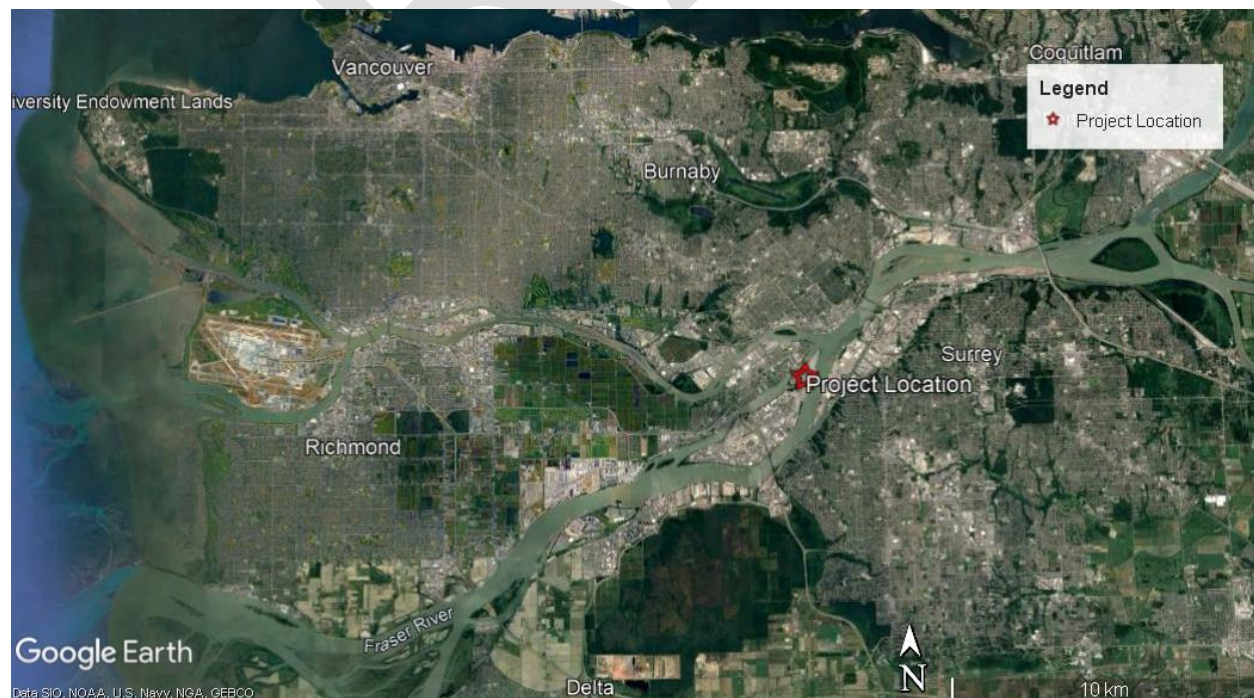
2 Project information

The VFPA owns two properties on the Main arm of the Fraser River that are currently leased to Wallenius Wilhelmsen Solutions (WWS) and are utilized for the import of automobiles that are manufactured overseas. These terminals are the Annacis Auto Terminal (AAT) and the Richmond Terminal (RT). The VFPA proposes to utilize the RT for other port-related purposes and optimize the AAT to be able to handle the combined throughput of the WWS operations. The purpose of the project is to increase the annual terminal capacity of AAT.

2.1 Location

The Site is located on the north bank of the Fraser River at the upstream end of Annacis Island in Delta, BC. The coordinates of the Project's approximate centre are 49°11'6.33" North and 122°55'32.30" West. The project location is shown in Figure 1.

Figure 1: Project location.



2.2 Project Description

All construction works will be conducted at the AAT. The following are a general overview of the planned project work:

- Enhancement of the existing rail capacity through the extension of existing track sidings and the addition of new track sidings to increase the rate of vehicle imports;
- Installation of electric vehicle charging stations and the infrastructure needed for expansion to suit future consumer demand and government climate action policies; and
- Demolition, replacement and refurbishment of existing terminal buildings and other vehicle processing and handling facilities in order to optimize terminal operations.

2.3 Project Schedule

The preliminary schedule for the Project has construction activities starting in mid 2022. The rail expansion construction is scheduled to be completed in November 2022 and the electric charging station construction and building construction completion dates are scheduled for January and September 2023, respectively.

