Project & Environmental Review

Guidelines – Construction Environmental Management Plan (CEMP)

Vancouver Fraser Port Authority

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Canada

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1. OVERVIEW

These guidelines are intended to assist applicants of projects on lands and waters managed by Vancouver Fraser Port Authority in developing a Construction Environmental Management Plan (CEMP) as part of the Project and Environmental Review process.

2. INTRODUCTION

This document provides guidance to port authority tenants who are proposing works and activities (referred to herein as "projects") on port authority-managed lands and waters. These guidelines support the Vancouver Fraser Port Authority's Project and Environmental Review process and should be used by both tenants and environmental professionals who may be hired to assist with technical aspects of CEMP development.

3. PRINCIPLES/OBJECTIVES

Projects on port lands and waters may generate construction-related impacts, such as dust, noise, turbidity, and hazardous waste. While potential construction impacts and relevant mitigation measures vary by project, many are commonly considered during the Project and Environmental Review process. The objective of these guidelines is to assist applicants through the preparation of a CEMP as they progress through the Project and Environmental Review process. Where projects are found to warrant a CEMP, these guidelines are intended to assure that the CEMP is prepared to an appropriate standard.

4. APPLICABILITY

These guidelines are specific to the construction phase of a project only and do not address the ongoing operations subsequent to construction. Information on the assessment of operational effects as part of the Project and Environmental Review process is available in other guidelines, such as Guidelines - Air Emission Management Plan, Guidelines - Air Assessment, Guidelines - Stormwater Pollution Prevention Plan and Guidelines - Environmental Noise Assessment.

These guidelines apply to proposed projects with the following characteristics:

- Construction-related emissions and releases, such as noise, light, dust or debris, may impact environmental resources or the surrounding community.
- Construction-related activities located within or in close proximity to highly productive or sensitive habitat or features, such as eelgrass or eagle nesting trees.
- Construction-related activities located within or in close proximity to species at risk habitat.
- Known or suspected subsurface contamination will be disturbed.
- A new or modified discharge to air or water will occur during construction.
- Construction-related activities will occur outside appropriate timing windows for the protection of fish and wildlife.
- A new or unique construction method with uncertain impacts will be implemented.

Based on these project characteristics, it is anticipated that mitigation measures will need to be developed to directly address the identified potential impacts. A CEMP is not anticipated for projects determined to be category A under the Project and Environmental Review process, but is anticipated to be required for most category C and D reviews. Category B reviews which involve one of the characteristics identified above on a relatively small scale or duration may be required to provide a targeted mitigation plan which focuses on addressing potential impacts to a specific environmental resource. The need for a full CEMP will be determined by the Vancouver Fraser Port Authority and communicated to the applicant during the preliminary review phase for category C and D reviews, and at the time of project category confirmation for category B reviews. Further information on the categories of review is available in the Project and Environmental Review Application Guide. The CEMP should be appropriate to the scale, duration and potential impacts of the project.

These guidelines are limited in application to the port authority and its Project and Environmental Review process. The applicant is responsible for obtaining any and all required permits, authorizations and approvals from any other authority having jurisdiction and for complying with any other applicable legislation, such as the *Fisheries Act*, *Migratory Birds Convention Act* and *Species at Risk Act*.

5. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP) COMPONENTS

Projects requiring a CEMP have a potential for construction-related activities to impact environmental resources or members of the surrounding community. The applicant is required to retain the services of a qualified environmental professional (QEP) to prepare a CEMP that presents mitigation measures and best management practices (BMPs) that are proposed to be implemented to avoid or minimize adverse impacts. The CEMP should be based on the environmental conditions at the site, the nature of the proposed project and the findings of any assessments conducted as part of the application.

These guidelines are presented in the general layout of a CEMP and sets out the components and context which should generally be included. The level of detail should be scaled to the size and complexity of the project and the potential for construction-related activities to generate impacts of concern. The CEMP is expected to be updated as project details change. The port authority will make a final determination on the suitability, completeness and adequacy of a CEMP.

