



VANCOUVER FRASER PORT AUTHORITY

DRAFT

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

FRASER SURREY PORT LANDS – TRANSPORTATION  
IMPROVEMENTS

CONFIDENTIAL

PROJECT NO.: 20M-00758-00  
DATE: FEBRUARY 05, 2021

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# PROJECT CONTACTS

The project contact list for the works proposed in this draft CEMP is provided below. This list will be updated and revised as appropriate.

ROLE	COMPANY	PRIMARY CONTACT	EMAIL
Project Owner/Developer	Vancouver Fraser Port Authority	Vinil Reddy	Vinil.Reddy@portvancouver.com
Project Lead	Vancouver Fraser Port Authority	Ken Berglund	Ken.Berglund@portvancouver.com
Contractor Project Manager	TBD		
Contractor Site Superintendent	TBD		
Subcontractor	TBD		
WSP Environmental Contact	WSP	Michael Taylor	Michael.taylor@wsp.com
Environmental Monitor	TBD		
Environmental Monitor	TBD		

## EMERGENCY CONTACT LIST

CONTACT	NAME	OFFICE PHONE	MOBILE PHONE
Project Lead	Ken Berglund	604-665-9642	
Client Contact	Vinil Reddy	604-665-9171	
Site Superintendent	TBD		
Subcontractor Contact	TBD		
WSP Environmental Contact	Michael Taylor	604-631-9679	
Environmental Monitor	TBD		
Emergency Management BC (EMBC)	1-800-663-3456		
DFO Spill Reporting Line	1-800-465-4336		
Environment Canada Environmental Emergencies	604-666-6100		
RCMP/Fire/Emergency	911		



# REVISION HISTORY

VERSION	DATE	COMMENTS

PREPARED BY

REVIEWED BY

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Michael Taylor, BLA, MRM  
Team Lead – Ecology & EIA

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To Be Determined

No environmental site assessment, investigation or plan can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a site. Performance of a standardized environmental site assessment protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the site, given reasonable limits of time and cost.

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\*Reportable Spill Quantity (list of externally reportable quantities for commonly used substances)

PRODUCT	QUANTITY
Class 2.1 – Flammable gas (e.g. propane)	10 kg
Class 2.2 – Non-flammable gas (e.g. CO2)	10 kg
Class 3 – Flammable liquids (e.g. gasoline)	100 litres
Class 8 – Corrosives (e.g. battery acid)	5 kg or 5 L
Class 9 – Miscellaneous Products (e.g. lithium ion batteries)	25 kg or 25 L
Waste containing polycyclic aromatic hydrocarbons	5 kg or 5 L
Waste asbestos	50 kg
Waste Oil	100 L
Waste that contains a pest control product	5 kg or 5 L
PCB wastes	25 kg or 25 L
Other substances that can cause pollution	200 kg or 200 litres
Natural gas	10 kg

\* Quantities are subject to change. Refer to Regulations for latest figures

**\*\*\*ALL SPILLS TO WATER ARE REPORTABLE\*\*\***

**\*\*\*ALL SPILLS TO STORM SEWER ARE REPORTABLE TO THE APPLICABLE MUNICIPALITY AND/OR REGIONAL DISTRICT\*\*\***



ABBREVIATION	DEFINITION
AOA	Archaeological Overview Assessment
BC	British Columbia
BMP	Best Management Practice
CDC	Conservation Data Centre of BC
CO	Conservation Officer
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
ECCC	Environment and Climate Change Canada
EBMP	Environmental Best Management Practices
EIMS	Environmental Incident Management System
EMP	Environmental Management Plan
EM	Environmental Monitor
EMBC	Emergency Management British Columbia
ENV	Ministry of Environment & Climate Change Strategy
ESA	Environmentally Sensitive Area
ESC	Erosion and Sediment Control
HCA	<i>Heritage Conservation Act</i>
FLNRORD	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
QEP	Qualified Environmental Professional
SARA	<i>Species at Risk Act</i>
TDG	Transportation of Dangerous Goods



# TABLE OF CONTENTS

PROJECT CONTACTS .....	I
REVISION HISTORY .....	II
<b>1 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN .....</b>	<b>1</b>
<b>1.1 PROJECT DESCRIPTION .....</b>	<b>1</b>
<b>1.2 PURPOSE .....</b>	<b>1</b>
<b>1.3 ENVIRONMENTAL RESPONSIBILITIES .....</b>	<b>2</b>
<b>1.4 ENVIRONMENTAL SETTING .....</b>	<b>2</b>
<b>1.5 ENVIRONMENTAL MONITORING .....</b>	<b>3</b>
1.5.1 ROLE AND OBJECTIVES .....	3
1.5.2 RESPONSIBILITIES.....	4
1.5.3 AUTHORITY .....	4
1.5.4 SAMPLING .....	5
1.5.5 NON-COMPLIANCE WITH SPECIFICATIONS .....	5
1.5.6 REPORTING REQUIREMENTS .....	5
<b>1.6 EMERGENCY CONTACT LIST .....</b>	<b>6</b>
<b>1.7 REGULATORY AND STAKEHOLDER COMMITMENTS.....</b>	<b>6</b>
<b>2 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES .....</b>	<b>7</b>
<b>2.1 SOILS MANAGEMENT .....</b>	<b>7</b>
2.1.1 EROSION AND SEDIMENT CONTROL .....	7
2.1.2 UNCONTAMINATED SOIL STORAGE.....	8
2.1.3 CONTAMINATED SOILS.....	8
<b>2.2 WASTE MANAGEMENT .....</b>	<b>9</b>
2.2.1 NON-HAZARDOUS WASTE.....	9
2.2.2 HAZARDOUS WASTE .....	9
<b>2.3 WATER MANAGEMENT .....</b>	<b>10</b>

<b>2.4 WILDLIFE PROTECTION .....</b>	<b>10</b>
<b>2.5 FISH HABITAT AND PROTECTION.....</b>	<b>11</b>
<b>2.6 VEGETATION MANAGEMENT .....</b>	<b>11</b>
2.6.1 TREE PROTECTION PLAN.....	12
2.6.2 INVASIVE SPECIES MANAGEMENT PLAN.....	13
<b>2.7 NOISE AND DUST MANAGEMENT .....</b>	<b>13</b>
<b>2.8 SPILL PREVENTION AND RESPONSE.....</b>	<b>13</b>
2.8.1 EQUIPMENT MAINTENANCE.....	13
2.8.2 FUEL AND COOLANT STORAGE, HANDLING & TRANSFERS .....	14
<b>2.9 SAFETY DATA SHEETS .....</b>	<b>15</b>
<b>3 ARCHAEOLOGICAL AND HERITAGE RESOURCE MANAGEMENT .....</b>	<b>15</b>
<b>4 ENVIRONMENTAL INCIDENTS AND EMERGENCIES .....</b>	<b>16</b>
<b>4.1 SPILL RESPONSE PROCEDURES .....</b>	<b>16</b>
<b>4.2 ENVIRONMENTAL INCIDENTS - REPORTING.....</b>	<b>17</b>

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## **TABLES**

TABLE 1	EMERGENCY CONTACTS .....	6
TABLE 2	WATER QUALITY PARAMETER CRITERIA.....	10

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## **APPENDICES**

<b>A</b>	<b>FIGURES</b>
•	FIGURE 1 SITE LOCATION MAP
<b>B</b>	<b>SPILL RESPONSE PLAN</b>

# 1 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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## 1.1 PROJECT DESCRIPTION

The Vancouver Fraser Port Authority is proposing to upgrade the transportation infrastructure within the City of Surrey Fraser Surrey Port Lands (FSPLs), the location for which is shown in Figure 1 (Appendix A). The primary purpose of the transportation infrastructure upgrade project will be to improve the road network and ease congestion in the general area by creating a main transportation corridor, upgrading associated intersections and signage and constructing a staging area and additional turn bays to manage traffic flows (referred to as the “Project”). WSP Canada Inc. (WSP) was asked to prepare a draft project-specific Construction Environmental Management Plan (draft CEMP) for the Project.