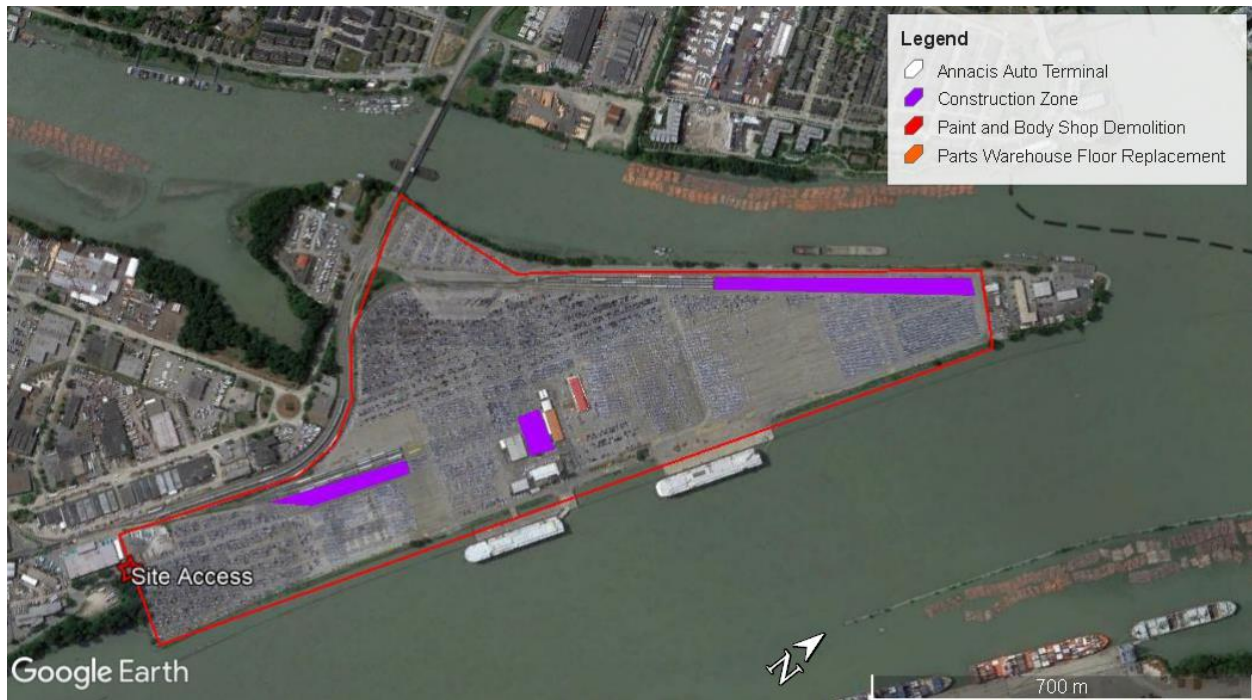
2.4 Site Description

The Site is located within the AAT, a VFPA owned property leased to WWS for the import of automobiles manufactured overseas. The Site is located in an industrial area on Annacis Island. There will be three construction zones within the project site (Figure 2). These include the following:

- Rail Side 1 construction zone east of the Terminal;
- Rail Side 2 at the west end of the Terminal; and
- The facility construction zone at the mid south area of the Terminal.

All three proposed construction zones are located on a parking lot paved with asphalt. The area is generally flat and level. Rail Side 1 construction zone is confined by parking lot to the east and Annacis Parkway roadway to the west. Rail Side 2 construction zone is surrounded by parking lot and railway. The facility construction zone is surrounded by other buildings and paved parking lot. The closest watercourse is the Fraser River which is located on the opposite side of Annacis Parkway about 20 m away from Rail Side 1 construction zone. The other construction zones are located > 100 m from the Fraser River.

Figure 2. Proposed Construction Zones within the Annacis Auto Terminal



3 Contacts and Responsibilities

3.1 Key Project Personnel

Contacts will be updated during the detailed planning stages or as changes occur over the duration of the Project.

Table 1. Key Project Personnel

Name	Role	Company	Phone Number
	Construction foreman		
	Environmental Monitor		
	Client name contact		
	Port authority contact		
	DFO contact		
	Other permit/approval contact		
	Municipal contact		

3.2 Environmental Monitor Responsibilities

A qualified environmental monitor (EM) will be required to inspect the project work, document compliance with the CEMP, environmental plans, and by-laws, and ensure that the environmental protection objectives of the port authority, and applicable approvals/permits are met. Specific duties of the EM will include the following:

- Review the CEMP, permits, regulations, contractor work procedures, BMPs, emergency response procedures, and environmental incident reporting procedures to ensure functionality before the associated work activity begins;
- Attend pre-construction meetings, conduct routine monitoring on an approved schedule, be on site during works that have a higher potential of effecting environmental features (i.e., the Fraser River) and check erosion and sediment control measures after significant rain events (see Section 5.4 for more details);
- Work with the construction team and other project members to facilitate effective implementation of environmental mitigation measures described in this CEMP;
- Monitor all project activities to confirm their compliance with the CEMP, applicable permits, and regulations;
- Provide advice on corrective and preventative measures in response to non-conformance with the CEMP, and ensure that such measures have been implemented in a timely manner;
- Ensure that tailgate meetings include discussion of relevant environmental issues;
- Document construction activities, mitigation measures, and environmental incidents through field notes, photo-documentation, incident reports and any measurements taken (e.g., pH, turbidity, temperature, conductivity);
- Provide recommendations for modifying and/or improving environmental mitigation measures as necessary;
- Take field measurements, conduct analyses, and/or sample environmental media in accordance with the CEMP;
- Prepare environmental monitoring summaries during construction in accordance with this CEMP and report to the port authority, and other parties as required, outlining unanticipated adverse effects to the environment, their cause, mitigation and/or remediation implemented, and any stop work orders; and
- Notify the port authority immediately in the event of a non-compliance;
- Modify or halt any construction activity at any time if deemed necessary for the protection of the environment and confirm the acceptability of corrective actions before restarting work following a stop work order. The EM has the authority to modify and/or halt any construction activity at any time if deemed necessary for the protection of the environment.

The Environmental Monitor will assess the following general items while on-site:

- Construction activities to evaluate appropriate implementation of mitigation measures;
- Sediment and erosion control measures;
- Equipment available for managing leaks or spills;
- Cleanliness of equipment arriving on site or leaving site;
- Fuel storage facilities, if applicable, including monitoring of fuel deliveries and transfers;
- Adequacy of the emergency response and spill containment and recovery equipment, and spill response training programs; and
- Construction waste and adequacy of construction waste management programs.

3.2.1 Environmental Monitoring Reports

An appropriate schedule for environmental monitoring for the Project will be confirmed by the EM, contractor and regulatory considerations once construction activities commence. The appropriate environmental monitoring frequency under current conditions are biweekly or monthly visits, however, frequency is dependent on environmental conditions on the Site and is subject to change. The environmental monitoring reports will include the following:

- Description of construction activities;
- Description of environmental monitoring activities;
- Observations about the effectiveness of the mitigation measures;

- Description of any environmental issues and any additional mitigation measures taken;
- Photographs (accompanied by identifying information such as date and location) documenting construction activities, environmental issues, and corresponding mitigation measures; and
- If quantitative sampling is carried out, the following information will be collected with the sample:
 - The location, date and time of sampling.
 - The analyses performed and the dates they were performed.
 - The analytical techniques, methods, or procedures used in the analyses.
 - The names of the persons who collected and analyzed each sample.
 - The results of the analyses.