5.1 INTRODUCTION

This section should define the purpose of the CEMP and generally describe its use in the context of the project.

5.2 PROJECT INFORMATION

5.2.1 Location

Identify the project location, using name of the municipality as well as coordinates or landmarks for clear identification. Include appropriately scaled figure(s) for visual identification and reference.

Example text:

The project is located near Town name, Province. The geographical coordinates at the project's approximate centre are 000° 00′ 00″ North and 000° 00′ 00″ West and borders the Fraser River on the north side of the Property.

The attached Figure 1 illustrates Project location.

5.2.2 Project Description

This section should give a basic overview of the project and the construction-related project components. Information should include, but may not be limited to:

- Project components/tasks
- Construction methods (e.g. equipment, number of personnel)

5.2.3 Project Schedule

The CEMP should include an overall expected schedule as well as a detailed project schedule according to construction components/tasks. Ideally, this will be presented in table format or as a list.

For example:

The project is expected to commence MM/DD/YYYY and be completed by MM/DD/YYYY.

Task	*Proposed Dates*
Clearing/Stripping/Grubbing	
Preload Placement/Removal	
Site Servicing	
Building Foundation	
Etc.	

5.2.4 Site Description

This section should provide a summary of existing environmental conditions and applicable information related to potential or known environmental resources or concerns at the site. The level of detail provided should reflect the project complexity and context. In many

cases, a site visit by a QEP should be conducted to verify site conditions and potential impacts. Where applicable, the findings of any assessments conducted as part of the Project and Environmental Review process, such as a habitat assessment or archaeological impact assessment, should be referenced.

5.3 CONTACTS AND RESPONSIBILITIES

The effective environmental management of any project requires a coordinated effort from all individuals involved. The following sections outline the need to identify the responsibilities of key personnel involved in project construction.

5.3.1 Key Project Personnel

The applicant is expected to maintain a list of project contacts throughout the construction phase of the project. This can be displayed in table format and should also include those regulatory bodies that have input to the project, such as Fisheries and Oceans Canada (DFO), Environment Canada, Navigation Protection Program, as well as contacts from the local municipality.

The project contact list for the works proposed in a CEMP should be completed as soon as the information is known and made available to all parties.

For example:

Project Contact List

Name	*Role/Company*	*Phone Number*
	Construction Foreman	
	Environmental Monitor	
	Client Name Contact	
	Port authority Contact	
	DFO Contact	
	Other Permit/Approval Contact	
	Municipal Contact	

5.3.2 Environmental Monitor Responsibilities

This section should describe the role and responsibilities of the Environmental Monitor (EM). Generally the EM is a third-party subcontracted by the applicant.

On-site monitoring is a key component of ensuring that the recommendations made in the CEMP are implemented properly and function as intended (e.g. appropriate installation and location of erosion and sediment control measures, cleanliness of equipment, suitability of secondary containment for fuel storage). It is expected that a QEP be retained as the EM to provide guidance on implementing the recommended measures and to develop additional mitigation measures if the need arises.

Monitoring events should be at an appropriate frequency based on specific work tasks/procedures and the potential for adverse impacts to occur. An appropriate schedule (frequency and duration of site visits) should be established between the EM, the applicant and all involved regulatory agencies. Monitoring should be conducted with greater frequency during periods of inclement weather (i.e. heavy precipitation, strong winds) and during critical components/tasks of the project, such as working in water. Key monitoring stages may include, but are not necessarily limited to:

- During activities conducted below the high water mark of a waterbody;
- During installation of erosion and sediment control measures; and
- During start-up of new phases of the project.