Construction activities for the Project have not been fully determined or scheduled at this time. Therefore, this draft CEMP summarizes the information available and provides a general outline of the environmental requirements during construction activities, and has been prepared by WSP for the Client to provide the following information:

- Potential environmental project impacts and environmental protection measures to be implemented;
- Environmental monitoring requirements and incident reporting documentation and reporting requirements;
- Disposal of wastes;
- Spill response measures including emergency spill response plan, reporting instructions, and documentation;
- Erosion and sediment control, in accordance with City of Surrey Erosion & Sediment Control Bylaw No. 16138 and Permit;
- Soil and Water Management;
- Other Relevant Environmental Issues such as, but not limited to:
  - watercourse and water quality protection;
  - non-hazardous solid waste disposal;
  - dust, noise and light control; and
  - oil, fuel and equipment usage/management and handling.

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## 1.2 PURPOSE

This draft CEMP provides the template for the primary document to guide overall environmental management practices to be implemented during all phases of the Project. The completed CEMP, which will include project specific information, is intended to be a “living” document and can be updated as new information becomes available.

The purpose of the CEMP is to identify potential environmental risks of the Project and provide mitigation measures and a management plan to effectively mitigate those risks. The CEMP also outlines procedures to minimize environmental impact in the event of an incident.



For the purposes of this draft CEMP document, Vancouver Fraser Port Authority is considered the Project client and herein referred to as “the Client” and the contractor, who has yet to be determined, will be referred to as “the Contractor”.

**It is the responsibility of the Contractor to ensure their employees and subcontractors are familiar with and comply with the contents of the CEMP.**

**It is recommended that an Environmental Monitor (EM) be present for the duration of Project construction activities. The EM can provide environmental orientation and training regarding the CEMP, once the construction plan and schedule has been determined, prior to construction initiation. The EM will discuss protection of the environment and findings of the environmental meetings and inspections with site personnel during toolbox meetings.**

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## 1.3 ENVIRONMENTAL RESPONSIBILITIES

The Contractor will take all reasonable and necessary measures to ensure that any activities undertaken in the performance of the Project are conducted in such a way as to minimize any disturbance or damage to the environment. This includes protecting the natural ground surface, soils, atmosphere, vegetation, wetlands, watercourses, wildlife, fish, and archaeological/heritage resources. It also includes minimizing disturbance to neighbours and the general public. Any condition which has resulted from the Contractor’s operations and which constitutes, or which could result in, unnecessary damage or disturbance to property and the environment must be corrected to the satisfaction of and within the time period specified by the Owner. Key commitments directly applicable to this Work are to:

- Meet applicable environmental laws, bylaws, regulations, directives and other requirements;
- Avoid causing environmental impacts and prevent pollution;
- Work is to adhere to the Standard Specifications and Special Provisions (once determined); and
- Restore or repair habitat if environmental impacts have been created.

It is the Contractor’s responsibility to satisfy these commitments by completing work according to the specifications and any additional environmental requirements provided by the Owner.

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## 1.4 ENVIRONMENTAL SETTING

The Project is located within the Fraser Surrey Port Lands (FSPLs) in the City of Surrey, BC. The Project is in an industrial zone approximately 350m east of the Fraser River and immediately west of the South Fraser Perimeter Highway. The geographical coordinates at the Project’s approximate centre are 507086, 5448832. The Project area is predominately covered by roads, rail and industrial buildings. The general environment is predominately industrial resulting in small, disturbed areas of vegetation. There are two fish-bearing canals and a roadside ditch overlapped by the Project footprint. The City of Surrey COSMOS Map shows these watercourses as protected under their Sensitive Ecosystems Development Permit Area for Streams. WSP understands that the proposed Project will not directly affect the foreshore of marine environment.

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## 1.5 ENVIRONMENTAL MONITORING

An Environmental Monitor (EM) should be available on-site during periods of construction for the duration of the Project (duration unknown at this time). The EM will be responsible for quality assurance of the Project environmental control measures as outlined in this document.

At a minimum, the EM should be available for site visits every 7 days and during significant rainfall events (i.e. >24 mm within a 24-hour period) during active construction. Based on the construction plan, the EM schedule may be revised. The EM will:

- 1 Monitor the implementation, effectiveness and compliance with the CEMP.
- 2 Monitor the effectiveness and compliance with the implemented erosion and sediment control measures
- 3 Monitor environmental protective measures for ditches and storm drains.
- 4 Monitor site machinery for leaks prior to mobilization on-site and any follow-up repair.
- 5 Observe, document and report spill clean-up to the Owner's representative.

If the EM identifies conditions that do not comply with the CEMP, a Halt Work Order may be issued until the condition is resolved. Additional site visits during construction may be warranted.

The following subsections provide details on the environmental monitoring program developed for this project. The role, responsibilities, and authority of the EM are described below. All environmental incidents shall be reported to the Contractor's Site Superintendent and the EM immediately, so that appropriate notifications can be made and site management can ensure that incidents are handled appropriately. For response to oil and chemical release emergencies, it is expected that the Contractor will adhere to the spill response plan attached in Appendix B.

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### 1.5.1 ROLE AND OBJECTIVES

The appointed EM will provide environmental quality assurance and administer the environmental aspects of the Project. The primary role of the EM is to provide assurance that the environmental commitments made by the Contractor are achieved throughout the course of project activities. Full time monitoring is not anticipated to be required; however, if conditions are identified by the EM that do not comply with the CEMP, additional site visits may be required. The EM will be present for the start of construction activities to review the immediate area for sensitive environmental features that may be impacted by the Project and to conduct water monitoring in order to obtain baseline levels for comparison purposes. The EM will meet with the contractors before construction begins to review the CEMP. Thereafter, the EM will conduct a site visit every 7 days at a minimum. The EM will be on call to liaise with the Owner, the Contractor and Regulatory Agency representative(s), as required. The key objectives of the environmental monitoring program for this project are to:

- Assure that project construction activities are carried out in compliance with:
  - Environmental provisions defined in the CEMP;
  - Applicable Municipal, Provincial and Federal legislation, regulations and standards;
- Assure that appropriate levels of protection are in place to prevent or minimize impacts to environmental resources throughout project completion.
- Maintain an independent role from all other project parties in order to assess compliance, and to report non-compliance events to responsible parties and agencies as needed.