3.3 Contractor Responsibilities

The contractor will be responsible for ensuring the Project is completed in accordance with all project conditions including approvals, authorizations, PER permit, this CEMP, applicable legislation and other permits related to the Project. The main responsibilities of the contractor are outlined below:

- Contractors will review the project CEMP with their staff and sub-contractors prior to commencing works;
- Contractors will comply with the PER permit and any other agency permit or license issued for the project as well as all other applicable federal, provincial and municipal laws, statutes, by-laws, regulations, orders and policies;
- Contractors will comply with VFPA environmental and health and safety requirements;
- Obtain required permits prior to construction work and ensure that work complies with permits;
- Provide qualified personnel. Workers will be appropriately trained and qualified to complete the scope of work and be familiar with the operational area;
- Contractors must cooperate with the EM appointed for the work. They must comply with written or verbal instructions with respect to conducting activities in compliance with the mitigation measures outlined in the CEMP;
- Contractors will correct deficiencies and any non-compliance issues upon direction from the EM whether written or verbal. Corrections should be made as soon as reasonably possible, ideally within 24 hours of directions.
- Ensure copies of documentation, including but not limited to this CEMP, project approvals, authorizations, PER permit and other persons as well as the Contractor's Emergency Response Procedures, are on-site and readily available for implementation and inspection if requested; and
- Conduct and document environmental inspections, as required by this CEMP or as specified by VFPA or EM.

4 Relevant Environmental Legislation

Federal and provincial legislation and legal requirements applicable to the project are listed in Table 2.

Table 2. Applicable Federal and Provincial Legislation

Act, Regulation, or Bylaw	Applicability	Requirements and Project Mitigation Measures
Federal		
Fisheries Act	Prohibits the release of deleterious substance in watercourses	<ul style="list-style-type: none"> Erosion and Sediment Control Emergency Response and Spill Response Plans Fuel and Hazardous Waste Management Plan Concrete Works and Grouting Management Surface Water Control Material Storage and Stabilization
Species at Risk Act	Provides protection of listed species and their critical habitat	<ul style="list-style-type: none"> Sensitive Habitat Features and Species Management Invasive Plant Management
Migratory Bird Act Convention	Provides periods during which bird nests may be damaged, destroyed, removed or disturbed	<ul style="list-style-type: none"> Sensitive Habitat Features and Species Management
Impact Assessment Act	Fulfills federal responsibility to review projects and consider the effects	<ul style="list-style-type: none"> All project mitigation measures
Canada Marine Act	Fulfills federal responsibility to review projects and consider the effects	<ul style="list-style-type: none"> All project mitigation measures
Provincial		
BC Environmental Management Act – Spill Reporting Regulations	Requires immediate reporting when certain quantities of substances are released into the environment	<ul style="list-style-type: none"> Emergency Response and Spill Response Plans Fuel and Hazardous Waste Management Plan
BC Environmental Management Act – Contaminated Sites Regulation	Provides identification and management of contaminated sites, applicable to soil and groundwater to be disposed of off-site	<ul style="list-style-type: none"> Emergency Response and Spill Response Plans Fuel and Hazardous Waste Management Plan Contaminated Soil and Groundwater Management
BC Environmental Management Act – Hazardous Waste Regulation	Proper handling and disposal of hazardous wastes	<ul style="list-style-type: none"> Fuel and Hazardous Waste Management Plan
BC Wildlife Act	Provides protection and management of wildlife and wildlife habitat.	<ul style="list-style-type: none"> Sensitive Habitat Features and Species Management Invasive Plant Management Waste Management

Should the project discharge to the storm sewers that discharge into the Fraser River, the Canadian Council of the Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) shall apply and can only

occur with VFPA authorization. VFPA will need to authorize discharge of water directly or indirectly to storm sewers, and review excavation dewatering plans prior to dewatering.

If soil is to be moved off site for disposal on fee-simple land, BC Contaminated Sites Regulation (CSR) applies.

In part, project mitigation measures should follow Land Development Guidelines for the Protection of Aquatic Habitat (Fisheries and Oceans and Ministry of Environment Lands and Parks 1993) and Standards and Best Aquatic Habitat (Fisheries and Oceans Canada 1993) and provincial Standards and Best Practices for Instream Works (BC Ministry of Water Land and Air Protection 2004) and Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MoE 2014).

The CEMP shall be reviewed if the scope of the Project changes during construction to ensure that relevant legislation, standards and guidelines are applied.

5 Project Mitigation Measures and Environmental Specifications

5.1 General Measures

Prior to the start of construction works, all workers, including the construction contractor and environmental monitors will attend a pre-work orientation meeting to discuss environmental protection measures that will be implemented during construction. Measures to be discussed include:

- Review of the CEMP and other applicable guidelines
- Location of any environmentally sensitive areas (i.e., nesting bird areas) or species at risk that maybe in or near the construction areas;
- Handling and transportation of hazardous materials and hydrocarbon fuels (see Section 7 for more details);
- Spill containment, recovery and clean-up procedures (see Section 6 for more details);
- The use of spill response equipment, including the location, type, and correct deployment of spill response equipment relating to the nature and location of work and potential on-site spills;
- The appropriate installation and maintenance of Erosion and Sediment Control (ESC) measures (see Section 5.4 for more details); and
- Review of the locations of known invasive species in the work sites and measures to control the spread (see Section 5.10.3 for more details).