Example content for this section includes:

The primary responsibility of the EM is to ensure that the environmental protection objectives of the applicant, the port authority, and applicable approvals/permits are met by ensuring that the requirements of this CEMP are adhered to. Typical responsibilities of the EM include those identified below; however, specific items are expected to be refined and/or expanded as per the needs of the project:

- *The EM will monitor compliance with the CEMP.*
- *The EM will communicate the requirements of the CEMP to project members during pre-job and tailgate meetings.*
- *The EM will be onsite as per the schedule established between parties prior to project start. The EM will remain on-call during non-critical work periods to respond to emerging environmental issues.*
- *The EM will review the contractor's work procedures to ensure functionality and compliance with the CEMP and applicable regulations, standards and BMPs.*
- *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 EM will advise project members if project activities have caused or are likely to cause an environmental incident and make recommendations for corrective action.*
- *The EM will liaise directly with project members and provide technical advice for the purpose of resolving situations that may impact the environment as they arise.*
- *The EM will maintain complete records of activities related to the implementation of the CEMP. This should include any measurements taken (e.g. pH, turbidity, temperature, conductivity), photographs and incident reports.*
- *The EM will complete and submit environmental monitoring reports to the applicant and regulatory bodies (if required within permit/approval criteria) and will report any unanticipated adverse effects to the environment. Such reports should include the nature of the effect, its cause, mitigation and/or remediation implemented, and whether a work stoppage was ordered, as well photographs, analyses, and measurements, if applicable.*

5.3.3 Applicant/Contractor Responsibilities

This section should describe the role and responsibilities of the applicant/contractor during construction. Typical responsibilities of the applicant/contractor include those identified below; however, specific items are expected to be refined and/or expanded based on the needs of the project:

- *Contractors will review the project CEMP with their staff and sub-contractors prior to commencing works.*
- *Contractors will comply with the Vancouver Fraser Port Authority project 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 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.*

5.4 RELEVANT ENVIRONMENTAL LEGISLATION

This section should describe the environmental legislation and legal requirements applicable to the project. An example table is provided and can be incorporated into the CEMP for those laws, regulations and by-laws which apply. The examples in the table are not comprehensive and others specific to the project may apply. For example, projects that are within or partly within port authority property boundaries may require permits, authorizations and approvals from other government authorities. The applicant's QEP should ensure that the information included is accurate and up to date.

Example Table: List of Federal, Provincial, Regional District and Municipal Legislation and Legal Requirements as they relate to the Project

Act, Regulation or Bylaw	*Description*	*Applicability*	*Approval or Permit in Place/Forthcoming; OR, Requirements Met*
Federal			
Fisheries Act (administered by DFO and Environment Canada)	*The Fisheries Act is the main federal legislation providing protection for fish, fish habitat and water quality in Canada.*	*Describe how the legislation applies to the Project. Example: The Proposed work requires placement of rip-rap below the high water mark (HWM).*	*Example: QEP completed self-assessment. Request for Review submitted and Letter from DFO attached. No Harm to Fish that support a Commercial, Recreational or Aboriginal Fishery expected provided*

			mitigation contained in [Section #] is applied.
Port of Vancouver Non-Road Diesel Emissions (NRDE) Fee[1]	The NRDE fee recovers costs associated with managing air quality and reducing diesel particulate matter emissions	The NRDE Fee is applicable to all parties granted the right by the port authority to occupy lands owned, managed, or administered, by the port authority.	Responsible parties must not introduce non-road diesel engines that are "non-certified" (Tier 0) or certified as "Tier 1" without prior written approval from the port authority.
Migratory Bird Convention Act			
Species At Risk Act			
Provincial			
Spill Reporting Regulations of the Environmental Management Act (EMA)			
Contaminated Sites and Hazardous Waste Regulations of the EMA			
Municipal			
Noise Bylaw No. ####			

Applicants should contact the adjacent municipalities regarding the proposed construction activity and any related local government approvals that may be required outside of the port authority's jurisdiction.