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### 1.5.2 RESPONSIBILITIES

The specific responsibilities of the EM are listed below:

- Communicate and liaise effectively with the Owner and the Contractor on environmental issues and concerns.
- Assure that emergency response supplies and equipment are available at site and in sufficient quantities.
- Attend project-related meetings related to work near sensitive receptors as needed. The EM will provide a discussion of the relevant best management practices that should be put in place in order to avoid impacts to the receiving environment. Attendance may be by phone for low risk sites/activities.
- Collect water and/or soil samples as a result of environmental emergencies.
- Communicate with the Site Superintendent/Contractor in the event of an environmental incident.
- Following any spill, assist with cleanup and restoration activities.
- Assist in the documentation of spill events such as effects, dispersal, size, etc. (as feasible and if necessary).
- Halt work if Contractor activities are, in the opinion of the EM, posing a risk to environmental resources.
- Maintain detailed project records of project activities (field log, photographic data, georeferenced information, etc.).
- Provide advice, monitor, and oversee the implementation/installation and effectiveness of all mitigation and ESC measures.
- Assure that dewatering systems are sufficient (if necessary) and the work area is kept dry.
- Ensure that water being directed around the construction area is not impacted by construction activities;
- Assure waste management initiatives are properly addressed.
- Provide continuous environmental monitoring services throughout all environmentally sensitive activities during this project.
- Provide specialist recommendations to the Contractor on an as-needed basis.
- Provide timely advice and make recommendations to help safeguard the Contractor from unnecessary risks.
- Review Contractor work plans to assure that the conditions of the CEMP are met and make timely recommendations to address any deficiencies identified in such plans.
- The EM may also be requested by the Contractor to:
  - Answer questions, concerns or complaints that may arise as a result of the construction activities.
  - Participate in the training of Contractor staff on environmental issues.
- Work cooperatively with all project parties to resolve environmental issues and challenges.

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### 1.5.3 AUTHORITY

The EM will have the authority to issue a Halt Work Order if, in their opinion site conditions, or actions by the Contractor, represent a threat to the environment. The EM will also make recommendations to resume the work once the causes leading to the Halt Work Order have been identified, addressed, and controlled, and environmental risks have been reduced or eliminated and once conditions detrimental to the environment have been rectified.

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#### 1.5.4 SAMPLING

Routine water monitoring is not predicted to be part of the CEMP scope.

In the event of an Environmental Incident, the EM will collect soil and/or water samples in key locations when it is safe to do so (*i.e.*, where there are no safety concerns in accessing sample locations). All samples collected throughout the Project will be collected following procedures outlined in the BC Field Sampling Manual (ENV, 2013).

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#### 1.5.5 NON-COMPLIANCE WITH SPECIFICATIONS

All project activities and resulting outcomes found to be in non-compliance with the provisions of the CEMP, or with applicable regulations and/or legislation, will be documented by the EM. This information will be conveyed verbally to the Contractor immediately upon discovery. The EM may issue a Halt Work Order if the non-compliance issue is not rectified and/or the significance of the non-compliance issue warrants it (at the sole discretion of the EM). Once informed, the Contractor, and the EM will discuss the non-compliance event, promptly develop a remedial plan and address the issue (as necessary), remediate the Site as needed, and the Contractor will develop a plan to prevent similar events from recurring.

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#### 1.5.6 REPORTING REQUIREMENTS

The EM will be responsible for documenting and maintaining detailed records of all communications and correspondence with the Owner, the Contractor(s) and Regulatory Agencies, including discussions, letters, and meeting minutes (as required). The EM will also be responsible for developing and maintaining a detailed record of all items inspected, inspection outcomes, and recommendations made, and will also document the actions taken by the Contractor(s) in response to recommendations made. The EM will be responsible for developing and maintaining a colour photographic record of working activities, environmental emergencies, and reasons for issuing Halted Work Orders (as possible). Environmental monitoring reports will be submitted every two weeks to the Vancouver Fraser Port Authority.

Upon discovery, the EM notify the Owner, the Site Superintendent or the Contractor and Regulatory Agencies of any environmental incidents and will provide an incident report within 24 hours of these occurring. Incident records shall include date, time, location, weather, type and nature of the incident, contacts made, environmental effects and resources affected, mitigation measures used during clean-up, and proactive measures taken to prevent similar incidents from occurring in the future. Refer to Section 4.2 of this draft CEMP for reporting protocols.

# 1.6 EMERGENCY CONTACT LIST

**Table 1 Emergency Contacts**

CONTACT	NAME	OFFICE PHONE	MOBILE PHONE
Site Superintendent	TBD		
Client Contact	Vinil Reddy	604-665-9171	
Subcontractor Contact	TBD		
WSP Environmental Contact	Michael Taylor	604-631-9679	
Environmental Monitor	TBD		
Emergency Management BC (EMBC)	1-800-663-3456		
DFO Spill Reporting Line	1-800-465-4336		
Environment Canada Environmental Emergencies	604-666-6100		
RCMP/Fire/Emergency	911		

# 1.7 REGULATORY AND STAKEHOLDER COMMITMENTS

The Project is located with the City of Surrey and therefore all project works must comply with the appropriate local bylaws. The City of Surrey requires an Erosion and Sediment Control Permit for construction projects that have a disturbed area equal to or greater than 2000m<sup>2</sup> as well as a Permit for Project activities within the Sensitive Ecosystems Development Permit Areas (Streamside Areas and Green Infrastructure Areas). A permit authorizing an Activity Affecting Listed Wildlife species Regulations under section 73 of the *Species at Risk Act* (for Streambank Lupine) may be required.

It is anticipated that a DFO Request for Review, potentially a Letter of Authorization under paragraph 35(2) of the *Fisheries Act* will be required for Riparian area/instream works.

The Owner and the Contractor will adhere to all laws and regulations of the federal and provincial governments and to the intent of local government bylaws and guidelines where applicable. Where such requirements have not been identified by the CEMP, it is the responsibility of the Contractor to ensure they have obtained the necessary permits and approvals.

The Contractor shall ensure that copies of all permits and approvals are available on site at all times. The Contractor shall be aware of the following applicable acts, regulations, guidelines and bylaws; however, this list is not exhaustive, and the reader should be aware that other acts, regulations and guidelines may apply:

- BC *Environmental Management Act*, ENV
- Contaminated Sites Regulation, ENV
- Hazardous Waste Regulation, ENV
- Federal *Fisheries Act*, DFO

- Land Development Guidelines for Protection of Aquatic Habitat, DFO
- BC *Water Sustainability Act*, ENV
- Federal *Species at Risk Act*, ECCC
- *Transportation of Dangerous Goods Act*, Transport Canada
- BC *Wildlife Act*, ENV
- BC Approved Water Quality Guidelines & Working Water Quality Guidelines, ENV
- BC *Wildfire Act*, FLNRORD

The Contractor(s) shall be aware of, and operate within the intent to abide by the spirit of municipal bylaws including, but not limited to:

- City of Surrey Erosion and Sediment Control Bylaw (No. 16138);
- City of Surrey Tree Protection Bylaw (No. 16100);
- City of Surrey Soil Removal and Deposition Bylaw (No. 16389);
- City of Surrey Stormwater Drainage Regulation and Charges bylaw (No. 16610);
- City of Surrey Noise Control Bylaw (No. 7044); and
- City of Surrey Official Community Plan (No. 18020).