Additional general practices that will be adhered to throughout the duration of the project include:

- Review of this CEMP and applicable guidelines by all contractors and site managers prior to each project phase or new activity;
- Install and maintain ESC measures in compliance with BMPs;
- Store additional ESC supplies on site such as rock, non-erodible gravel, grass seed, silt fencing, stakes, polyethylene sheeting, tarps, as necessary to manage unexpected erosion or sediment release events;
- Maintain all equipment in good working condition, free of leaks;
- Plan and schedule project activities which may pose environmental risk for during periods of dry weather when possible. Minimize project work and equipment movement during periods of heavy precipitation; and
- Make changes to existing measures and BMPs should they fail or if additional measures are required. Notify the EM to ensure changes are adequate and measures are installed effectively.

5.2 Site Access, Mobilization, and Laydown Areas

Prior to construction, site access, equipment mobilization, hauling access and routes, and laydown and stockpiling locations will be clearly delineated. A preliminary plan of site access, mobilization, and laydown areas is shown in Figure 3. Items to be addressed when planning site layout aspects include:

- Minimizing the number of trips to and from site when mobilizing, demobilizing, and hauling material;
- Locate laydown areas on flat, stable surfaces at least 30 m from any waterbody; and
- Minimize the disturbance of existing vegetation and soil on the construction site

Figure 3. Proposed site access and laydown areas.



5.3 Machinery and Equipment

The following are general BMPs for mitigation and management for machinery and equipment:

- Any fuel handling, storage, or refueling practice on site will be located on stable ground away storm drains, or waterbodies, preferably a minimum of 30 m from access locations, taking topography and slope into consideration. Spill containment supplies will be available in the immediate vicinity of the refueling area;
- Vehicles and equipment, including their hydraulic fittings, will be inspected daily to verify that they are in good condition and free of leaks, and excess oil or grease;
- Vehicles and equipment will arrive on site clean to prevent the introduction of invasive plants or noxious weeds;
- Equipment will be parked on level ground and secured with wheel chocks and parking brakes at the end of shift;
- Install drip trays with sorbent pads under stationary equipment. Inspect, clean out and replace sorbent pads regularly;
- Spill kit supplies will be available and labeled at designated locations and accompany each piece of equipment. All construction team members will be trained to avoid spills and in the emergency response procedures in the event of a spill. All spills must be reported to the Emergency Management BC Program 24-hour phone line at 1-800-663-3456 (see section 6 for more details); and
- Light pollution will be reduced by pointing light down and placing light sources as close to the work area as possible.

5.3.1 Air Quality

Air emissions such as vehicle/equipment exhaust, dust, vapours and greenhouse gasses should be minimized to avoid adverse environmental effects along with adverse effects to health, safety and nuisance both on and off site. The following mitigation measures related to material handling, access, and vehicles will be applied to control emissions of fine particulate matter (PM_{2.5} and PM₁₀), dust and greenhouse gases:

- Equipment will be in good working order;
- Material stockpiles and work areas prone to wind erosion will be stabilized;
- Trucks will be loaded so loads do not spill during transport and covered as needed;
- Dust suppression agents such as mulch and water will be approved by the port authority for use with considerations made to storm water impacts;
- Vehicle track out will be minimized and dust will be controlled on paved roads by implementing street sweeping, as needed;
- The burning of oils, rubber, tires, or any other material will not occur on site;
- Stationary sources of emissions such as generators will be turned off when not in use;
- All equipment will be kept in well maintained condition, used at optimal loads, and repaired as required to minimize emissions;
- Engine idling will be minimized to the extent feasible; and
- Truck loads will be optimized to reduce the number of trips between the source and destination.

5.3.2 Noise and Vibration

The following BMPs for mitigation and management for noise and vibrations will be followed:

- Construction activities will be conducted from Monday to Saturday between 7:00 a.m. and 8:00 p.m., with site shutdowns on Sundays and holidays. If construction activities are required outside of the window listed above, the contractor must have the activity approved by the port authority;
- The surrounding community and municipality will be notified of the nature and duration of work which may cause disturbance, such as increased truck traffic, pile driving, and work during alternative hours;
- Equipment will be maintained in good working order and fitted with functioning exhaust and muffler systems;
- Machinery covers and equipment panels will be well fitted to muffle excess noise, as appropriate;
- Engines will be turned off when not in use or reduced to idle or a setting appropriate for reducing air emissions; and
- Noise monitoring will be conducted on an as needed basis for noisy activities to ensure that predicted impacts are not exceeded.

5.4 Erosion and Sediment Control

ESC management strategies must be employed when the project has the potential to introduce sediment to nearby waterbodies or generate dust. The following general BMPs for mitigation and management for ESC will be followed:

- ESC works will be implemented prior to start of land disturbance and will be maintained and repaired in a timely manner through out the project;
- Applicable aspects of Land Development Guidelines for the Protection of Aquatic Habitat (Fisheries and Oceans and Ministry of Environment Lands and Parks 1993), Standards and Best Aquatic Habitat (Fisheries and Oceans Canada 1993), Standards and Best Practices for Instream Works (BC Ministry of Water Land and Air Protection 2004) and Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MoE 2014) will be applied;

- Erosion and sediment transport will be controlled close to the source and to the extent possible, contained within construction areas;
- Additional mitigation measures will be applied as necessary based on site observations to maintain worksite isolation and prevent the introduction of sediment laden water to any waterbody, adjacent property or roadway; and
- All mitigation measures will be maintained until construction is complete and the affected areas are stabilized and revegetated.

5.4.1 Surface Water Control

Control runoff in and around the construction site:

- Stormwater management is key to minimizing erosion and sediment release, clean water will be diverted away from work areas so that only water within the construction area needs to be managed.
- Where sediment transport interruption is required for diffuse surface runoff and concentrated road and ditch runoff, ESC measures may include: berms/swales; detention ponds; silt fence; straw bales (certified weed-free); and natural vegetated ground.
- Catch basin inlets located in the construction zones and near haul routes must be protected. Install silt sacks or similar devices. All catch basin protection measures shall be inspected after every heavy or prolonged rain event or every 2 to 3 weeks minimum if no heavy rain events.
- Silt fence will be installed around stockpiles, sloped areas, site perimeters, and environmentally sensitive areas, where ground conditions allow. If installation of silt fencing is not feasible due to ground conditions, perimeter isolation of stockpiles or other erodible features can be conducted using piled sandbags and tarps or other techniques.