For all projects, it is expected that the applicant consider and proactively address any incidents which result in non-compliance with applicable legislation, e.g. spills of reportable quantity. Such incidents must be reported to the relevant agency or authority, such as Environment Canada, DFO and the Emergency Management BC Program, formerly Provincial

[1] Vancouver Fraser Port Authority, Fee Document, Effective Jan 1, 2015. Section 3J Non-Road Diesel Emissions Fee

Emergency Program (PEP). Examples of environmental incidents include, but are not limited to:

- Discharge of deleterious substances to a waterbody, such as:
    - Spills of oil, fuel or chemicals; and
    - Sediment laden water entering a waterbody.
- Concrete materials (e.g. wet grout) spilled into water.
- Work and/or removal of vegetation in or near waterbodies without regulatory approval (exclusive of sites that satisfy DFO Self-Assessment criteria).

5.5 PROJECT MITIGATION MEASURES AND ENVIRONMENTAL SPECIFICATIONS

The applicant will revise/update CEMP sections/headings and text based on relevancy to the construction of the project. The subsections below should be used where applicable and adapted to the project being proposed. Additional components/tasks may be also be needed. The headings and text presented here are provided to guide the formation of mitigation measures and specifications to be designed and implemented during construction. Example text has been included to provide context.

Environmental standards, guidelines and BMPs should be referenced where applicable to construction-related impacts associated with the project. Where any BMPs or guidelines conflict, the port authority should be consulted for clarification. The Vancouver Fraser Port Authority project permit may also include specific requirements to mitigate impacts associated with any of the subsections below. The CEMP should be updated as appropriate to incorporate any such requirements.

5.5.1 General Practices

A list of general practices related to construction, typically administrative in nature, should be identified here. For example:

- *Ensure all contractors and site managers review this CEMP and the applicable guidelines prior to each project phase or new activity.*
- *Ensure contractors know how to properly install any protection measures and understand BMPs used on the project. Improperly installed measures do not perform their intended functions and subsequently do not provide environmental protection.*
- *Stockpile, or have readily available, supplies of erosion and sediment control materials as appropriate on-site such as (but not limited to) rock, gravel, grass seed, silt fencing, staking, polyethylene sheeting, etc.*
- *Plan and schedule project activities for dry weather whenever possible. Minimize project works and equipment travel during periods of heavy precipitation.*
- *Site managers and contractors should be prepared to change existing measures and BMPs should they fail or additional measures be required. The EM should be notified of any changes to ensure they are adequate and installed properly.*

5.5.2 Site Access, Mobilization and Laydown Areas

Prior to construction, the method by which the applicant plans to access the site, mobilize construction-related equipment, address hauling access and routes, as well as planned laydown and stockpiling locations within the site should be clearly described. Any special challenges for site access or mobilization should be identified. A detailed drawing/figure of the site showing these locations should be incorporated into the CEMP. Suggested items for consideration may include, but are not limited to:

- *Mobilization should be planned to minimize the number of trips to and from the site.*
- *A laydown area for storage of equipment and materials should be established. It should be located on a flat, stable area at least 30 m from any waterbody.*

5.5.3 Air Quality

Air emissions such as vehicle/equipment exhaust, dust and vapours associated with construction-related activities should be minimized and managed to avoid adverse health, safety, nuisance and other environmental effects on and off-site.

The Guidelines - Air Emission Management Plan provide a basic framework and can assist in the development and scoping of a plan for the CEMP.

This section should include a list of mitigation measures. Examples of control measures include, but are not limited to:

- *Dust-generating activities should be minimized as much as possible, especially during windy periods. Dust suppression agents, if used, shall be approved by the port authority for use. Consideration of run off from any dust suppression agents, including water, should be considered for impacts to storm water management.*
- *The track out of vehicles from the site should be managed (wheel wash station, cleaning of road ways, etc.) in order to reduce the potential for the dispersion of material and debris as fugitive dust.*
- *Material loads entering or exiting the site should be covered as appropriate.*
- *No burning of oils, rubber, tires and any other material should take place at the site.*
- *Stationary emission sources (e.g. portable diesel generators, compressors, etc.) should be used only as necessary and turned off when not in use.*
- *Equipment and vehicles should be turned off when not in active use.*
- *All equipment, vehicles and stationary emission sources should be well-maintained and used at optimal loads to minimize emissions.*
- *Vehicles or equipment producing excessive exhaust should be repaired or replaced prior to being used on the project.*

More detailed guidance on mitigation measures is available in *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* prepared for Environment Canada (Cheminfo Services Inc. March 2005).