## 2 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The contractor(s) will perform construction activities in a manner that prevents the release of oils, fuel, wastes and other pollutants into the atmosphere, soils, groundwater or watercourses. Waste and other pollutants include, but are not limited to, refuse, garbage, sewage effluent, contaminated soil, sediment, construction waste and chemicals.

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### 2.1 SOILS MANAGEMENT

#### 2.1.1 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls will be implemented by the Contractor. In general, the following plan should be followed:

- To the extent possible, work that requires clearing and grading should be scheduled for the dry weather period (summer), when the potential for surface runoff to erode exposed soils is lowest. As much as possible, the clearing and grading operations will be staged to avoid having large areas of disturbed soil present at any time, and particularly during the winter;
- Where possible, site clearing will immediately precede construction to minimize the amount of time that disturbed soils are exposed to weathering. Clearing will be limited to the minimum area necessary for construction;

- If any soil or other erodible material is to be temporarily stockpiled, it will be covered with polyethylene sheeting that is anchored securely to prevent displacement by wind or precipitation;
- Where necessary, silt fencing will be used to retain sediments on the construction site.
- The sediment control structures will be installed as the first construction activity. All sediment control structures will be inspected regularly, and repaired/maintained as necessary;
- Ditches and/or berms will be installed as necessary to direct surface runoff away from disturbed areas. The ditches will be designed to prevent erosion due to high water velocities through the use of check dams (sandbags), filter fabric, rock rip-rap or polyethylene lining. Apart from these necessary diversions, the natural drainage patterns will be maintained;
- Sediment and erosion control materials will be stockpiled on-site for use in any emergency situation that may arise. Stockpiled materials should include filter cloth, straw bales, rip-rap, grass seed, drain rock, culverts, and/or matting polyethylene, which can be determined by the EM once the construction plan has been established; and,
- As soon as practical after construction, any remaining disturbed soils will be revegetated using an appropriate grass seed mixture. Seeding will be conducted before the end of the growing season to allow establishment of germination/roots.

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### 2.1.2 UNCONTAMINATED SOIL STORAGE

Soil removal and stockpiling may be planned for the Project. Uncontaminated soil stockpiles may be temporarily stored on-site in a location that minimizes the risk of sediment entering bounding ditches or roadways. Erosion controls of the stockpiled soil should be implemented. Soils will not be stockpiled on roadways or private property without proper authorization.

If soil stockpiles become a source of chronic siltation in nearby ditches or roadways, the Contractor(s) must immediately remedy the siltation as necessary to the satisfaction of the EM.

Should area constraints at the Project be identified, the Contractor will complete a site-specific plan to determine appropriate locations for potential stockpiles prior to any soil stockpiling or soil removal activities.

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### 2.1.3 CONTAMINATED SOILS

Any potentially contaminated soils from construction activities must be handled, transported and disposed of in accordance with the BC *Environmental Management Act* (EMA) and its Regulations (Contaminated Sites Regulation and Hazardous Waste Regulation), and the federal Canadian Council of Ministers of the Environment (CCME) Guidelines and TDG Regulations. The Contractor(s) must not remove surplus soil from the site before the EM has assessed and approved the proposed soil disposal location.

If soil odour, debris, discolouration and/or water sheen is encountered during construction activities, the Contractor(s) must:

- Stop work and contact the Owner and EM immediately to report the location and nature of the suspected contamination;
- Under the supervision of an appropriately trained Environmental Professional (or delegate), segregate these soils from potentially un-contaminated soils during excavation;
- Arrange with EM for sampling, analysis and removal/disposal options of the contaminated soils;

- Stockpile soils on polyethylene sheeting (6 mil or greater) at least 30 metres from ditches, drainages and/or other waterbodies;
- Cover each pile with polyethylene sheeting to prevent erosion, silt and/or contaminant runoff.

If stockpiling the soil is not possible, the EM will arrange for the soils to be handled as inferred contaminated. The suspect soils will be removed from site by a licensed carrier for direct transport to a licensed facility.

The contractor(s) must be prepared with the following materials in the event that contaminated soil and/or water is encountered:

- Six mil (or greater) polyethylene sheeting to place contaminated soils on, and cover the soils with;
- Sufficient, non-erodible ballast material to secure the polyethylene sheeting on the contaminated soil;
- Ample oil absorbent materials;
- Shovels;
- Waterproof drums.

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## 2.2 WASTE MANAGEMENT

The guiding principle for waste management is to maximize opportunity for reduction, re-use and recycling of solid waste. All waste, debris, and other construction related materials (wood forms, hardware, plastics, etc.) will be removed from the Project area and disposed of in an appropriate manner. The Contractor will separate and store recyclable and waste materials in appropriately labeled, covered, waterproof containers prior to transport to government authorized recycling and disposal facilities. Solid wastes generated by the Contractor will be contained and removed to maintain a clean and tidy environment and prevent the attraction of wildlife. The Contractor will be required to ensure generally accepted waste management guidelines are followed. Daily removal of lunch waste including recyclables will be the responsibility of each Project staff and ultimately the Contractor.

Upon completion of the Work, the Contractor will be responsible for a thorough clean-up of the construction area to ensure that all wastes from its operations are removed and disposed of in accordance with the BC EMA and its regulations, and federal TDG Regulations (as necessary).

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### 2.2.1 NON-HAZARDOUS WASTE

Solid wastes generated during this Project and requiring disposal off site may need approval from the local landfill operator prior to disposal. Local landfills may have specific restrictions on waste items accepted. The Contractor is required to comply with these requirements. For disposal of soils, refer to Section 2.1: Soils Management of this draft CEMP.

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### 2.2.2 HAZARDOUS WASTE

The Contractor will dispose of all hazardous materials and wastes in accordance with the BC EMA, HWR and its regulations, and federal TDG. The Contractor will contact the appropriate Municipal, Regional, Provincial or Federal authorities prior to waste disposal for approval. The Contractor will provide the Owner with a copy of this governmental authorization. Should evidence of historical contamination be uncovered during the Project, Work is to stop immediately, and the location and nature of the suspected contamination reported to the Owner and EM.



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## 2.3 WATER MANAGEMENT

A review of the publicly available mapping data (including the City of Surrey’s COSMOS Map and BC ENV’s HabitatWizard) has revealed that there are two fish-bearing canals and a roadside ditch overlapped by the Project footprint. The Fraser River is located approximately 350m northwest of the Project area and WSP understands that the proposed Project will not directly affect the foreshore or marine environment. All the watercourses within the FSPLs ultimately flow into the Fraser River.