5.4.2 Material Storage and Stabilization

Storage and disposal of excess, overburden, soil, or other substances will be done in such a manner as to reduce the potential for entry into any streams or watercourses including:

- Material stockpiles will be located more than 30 m from the high water mark of any watercourse or wetland, unless otherwise reviewed by the EM and deemed to pose a low risk of sediment entry into any waterbody;
- Stockpiles of erodible materials such as soil that will be left in a stockpile for more than 24 hours will be contained using appropriate measures such as silt fence containment, or covering with plastic sheeting or tarps;
- Soil stockpiles will be protected to reduce soil erosion (e.g., covered with plastic sheeting);
- Compaction of undisturbed soils will be minimized to the extent feasible;
- All non-vegetated soil areas will be stabilized when work is complete, in order to minimize the duration during which non-vegetated soils are susceptible to erosion;
- Site drainage patterns will be restored to natural flow conditions upon completion of the project; and
- Disturbed areas will be restored to a stable vegetated condition as soon as possible.

5.4.3 Rainfall Events

- Earthworks will be scheduled to be conducted and completed during dry weather to the extent possible with additional ESC measures put in place during periods of precipitation;
- Work during heavy will be conducted at the direction of the site construction supervisor or EM as required to maintain water management structures and ESC measures.

5.4.4 Contingency Supplies

A contingency supply of ESC materials, such as silt fencing, straw, mulch, and non erodible gravel will be available at the Project site for rapid deployment during and after extreme events and workers will be sufficiently trained in their appropriate installation and maintenance. The EM will be notified of changes to ESC controls to ensure that they are adequate and that measures are installed effectively.

5.4.5 Monitoring, Inspections and Maintenance

The EM will carry out routine inspections of all ESC measures installed during the course of the project. Supplementary inspections will be completed and documented during, or within 24 hours of heavy and/or prolonged rainfall (defined as >25 mm precipitation within any 24 hour period).

As part of the inspection process, ESC issues will be identified and documented, including documenting the steps taken to resolve the issues. Maintenance will also occur immediately after problems are identified and will be done in a manner that will prevent further sediment mobilization.

5.5 Contaminated Soil and Groundwater Management

A Phase 1 contaminated soils investigation was conducted in 2014 with more detailed investigations in 2015 (Worley Parsons 2014 and 2015) These reports noted Areas of Environmental Concern around the Paint and Body shop and the Mechanical Shop with potential issues associated with the Rail Side 1 and 2 Areas. The VFPA has indicated that additional soil characterization studies are underway. These studies are to be consulted by the Contractor to develop an excavation and soils management plan that takes these findings into consideration including a disposal plan acceptable to the port authority.

During all excavation activities, the construction supervisor will notify the EM when contaminated environmental media is encountered. The following procedures will be followed during access, construction, excavation and remediation works:

- All excavated and imported soils will be assessed for indicators of potential soil contamination. Indicators of potentially contaminated soils include, but are not limited to:
 - Unusual appearance or odour;
 - Staining or sheens;
 - Buried debris or trash (e.g., drums, automotive parts, cleaning rags, tanks);
 - Suspect waste (e.g., batteries and metal parts); or
 - Invasive plants or plant seeds
- If potentially contaminated materials are encountered, these materials will be segregated and stockpiled separately;
- Before these materials can be re-located the EM will assess the material and determine the appropriate course of action. This could involve additional sampling by an accredited laboratory.
- If the materials are determined to be contaminated an appropriately qualified professional will provide guidance on the management of that material, i.e., appropriate use on site, appropriate off-site disposal options, etc. If necessary, a management plan will be developed for ongoing management of contaminated materials found on site; and
- The existing environmental studies (WorelyParsons 2015) identified groundwater containing contaminants of concern in concentrations exceeding guidelines. The contractor shall not dewater an excavation unless a dewatering plan as been reviewed and accepted by the port authority.

5.6 Vegetation and Wildlife Management

Potential negative impacts to vegetation and wildlife during construction related activities will be minimized through the following BMPs:

- The removal or alteration of vegetation and soils will be limited to required areas and large trees will be retained where possible;
- If vegetation removal is required, the area will be surveyed by a QEP prior to the start of work to identify breeding, nesting, roosting, or rearing areas for birds and other wildlife to determine appropriate mitigation measures;
- Vegetation removal which may impact birds or other wildlife will be avoided during the species' respective breeding, nesting, roosting, or rearing periods. Tree removal should be avoided during the general bird breeding season, which falls between April 1 and July 31;
- The disturbance of previously established plant communities will be minimized where possible;
- Vehicle and machinery movement will be limited to work areas to reduce seed dispersal and minimize damage to plant communities, both within and beyond the Project site; and
- Garbage and waste will be stored in animal proof containers and disposed of regularly on an as needed basis to avoid attracting wildlife to the site (see Section 7 for more details).

5.7 Concrete Works and Grouting

The residues of uncured construction materials may be alkaline or toxic to aquatic life. The following mitigation measures will be undertaken to manage construction materials such as concrete and grout:

- All rinse water should be isolated and contained within a temporary tank to prevent the release of deleterious substances such as cement, cementitious grout, engineered sealants, and adhesives;
- Ensure calculations are done to confirm the necessary size of settling tank;
- Provide containment options for wash water from vehicles and equipment. Wash water must not be introduced to any waterbody;
- Use pre-cast concrete over cast-in-place concrete whenever possible;
- If there is potential for uncured concrete or wash water to enter a watercourse the contractor must have a carbon dioxide diffuser on site for the duration of concrete work to neutralize the pH of the water, should a spill occur;
- Monitor the pH immediately downstream of the work site for the duration of concrete works, and until concrete has cured;
- Monitor the pH frequently in any watercourses immediately downstream of isolated worksites until completion of the works. Emergency measures will be implemented if downstream pH has changed more than 1.0 pH unit, measured to an accuracy of +/- 0.2 pH units from the background level, or is recorded to be below 6.0 or above 9.0 pH units; and
- Maintain complete isolation of all cast-in-place concrete and grouting from fish-bearing waters for a minimum of 48 hours if ambient air temperature is above 0°C and for a minimum of 72 hours if ambient air temperature is below 0°C.

5.8 Marine Works

Impacts to the marine environment are not expected since the Project activities take place 30 m from the Fraser River and in-water works are not expected.

5.9 Archaeological Resources

An Archaeological Overview Assessment was completed for the Project and determined that an Archeological Impact Assessment (AIA) was not necessary due to the nil to low archaeological potential rating of the terrain encompassing the Site (Sheppard and Hall 2021). One area (Rail Side 2), however, had low to moderate archaeological potential rating and it was recommended that archaeological monitors be present during initial ground disturbance.

Although no AIA is necessary there is a potential to encounter heritage or archaeological artifacts where ground disturbance occurs. The following chance find procedures should be followed if suspected archaeological resources are encountered:

Step 1: Stop work in the immediate vicinity of the suspected find. Do not undertake further work that could disturb the immediate vicinity of the suspected find, including the transport of soil or rock to or from the immediate vicinity of the site.

Step 2: Cordon off the area with stakes and flagging to prevent additional disturbance.

Step 3: Immediately notify the port authority.

Step 4: The port authority will contact a qualified Heritage Specialist as required and advise the site supervisor of any further action.

5.10 Sensitive Habitat Features and Species

5.10.1 Sensitive Species

There is a critical habitat polygon overlapping with the site. A request was submitted to the CDC to gain access to this secured information. The CDC response indicated that the details about the secured information was not relevant to the proposed work. No sensitive species are expected on the Site.

5.10.2 Sensitive Habitat Features

Sensitive habitat features located within the vicinity of site include the south arm of the Fraser River. To the north of the site is Annacis Channel and to the south is the main stem of the south arm of the Fraser River. According to the Fraser River Estuary Management Program Atlas, the shoreline surrounding site is of low productivity (FREMP 1993). The shoreline in this area has limited value to fish and wildlife and has been developed for industrial purposes.

Construction activities do not involve in stream or shoreline work which therefore avoids disturbance to the main sensitive habitat features within the vicinity of the project. The guidance provided in this CEMP is expected to provide sufficient mitigation to sensitive habitat features. Unless otherwise authorized in a permit or approval, construction activities will be conducted in accordance *with A Users' Guide to Working In and Around Water* (B.C. Ministry of Environment, 2009).

5.10.3 Invasive Plant Management

Appropriate measures will be taken to reduce the spread of existing invasive plants and prevent the introduction of new invasive plants to the area while conducting work. The following invasive species have been previously located within the vicinity of the site based on desktop review (BC Ministry of Environment 2022a):

- bog loosestrife (*Lysimachia terrestris*)
- curled pondweed (*Potamogeton crispus*)
- scotch broom (*Cytisus scoparius*)
- St Johns wort (*Hypericum perforatum*)
- sheep sorrel (*Rumex acetosella*)
- Himalayan blackberry (*Rubus armeniacus*)
- curled dock (*Rumex crispus*)
- English holly (*Ilex aquifolium*)
- spurge laurel (*Daphne laureola*)
- hedge false bindweed (*Calystegia sepium*)
- black knapweed (*Centaurea nigra*)
- cherry laurel (*Prunus laurocerasus*)

The following measures will be implemented to reduce the likelihood of establishment of these known species, as well as additional currently undetected invasive or noxious plants within work areas:

- Prior to start of construction a survey will be conducted to determine the presence of invasive plants and if present a plan will be developed for the safe handling and removal of the plants.
- Machinery will be cleaned prior to site entry;
- Any required fill or topsoil will arrive free of invasive plant seeds or other components; and
- Any removed soil will be disposed of properly if contaminated with invasive plant seeds or other components.

6 Emergency Response and Spill Prevention

6.1 Emergency Communication

The following emergency communication plan includes the contact information for all parties who are responsible for the project or are critical to the response or reporting of accidents or environmental emergencies (Table 3).

Table 3. Emergency Contact Telephone Numbers

Agency	Phone Number
Emergency Services	911
Port Authority Operations Centre	604 665 9086
Delta Police Department	604 946 4411
Delta Fire Department	604 946 8541
Delta Hospital	604 946 1121
Surrey Hospital	604 581 2211
Royal Columbian Hospital	604 520 4253
Emergency Management BC	1 800 663 3456
BC Emergency Spill Reporting Line	1 800 663 3456
Canadian Coast Guard Spill Reporting Line	1 800 889 8852

6.2 Environmental Emergency Plan

Potential environmental emergencies that may occur during construction include but are not limited to:

- Reportable fuel spills;
- Sediment laden water leaving the site or entering a waterbody; and
- The release of deleterious substances.

The EM should be notified as soon as practical of any environmental emergency, assess and record all incidents, and determine appropriate action. Significant emergencies should be reported to Emergency Management BC and the port authority Operations Centre.

6.3 Spill Response Plan

Spill response, containment, recovery and clean-up procedures are described in this section. The contractor will need to provide a spill response plan consistent with the equipment, substances and work procedures involved with this undertaking. The contractor will include a list of hazardous materials and products along with the appropriate Safety Data Sheets (SDS).