In general, as per the Fisheries and Oceans Canada “Land Development Guidelines for the Protection of Aquatic Habitat” (DFO 1993), runoff water from the development site should contain less than 25 mg/liter of suspended solids (or non-filterable residue, NFR) above the background suspended solids levels of the receiving waters during normal dry weather operation and less than 75 mg/liter of suspended solids above background levels during storm events. Should significant turbidity be observed, samples will be collected and sent for TSS analysis. According to the City of Surrey’s Erosion and Sediment Control Monitoring and Reporting requirements, the trigger value for requiring site discharge to be analysed for TSS is 65 NTU’s. Water leaving the construction site must additionally meet the following parameters:

**Table 2 Water Quality Parameter Criteria**

**PARAMETER CRITERIA**

Oil and Greases <sup>1</sup>	Not detectable by sight or smell
pH <sup>2</sup>	6.5-9.0
Temperature <sup>3</sup>	>15°C

*1 - Values are from the BC Approved Water Quality Guidelines (Criteria) for Drinking and Recreational Water Uses*

*2 - Values are from the BC Approved Water Quality Guidelines (Criteria) Summary of pH Criteria*

*3- City of Surrey Monitoring & Reporting Requirements for ESC Permitted Sites, parameters*

If significant impacts to the water quality are observed then a new worksite isolation practice, or treatment of the water prior to release, may be required. If any suspect odours or sheens are observed, water quality samples may be required to submit for laboratory analyses of contaminants of concern.

The Contractor will perform the Work in a manner that ensures no deleterious substances are introduced into any roadside ditches connected downstream to a watercourse.

The EM may direct the Contractor to suspend construction activities on the Site and order the Contractor to take corrective actions if water quality parameters exceed acceptable levels for freshwater aquatic life as specified by the Canadian Water Quality Guidelines or any other criteria set out by the BC Ministry of Environment, Fisheries and Oceans Canada, and/or Environment Canada. The Work will be suspended until the Contractor(s) has installed or completed adequate corrective measures to the satisfaction of the EM. The results of water quality measurements will be provided as necessary in the monitoring reports.

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## 2.4 WILDLIFE PROTECTION

There is minimal potential for rare/sensitive wildlife species to use the Project Area; however, due to the proximity of the Fraser River, there is the potential for various bird species to visit the Project area and the site may be used by nesting birds during the spring and summer months. The construction works must be compliant with the federal

*Migratory Birds Convention Act* and the provincial *Wildlife Act*. Where there is the opportunity to retain trees, they should be protected using a Tree Protection Plan.

The Contractor will conduct construction activities in a manner that is sensitive to the wildlife habitat and population of the local surroundings:

- All meals and food waste will be securely stored in vehicles, offices or appropriate disposal facilities to prevent attraction of wildlife.
- Feeding of wildlife will not be permitted.
- The EM will ensure a pre-clearing bird nest survey has been completed before the beginning of the construction and include the natural features on-site as well as the structures including buildings, boxes and nearby power poles.
- The Contractor will not destroy, remove, or clear any active bird nests or the inactive nests encountered during the Work.
- Active nests of any birds and inactive nests of bald eagle and great blue heron are protected under the BC *Wildlife Act* and cannot be removed.
- If any wildlife nesting, breeding, denning or hibernaculum sites are encountered in the course of the Work, the Contractor will suspend Work and immediately report the finding to the Owner and EM.

Construction vehicle collisions with wildlife will be reported immediately to the EM. Wildlife carcasses must not be moved or transported until permission is received from the local conservation officer (1-800-663-9453) except in the circumstances where it is required for a medical emergency or endangers personal or road users' safety.

If wildlife carcasses are moved other than under the instruction of a Conservation Officer (CO), their position and state prior to and post-moving must be documented. Site personnel are reminded that carcasses or wounded animals frequently attract other, predatory and scavenging wildlife, increasing the probably of wildlife encounters on-site. Carcasses and remains located off-site but in the vicinity of the Project should, if identified, be reported as soon as possible to the EM, giving exact position and location directions, the EM will then be responsible for taking or initiating the requisite action.

Other wildlife-related encounters are to be reported within 24 hours to the EM and the Owner.

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## 2.5 FISH HABITAT AND PROTECTION

According to provincial mapping and fisheries information, there are two fish-bearing canals and a roadside ditch overlapped by the Project footprint. The Fraser River is located approximately 350m northwest of the Project area and all the watercourses in the FSPLs flow into the Fraser River. Fisheries data and mapping from the BC Ministry of Environment indicates that Pink salmon, Coho salmon, Lamprey, Cutthroat trout, Coastal Cutthroat trout, Prickly sculpin, Threespine stickleback, Fathead minnow, Rainbow trout and Peamouth chub have been observed in the watercourses within the FSPLs.

The following provides a general discussion of construction considerations and mitigation strategies relative to fisheries resources:

- *Fish Windows* – It will be necessary to define an instream construction schedule that is compatible with fisheries resources downstream. Instream construction windows are dependent on the timing of alevin emergence and adult spawning. The proposed instream construction window for the streams in the area varies per species and typically falls within June 15<sup>th</sup> – September 15<sup>th</sup>. Should it become necessary to complete work outside of the

fisheries window, the FLNRORD Officer will be notified and extra measures will be put in place to ensure no impacts to fisheries resources.

- *Fish Salvage* – A fish salvage may be necessary. All fish captured will be identified and measured and then released upstream of the construction activities. The nets will remain in place through construction to prevent the migration of fish into the construction area. This protocol should be followed for any other salvage activities as required.

All care must be taken to avoid the deposition of deleterious substances (Section 36, Fisheries Act) including sand, sediment, erodible materials, stockpile materials and run-off, paving and associated substances into the on-site water courses.

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## 2.6 VEGETATION MANAGEMENT

The City of Surrey has identified portions of the Project Area as Sensitive Ecosystem Development Permit Areas. According to the Environmental Overview Report (WSP 2020), two clusters of Streambank lupine were identified along Timberland/Robson Roads and the associated rail lines. It is understood that the Vancouver Fraser Port Authority holds a permit (SARA-PYR-2019-0480) which authorizes the removal of Streambank Lupine and clearing of critical habitat. Habitat offsetting will be required under the permit.

It is anticipated that clearing and grubbing of shrub and low cover vegetation species will be carried out to clear the construction work area. Prior to vegetation removal the shrub and low cover vegetation should be reviewed by the EM for sensitive environmental features related to protected bird species, wildlife and plant species at risk. In general, the following plan should be followed:

- When possible, avoid using surrounding areas for laydown and staging to protect trees and plants on adjacent land;
- Attend pre-construction kick off meetings with contractors to identify construction footprints;
- Equipment shall be cleaned and free of vegetative debris prior to entering the Project area;
- Any soil within the possible rooting zone of invasive species shall be considered to contain invasive species and shall require special handling and disposal;
- Inspect work vehicles prior to entering and leaving the Project area for the presence of noxious weeds to prevent transport to and/or from Project area;
- Exposed soil will be revegetated;
- Revegetate as close to former condition as practicable. If the area was previously covered with invasive or non-native plants, revegetate using native plants;
- No-go zones will be flagged prior to site work commencing and will include areas outside of the construction footprint; and
- if any rare or endangered species are detected, a special management program will need to be developed.

Invasive plants species including Blueweed (*Echium vulgare*), Japanese knotweed (*Fallopia japonica*) and Scotch broom (*Cytisus scoparius*) are anticipated to inhabit the FSPLs. If encountered, the Contractor will ensure noxious weeds are removed and segregated prior to appropriate disposal as per the instructions of the EM.

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### 2.6.1 TREE PROTECTION PLAN

If tree removal does need to occur, the area should be reviewed by the EM prior to tree clearing for sensitive environmental features related to protected trees, protected bird species, wildlife and plant species at risk. An

arborist may also be required. Any tree clearing activities should occur outside of the migratory bird window for the region.

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## 2.6.2 INVASIVE SPECIES MANAGEMENT PLAN

Measures to prevent invasive plant spread include:

- Ensure vehicles and equipment are clean of invasive plants and seed;
  - Minimize soil disturbance in all construction and maintenance activities;
  - Limit the movement of weed-infested soil or gravel;
  - When storing materials known to contain invasive plants and/or seeds it should be laid down on a tarp (and also covered with a tarp) to reduce contact with native soils and reduce wind dispersal;
  - When using mulch use straw rather than hay as hay often contains noxious weeds;
  - Use certified weed-free seed mixes or vegetation in disturbed areas to provide competition for any new weeds;
  - Where top-dressing with soil is necessary ensure that soil has been sterilized to reduce risk of introducing weeds; and
  - Contain neighbouring infestations and restrict movement of invasive plants from adjacent lands. Roadways, railways and waterways are often corridors for invasive plant spread.
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## 2.7 NOISE AND DUST MANAGEMENT

Noise may be a nuisance to other workers, residents, or recreational users in the area, may pose a health hazard or may have negative effects on wildlife, birds and fish in habitats near the Project area. Measures that can be taken to reduce noise include maintaining mufflers and related equipment in good order and erecting physical barriers as appropriate. While it may be necessary for construction-related equipment to idle during the Project works, all efforts should be made to reduce overall idling times.

During construction activities, the Contractor must furnish all labour, equipment and materials required to reduce dust nuisance and to prevent dust which has originated from its operations from becoming a nuisance in any work areas. The use of oil or calcium chloride, or other chemicals for such purposes is not permitted. Instead, a street sweeper should be used on a regular basis if dust accumulation or track out occurs. Drawing water from any natural watercourses is not permitted.

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## 2.8 SPILL PREVENTION AND RESPONSE

### 2.8.1 EQUIPMENT MAINTENANCE

The Contractor will maintain and operate their equipment so as to prevent and minimize losses of hydraulic fluids, lubricants, or fuels. This will include regular inspections of fuel and hydraulic lines. Equipment will be thoroughly examined for fluid leaks and steam cleaned prior to commencing work. These requirements will apply during mobilization to the site.

All scheduled vehicle and equipment maintenance, and emergency maintenance will, when possible, be carried out at a maintenance facility and not in the field.

Spill kits and equipment, including absorbent pads, booms and leak proof waste containers, will be provided by the Contractor and be readily available on-site and on each piece of mobile equipment (e.g. light trucks, excavators, backhoes, skid steers, etc.) in the quantities required to absorb the volume of liquid contained in the largest reservoir of each liquid type (hydrocarbon or water soluble) on the equipment. Sufficient quantities of absorbent pads suitable for coolant will also be included in each spill kit.

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## **2.8.2 FUEL AND COOLANT STORAGE, HANDLING & TRANSFERS**

The Contractor will supply, construct, operate and maintain all equipment and facilities for storage and transfer and refueling including environmental protection materials and equipment in accordance with the requirements of the BC Fire Code – Part 4 and the BC Summary of Environmental Standards and Guidelines for Fuel Handling, Transportation and Storage. Measures for storage and transfer will also include:

- An oil spill response plan;
- Fully stocked emergency spill response kits appropriate to the type of work being conducted, and including an adequate inventory of absorbent pads, socks and booms to respond to petroleum leaks and spills from construction related activities;
- Prior to the commencement of any oil transfers, the Contractor(s) will review these requirements with all staff/Contractor(s) involved in the transfers;
- All staff and Subcontractors must be adequately trained in their respective duties;
- Personnel must be present and fully alert at all times during any fluid transfers;
- An oil spill containment boom if heavy oil filled equipment is to be used over or adjacent to a water body;
- Appropriate containment for petroleum storage, transfer and refueling facilities that will contain any spillage or leakage;
- Fueling and servicing of equipment shall be done at least 15 m from a ditch and 30 m from a water body;
- All oil storage tanks must be inspected to ensure there are no potential leaks prior to, during and after filling;
- Wrap hose connections with absorbent material to catch any leaks and drips during oil transfer to/from the storage tanks;
- Fuel containing equipment left on-site overnight should be equipped with a drip tray;
- If a leak is observed from any equipment while on-site, stop the equipment and place drip trays and/or absorbent matting under the leak immediately. Repair the leak;
- Do not fill tanks to the top. Leave adequate head-space to ensure that overfilling does not occur;
- Containers of 23 litres (5 gallons) or less will be stored in equipment boxes or storage area capable of containing at least 110% of the stored volume in the event of a spill;
- Plastic containers used to carry petroleum products will be designed for that purpose and cannot be more than five years old;
- All fuels, oils, chemicals and wastes must be labeled, transported, and stored in accordance with the TDG Regulations and the Workplace Hazardous Materials Information System;

- Leak proof waste containers readily available on-site in quantities appropriate to the size of the Project.

Any waste oil or other waste materials must be removed from the Project area as soon as possible in accordance with TDG Regulations and the BC Hazardous Waste Regulation. All waste containers and containers of dangerous goods must be labeled appropriately and stored in a secure location, protected from weather until disposal can be arranged.

Contaminants from fueling and/or servicing must not enter surrounding areas or water bodies. In general, fueling and servicing of equipment should be done at least 30 m from any body of water.

The Contractor(s) must immediately report any spills to the Owner and the EM as per Section 4.1 and 4.2.

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## 2.9 SAFETY DATA SHEETS

The Contractor(s) will maintain an up to date master file (“Register”) of Safety Data Sheets (“SDS”) for all materials used by the contractor in performing the construction activities and for materials that potentially could be spilled or found on the site.

Controlled, updated copies of these SDS will be immediately at hand:

- To each of the Contractor's Emergency Contacts
- In all of the Contractor's vehicles and
- Prominently displayed on all work sites

# 3 ARCHAEOLOGICAL AND HERITAGE RESOURCE MANAGEMENT

Although WSP has not been provided with archaeological or heritage resource assessment information for the Project area a general summary is provided below.

An archaeological site is a location where evidence of past human activity exists. Archaeological sites are the only physical evidence for 98% of the past history of British Columbia. The Province recognizes the importance of these sites and controls damaging activities by protecting them by law and requiring a permit to develop within site boundaries. Damaging an archaeological site without a permit is unlawful. Some examples of an archaeological site include stone carvings, remains of ancient houses and campsites, shell middens, culturally modified trees, and early trading posts. Items of interest that may be uncovered during construction activities include human bones, pithouses, stone tools and rock paintings (pictographs).

Archaeological sites (both recorded and unrecorded) are protected under the *Heritage Conservation Act* and must not be altered or damaged without a site alteration permit from the Archaeology Branch. In the event that archaeological material is encountered during construction activities, work must be halted immediately pending archaeological investigations. The Contractor should immediately inform the Owner and the EM and the Archaeology Branch should be contacted for direction.

# 4 ENVIRONMENTAL INCIDENTS AND EMERGENCIES

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## 4.1 SPILL RESPONSE PROCEDURES

In the event of any release of fuel, lubricant, sludge, or other industrial chemical (including gases), the Contractor will follow the Spill Response procedures as outlined in Appendix B. The Contractor will be responsible for ensuring personnel are competent to adequately respond to a spill. Considering that effective spill contingency and response procedures is a key environmental element in environmental protection, it is important to make a copy of these procedures available at all times, as the plan outlines the action items. Emergency spill kits should be available on-site at all times and for each piece of mobile equipment.