6.3.1 Spill Response Equipment

- Spill kits will be available and labelled at designated locations;

- Spill kits will be inventoried and re-stocked regularly, including immediately after a spill response incident;
- Spill response equipment (absorbent pads, pillows, oil sponges, socks) will be used to clean hydrocarbon spills;
- Absorbent booms and pads will be kept on-site to skim hydrocarbons if detected in water;
- Spill kits will be carried in project vehicles. The required contents are to be carried in each vehicle inside a container marked "Spill Kit". The minimum required content of vehicle spill kits is:
 - Goggles, PVC gloves, 10 absorbent pads, 2 absorbent booms (3m), 1 container of emergency sealant, 3 heavy duty plastic bags.
- When working within 30 metres of a stormwater system access location or waterbody with equipment that may result in a spill of a hazardous substance, suitable absorbent and containment must be on site and available for deployment in the event of a spill; and
- Appropriate training of workers in the use of spill response equipment, including the location, type, and correct deployment of spill response equipment relating to the nature and location of work and potential onsite spills.

6.3.2 Spill Response and Reporting

The following are generic spill responses, notification and reporting procedures.

If a spill of fuel, oil, lubricant or other harmful substance occurs, the following procedures will be implemented:

1. Make the area safe.
2. Stop the flow (when possible).
3. Secure the area.
4. Contain the spill.
5. Clean-up.
6. Notify/Report.

1) Make the area safe

- Evaluate risk to personal/public, electrical and environmental safety.
- Wear appropriate Personal Protective Equipment (PPE).
- Never rush in, always determine the product spilled before taking action.
- Warn people in the immediate vicinity.
- Verify that no ignition sources are present if the spill is a flammable material.

2) Stop the flow (when possible and safe to do so)

- Act quickly to reduce the risk of environmental impacts.
- Close valves, shut off pumps or plug holes/leaks.
- Stop the flow or the spill at its source.

3) Secure the area

- Limit access to the spill area.
- Prevent unauthorized entry onto the site.

4) Contain the spill

- Block off and protect drains and culverts.
- Prevent spilled material from entering drainage structures (ditches, culverts, drains).
- Use spill containment and sorbent material to contain the spill appropriate to site location and spilled materials.

5) Clean up

- Mobilize recovery equipment and cleanup crew and conduct cleanup activities.
- Dispose of all equipment and/or material used in clean up (e.g., used sorbent, oil containment materials, etc.) in accordance with MFLNRO requirements. Disposal of special wastes (e.g., material with > 3% oil by mass) and contaminated soil must comply with the Environmental Management Act and Regulations.
- Replenish spill response kits and equipment.
- Soil that is contaminated by a spill is excavated and transported off-site to an approved disposal facility.
- Water contaminated by spills is transported off-site to an approved facility.
- Used spill response materials are transported out of the work area to the designated waste disposal site immediately after.
- Used absorbent material is placed in plastic bags and disposed of in a mixed contaminated waste bin.

6) Notification/Reporting

- Note what, how and where the incident occurred along with how the spill was cleaned up. Further assessment of environmental impact or additional clean up may be required
- Determine appropriate Project and regulatory notification obligations and notify appropriate personnel (Table 4).
- Spill incident reports are submitted as soon as reasonably practical, with consideration given to the severity of the incident.
- Spills in water, regardless of amount, are reported to Emergency Management BC (EMBC).
- Externally reportable releases are reported as soon as reasonably practicable.

Table 4. Spill Reporting Matrix from Spill Reporting Regulation Schedule of Reportable Levels for Certain Substances.

Item	Substance	Quantity	External Reporting Requirements
-	Any Spill	Any amount that enters or is likely to enter aquatic habitat	EMBC, CCG, and MFLNRO
-	Oil and Waste Oil	Any amount \geq 1L	N/A
1	Class 1, Explosives as defined in section 2.9 of the Federal Regulations	Any quantity that could pose a danger to public safety or 50 kg	EMBC
2	Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	\geq 10 kg	EMBC
3	Class 2.2 Non-Flammable and Non-Toxic Gases as defined in section 2.14 (b) of the Federal Regulations	\geq 10 kg	EMBC
4	Class 2.3, Toxic Gases as defined in section 2.14 (c) of the Federal Regulations	\geq 5 kg	EMBC
5	Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	\geq 100 L	EMBC

Item	Substance	Quantity	External Reporting Requirements
6	Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	≥25 kg	EMBC
7	Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	≥50 kg or 50 L	EMBC
8	Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	≥1 kg or 1 L	EMBC
9	Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	≥5 kg or 5 L	EMBC
10	Class 6.2, Infectious Substances as defined in section 2.27 (b) of the Federal Regulations	≥1 kg or 1 L, or less if the waste poses a danger to public safety or the environment	EMBC
11	Class 7, Radioactive Materials as defined in section 2.37 of the Federal Regulations	Any quantity that could pose a danger to public safety and an emission level greater than the emission level established in section 20 of the "Packaging and Transport of Nuclear Substances Regulations"	EMBC
12	Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	≥5 kg or 5 L	EMBC
13	Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	≥25 kg or 25 L	EMBC
14	Waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	≥1 kg or 1 L, or less if the waste poses a danger to public safety or the environment	EMBC
15	Leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	≥25 kg or 25 L	EMBC
16	Waste containing polycyclic aromatic hydrocarbons as defined in section 1 of the hazardous Waste Regulation	≥5 kg or 5 L	EMBC
17	Waste asbestos as defined in section 1 of the Hazardous Waste Regulation	≥50 kg	EMBC
18	Waste oil as defined in section 1 of the Hazardous Waste Regulation	≥100 L	EMBC
19	Waste containing a pest control product as defined in section 1 of the Hazardous Waste Regulation	≥5 kg or 5 L	EMBC
20	PCB Wastes as defined in section 1 of the Hazardous Waste Regulation	≥25 kg or 25 L	EMBC
21	Waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	≥50 kg or 50 L	EMBC
22	Biomedical waste as defined in section 1 of the Hazardous Waste Regulation	≥1 kg or 1 L, or less if the waste poses a danger to public safety or the environment	EMBC
23	A hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 – 22	≥25 kg or 25 L	EMBC
24	A substance, not covered by items 1 to 23, that can cause pollution	≥200 kg or 200 L	EMBC
25	Natural gas	≥10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas	EMBC