Spill kits and equipment, including absorbent pads, booms and leak-proof waste containers, will be provided by the Contractor and be readily available on-site and on each piece of mobile equipment (e.g. light trucks, excavators, backhoes, skid steers, etc.) in the quantities required for the equipment being used and the quantities of fluids onboard. An equipment emergency spill kit should be kept fully stocked and include at a minimum:

- 50 Absorbent Pads (Oil, Gas & Diesel)
- 25 Universal Absorbent Pads (Antifreeze and Non-Hazardous)
- 6 – 3" x 4' Absorbent Socks (Oil, Gas & Diesel)
- 4 – 3" x 8' Absorbent Socks (Oil, Gas & Diesel)
- HD Hazmat Disposal Bags
- Minimum 10 pairs of Nitrile Gloves (sized for crew)
- 1 Spill Instruction Sheet

All workers should be adequately trained in the application and use of the spill kit materials or have adequately trained supervision.

All spills, regardless of volume, and other environmental incidents, must be reported to the Owner and the EM. The Contractor is responsible for ensuring personnel know when to contact Emergency Management BC (EMBC). At least one crew leader with current training will be physically present on the work site at all times when work is being conducted.

It is the responsibility of the Contractor and the Owner to report spills in excess of the quantities included in Appendix B to the appropriate environmental agency. It is the responsibility of the Owner to report applicable spills and other environmental incidents internally.

**\*\*\*ALL SPILLS TO WATER ARE REPORTABLE\*\*\***

**\*\*\*ALL SPILLS TO STORM SEWER ARE REPORTABLE TO THE APPLICABLE MUNICIPALITY AND/OR REGIONAL DISTRICT\*\*\***

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## 4.2 ENVIRONMENTAL INCIDENTS - REPORTING

All environmental incidents are required to be reported. An environmental incident report ensures timely communication and reporting to senior management and to appropriate technical individuals that may be impacted by the incident. Reporting of environmental incidents applies to all work, including work performed by Contractor, and all events which affect the Client and/or Owner.

An environmental incident is one that caused, or had the credible potential to cause (near miss), one or more of the following:

- Adverse impact on the quality of air, land or water, wildlife, aquatic species or species at risk;
- Violation of legislation, related policies or regulations;
- External reporting requirement derived from a commitment, especially if attached to a non-routine or unexpected event;
- Notification to external agencies due to an emergency beyond normal circumstances;
- Adverse publicity with respect to the environment;
- Alteration of, or damage to, heritage or archaeological resources; and
- Legal or regulatory action with respect to any of the above.

Environmental Incidents include, but are not limited to:

- Spills of oil, fuel, PCB or chemicals or uncontrolled release of air pollutant i.e. NOx, H2, propane;
- Discharge of deleterious substances into fish-bearing water;
- Landslides, erosion, or floods as they affect environmental quality;
- Violation of environmental regulations, permits or approvals;
- Forest fires related to construction activities;
- Ground disturbance where encountering an archaeological site or removal of a culturally modified tree;
- Adverse effect on plants or animals, birds or their protected habitat.
- Severe Incidents include, but are not limited to:
  - An environmental incident that triggers an investigation by an agency;
  - A major media story such as large spills or spills into sensitive publicly- recognized waters;
  - Significant impact to species habitat or population;
  - Incurs damages and/or remediation costs >\$100K

**The Construction Superintendent or Contractor Supervisor who is on-site during the incident is responsible for informing the following personnel immediately:**

- Power to Be (Site Owner/Developer); and
- Project Environmental Monitor.

The Contractor will ensure their staff are aware of and/or appropriately trained on their responsibilities of the environmental incident reporting requirements.



In addition to reporting internally to the Owner and the EM, it is necessary in some situations to notify regulatory agencies. Incidents where reporting to agencies is required are shown in the Spill Response Plan in Appendix B. It is the responsibility of the Contractor to make this notification.

# APPENDIX

## A FIGURES



# APPENDIX

# B

## SPILL RESPONSE PLAN



## SPILL AND EMERGENCY RESPONSE PLAN

In the event of spilled fuel, oils, lubricants or other harmful substances, the following procedure will be implemented.

### Spill Response Steps

1. Ensure Safety
2. Stop the Flow (if possible and SAFE to do so)
3. Secure the Area
4. Contain the Spill
5. Notify and Report to the Ministry of Transportation and Infrastructure and Environmental Monitor
6. Notify (EMBC 1-800-663-3456) see table below for reportable spill volumes and flow chart below for reporting method
7. Cleanup

Circumstances may dictate another sequence of events

#### 1 Ensure Safety

- Ensure personnel, public and environmental safety
- Wear appropriate Personal Protective Equipment (PPE)
- Never Rush in, always determine the product spilled before taking action, refer to MSDS when available
- Warn people in the immediate vicinity
- If spilled material is flammable, ensure no ignition sources are nearby

#### 2 Stop the Flow (If possible and SAFE to do so)

- Act quickly to reduce environmental impacts
- Close valves, shut off pumps, plug or block holes or leaks, and set containers upright
- Stop the flow of the spill at its source

#### 3 Secure the Area

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

#### 4 Contain the Spill

- Block off and protect any ditches and culverts in the vicinity of the spill
- Prevent spilled material from entering any drainage structures (ditches, culverts, drains)
- Use spill absorbent material to contain spill
- If necessary, use a dike, berm or any other method to prevent any discharge off-site
- Make every effort to minimize contamination
- Contain the spill as close to the source as possible

#### 5 Notify and Report

- Notify the Owner and EM of incident (provide spill details)

- **When necessary**, the first external call should be made to **Emergency Management BC 1-800-663-3456** (see spill reporting requirements below)
- Provide necessary spill details to other external agencies

## EXTERNALLY REPORTABLE SPILL QUANTITIES BY PRODUCT TYPE

PRODUCT	QUANTITY
Class 2.1 – Flammable gas (e.g. propane)	10 kg
Class 2.2 – Non-flammable gas (e.g. CO2)	10 kg
Class 3 – Flammable liquids (e.g. gasoline)	100 litres
Class 8 – Corrosives (e.g. battery acid)	5 kg or 5 L
Class 9 – Miscellaneous Products (e.g. lithium ion batteries)	25 kg or 25 L
Waste containing polycyclic aromatic hydrocarbons	5 kg or 5 L
Waste asbestos	50 kg
Waste Oil	100 L
Waste that contains a pest control product	5 kg or 5 L
PCB wastes	25 kg or 25 L
Other substances that can cause pollution	200 kg or 200 litres
Natural gas	10 kg

\* Quantities are subject to change. Refer to Regulations for latest figures

Spill kits and equipment, including absorbent pads, booms and leak-proof waste containers, will be provided by the Contractor(s) and be readily available on-site and on each piece of mobile equipment (e.g. Light trucks, excavators, backhoes, Bobcats, etc.) in the quantities required for the equipment being used and the quantities of fluids on-board. An equipment emergency spill kit should be kept fully stocked and include at a minimum:

- 50 Absorbent Pads (Oil, Gas & Diesel)
- 25 Universal Absorbent Pads (Antifreeze and Non-Hazardous)
- 6 – 3” x 4’ Absorbent Socks (Oil, Gas & Diesel)
- 4 – 3” x 8’ Absorbent Socks (Oil, Gas & Diesel)
- HD Hazmat Disposal Bags
- Minimum 10 pairs of Nitrile Gloves (sized for crew)
- 1 Spill Instruction Sheet

## EMERGENCY RESPONSE

Potential environmental emergencies that may occur while construction is ongoing may include, but are not limited to:

- Reportable fuel spills;
- Sediment laden water leaving the site or entering a waterbody;
- Negative wildlife interactions; and
- Observation of previously unidentified sensitive environmental features.

The EM should be notified of all environmental emergencies. The EM should assess and record all incidents and determine appropriate action. All significant emergencies should be reported to Emergency Management BC (formerly Provincial Emergency Program) and PMV's Operations Centre.

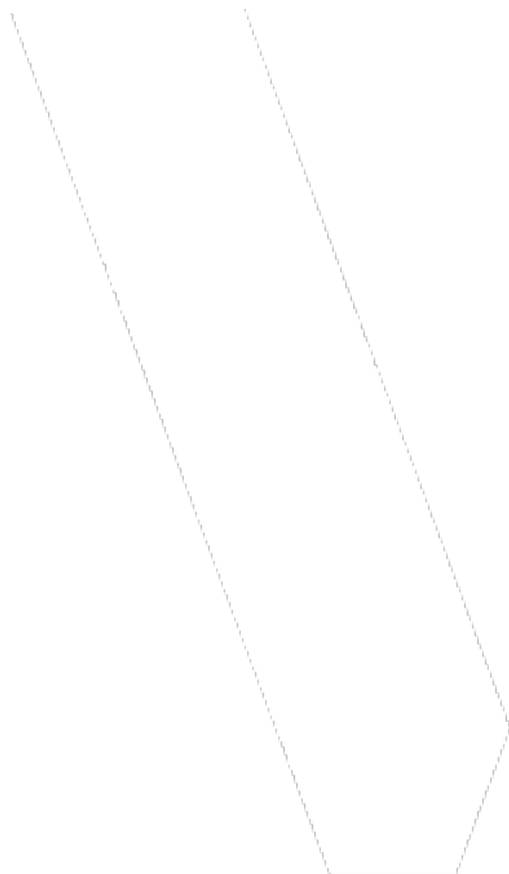
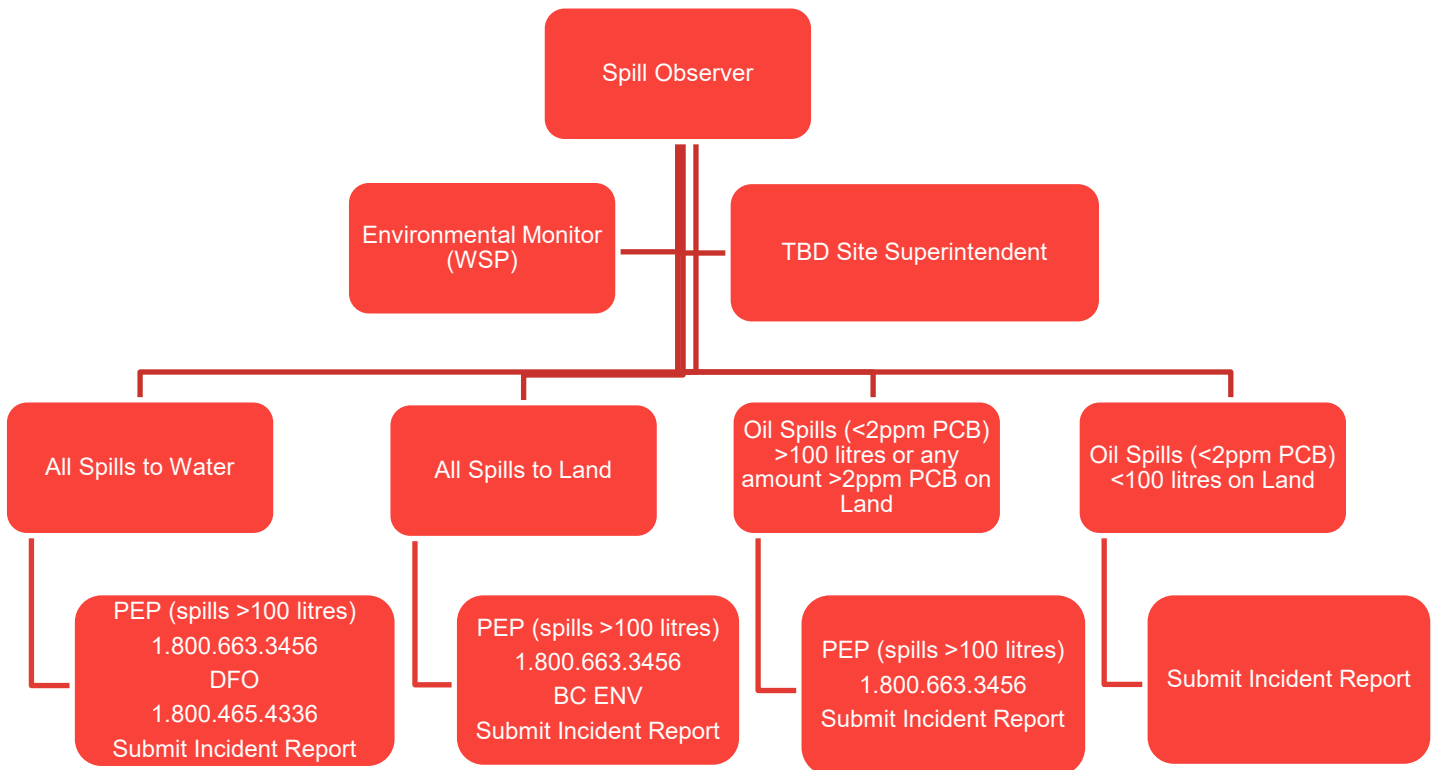
Provided below is the contact information for all parties who are responsible for the project, or are critical to the response or reporting of accidents or environmental emergencies.

CONTACT	NAME	OFFICE PHONE	MOBILE PHONE
Project Lead	Ken Berglund	604-665-9642	
Client Contact	Vinil Reddy	604-665-9171	
Site Superintendent	TBD		
PMV Operations Centre		604-665-9086	
Subcontractor Contact	TBD		
WSP Environmental Contact	Michael Taylor	604-631-9679	778-836-2677
Environmental Monitor	TBD		
Emergency Management BC (EMBC)	1-800-663-3456		
DFO Spill Reporting Line	1-800-465-4336		
Environment Canada Environmental Emergencies	604-666-6100		
RCMP/Fire/Emergency	911		

**\*\*\*ALL SPILLS TO WATER ARE REPORTABLE\*\*\***

**\*\*\*ALL SPILLS TO STORM SEWER ARE REPORTABLE TO THE APPLICABLE MUNICIPALITY AND/OR REGIONAL DISTRICT\*\*\***

# SPILL RESPONSE CARD



# APPENDIX

# C

## STANDARD LIMITATIONS