*Note: Federal Regulations means the Transportation of Dangerous Goods Regulations made under the Transportation of Dangerous Goods Act; Hazardous Waste Regulation" means B.C. Reg. 63/88.
Source: Appendix of 03 Facts on the Management of Environmental Emergencies, November 2017, issued by Ministry of Environment and Climate Change Strategy*

When reporting a spill, the caller should be prepared to provide the dispatcher with the following information:

- Name and contact phone number of the person who is reporting the spill;
- Name and contact phone number of the person who is responsible for causing the spill;
- Location and time of the spill;
- Type and quantity of the substance spilled;
- Cause and effect of the spill;
- Details of action taken or proposed;
- Description of the spill location and surrounding area;
- Names of agencies/responders on scene; and
- Names of other persons or agencies advised or to be advised concerning the spill.

6.3.3 Spill Prevention

Routine environmental monitoring inspections will be conducted to check for the proper spill prevention and preparedness, and for evidence of any unidentified spills.

- All sources of fuel, hazardous products and hazardous substances, along with their storage and containment measures will be identified. SDS will be stored on site and made available to all construction team members.
- Pre-construction and daily tailgate meetings will be held to identify all materials of a deleterious nature that could be spilled;
- Drip containment measures for fuel dispensing equipment to maximize fuel containment will be incorporated, in accordance with best practices from the BC Ministry of Water, Land and Air Protection Field Guide to Fuel Handling, Transportation and Storage (2002);
- Drip trays will be used under parked heavy equipment;
- Drip trays will be used under temporary generators, light plants, and other stationary equipment;
- Water accumulated in drip trays will be inspected to verify that there is no hydrocarbon sheen before being disposed of;
- Absorbent pads will be used to soak up hydrocarbons in water from drip trays with hydrocarbon sheen before water is discharged to ground;
- Water from drip trays discharged to the ground will be discharged >30 m from watercourses or environmentally sensitive areas in a manner that does not cause erosion;
- Monitoring of vehicles and equipment for leaks will be conducted on a daily basis. Since the operation of construction vehicles will likely be necessary within riparian areas, vehicles and equipment will arrive on site in a clean condition and be maintained free of fluid leaks;
- Vehicles and equipment will be regularly maintained;
- Heavy equipment arriving on-site will be inspected for cleanliness and signs of leaks and maintained or washed off-site prior to coming on-site if required;
- Heavy equipment will be washed, serviced, and refuelled at designated facilities;
- Biodegradable hydraulic fluids will be used in equipment working above or within wetted areas or at the direction of the EM; and

- Workers will be trained to avoid spills and in the emergency response procedures in the event of a spill, including the locations of spill response equipment and materials for containment and clean up.

7 Waste Management Plan

7.1 Non-Hazardous Solid Waste Management

Non-hazardous solid wastes shall be sorted into separate, clearly labelled bins and recycled if appropriate. Recyclable wastes include cardboard, wood, metal and approved plastics. Non-hazardous, non-recyclable wastes shall be included as general refuse and disposed of at the local landfill.

Waste material generated during construction will be handled using industry accepted BMPs such as:

- Waste disposal containers are to remain within the designated contractor laydown areas.
- Where practical, the segregation of recyclable materials before transport to the appropriate facility
- Waste materials must be secured to prevent the development of leachate from material contact with rain and surface water. Examples include placing lids over waste disposal containers or lining with poly sheeting.
- Municipal waste, including any food waste, should be stored in containers with a secured lid to avoid attracting wildlife.
- Removal of waste materials should be done on a regular basis to prevent buildup on waste and to prevent potential wildlife encounters.

7.2 Hazardous Waste Management

Hazardous Substances and Hazardous Products used on site will be transported, stored, removed and disposed in accordance with Hazardous Waste Legislation Guide (BCMOE 2005) and with all other relevant laws.

Hazardous materials may include any controlled or hazardous substances used on the Site include, but are not limited to, asbestos, fuels, used fuels, oils, oil filters, greases, bitumen's, lubricants, solvents, cement, paints, solvents, batteries, cleaners, dust suppressants, PCBs, and used spill cleanup materials.

Hazardous waste that is spilled could affect surface water quality, air quality, fish habitat or wildlife habitat. Prevention of such occurrences is best undertaken by conformance with BMPs and spill prevention measures (e.g., secondary containment, spill kits). All hydrocarbon products and other hazardous wastes potentially present during project activities will be identified and the associated Workplace Hazardous Materials Information System (WHMIS) and SDS made available to all construction team members. WHMIS labels must be on all controlled materials.

Hazardous waste generated by contractors must be stored and handled according to the BC Hazardous Waste Regulation. For temporary storage on-site, this will include:

- Covered containment using approved containers;
- Isolation from flammable and combustible materials (> 10 m);
- Proper labelling, inventory and documentation; and
- Storage at least 30 m away from storm drains or waterbodies.

Bringing hazardous waste onto the Site is strictly forbidden (e.g., waste lead-acid batteries, motor oil, etc.) and contractors are not permitted to perform equipment maintenance on-site which can generate hazardous waste (e.g., waste oil, hydraulic fluid, lead-acid battery replacement, etc.). Contractors are expected to use licensed waste carriers and authorized disposal facilities only.

All hazardous wastes shall be transported off-site with appropriate manifesting and record keeping for transport and disposal of Hazardous Wastes in accordance with provincial regulations. All manifests should be kept on-site and provided to the project owner and made available to the EM upon request.

8 References

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