5.5.4 Noise and Vibration

Noise generation and vibrations resulting from equipment and associated activities during construction is best addressed through appropriate noise management practices. The applicant is expected to manage construction-related noise impacts and provide applicable mitigations in a list.

For example:

The following BMPs are recommended to minimize noise impacts:

- *Construction activities will be limited to Monday to Saturday between 7:00 a.m. and 8:00 p.m., excluding holidays. Should construction activities be required outside these hours, the contractor must contact the port authority to determine if exceptions are permitted.*
- *All equipment should be properly maintained to limit noise emissions and fitted with functioning exhaust and muffler systems. Machinery covers and equipment panels should be well fitted and remain in place to muffle noise. Bolts and fasteners should be tight to avoid rattling.*
- *Engines should be turned off when not in use or reduced to limited idle (or as appropriate to reduce air emissions).*
- *The affected community and host municipality should be notified of the nature and likely duration of any particularly noisy operations that may be forthcoming such as frequent truck traffic, pile driving, and when it will be necessary to work outside daytime and early evening hours.*
- *Noise monitoring should be considered during particularly noisy activities to ensure the predicted impacts are not exceeded.*

5.5.5 Machinery and Equipment

It is expected that the applicant will provide a list of all equipment and machinery to be used on site during construction, identifying: equipment type, fuel type, year of manufacture, and engine power rating. This section should direct the contractor to implement mitigation measures to avoid or minimize impacts resulting from operation and storage of equipment during construction. Equipment maintenance on a Project site should be discouraged.

Example mitigation could include:

- *Equipment and machinery should be in good operating condition and maintained free of leaks, excess oil and grease, invasive species, and noxious weeds. Equipment should be operated at optimum rated loads and be turned off when not in use to minimize exhaust and noise emissions. Equipment producing excessive exhaust or noise should be repaired or replaced.*
- *Refueling of equipment should occur on land at least 30 m from any waterbody, where possible. Where 30 m is not possible, a location as far as possible from the*

waterbody should be chosen. Topographic features and slope should be considered. The refueling area should have a spill containment kit immediately accessible and personnel should be knowledgeable in the use of the kit (see Section 5.7 for the CEMP Fuel Management Plan).

- *A spill containment kit should be readily accessible both on site and on each piece of equipment in the event of a release of a deleterious substance to the environment. All members of the construction team should be trained in the use of spill containment equipment/items. Any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities must immediately be reported to the Emergency Management BC Program 24-hour phone line at 1-800-663-3456 (see section below for Spill Response Plan)*.
- *Light spill should be reduced by pointing lights downward and placing task lighting as close to the work area as possible*.

5.5.6 Erosion and Sediment Control

Soil management must be considered when Project activities, such as clearing vegetation, moving soil, excavating, or placing fill, have the potential to contribute sediments to nearby waterbodies or generate dust. Applicants are expected to manage soil, surface runoff and disturbed soil (which may be tracked off site by equipment and vehicles) during construction.

The following are examples of mitigation measures to manage soil, minimize erosion and reduce sediment mobilization for consideration in preparing a CEMP:

- *Erosion and sediment control devices (such as, but not limited to, silt fencing, straw, mulch, gravel for check dams, etc.) should be available for use on site. Construction team members should be trained in the installation and use of the devices. The EM must review installation and approve placement and use prior to work beginning.*
- *Construction team members should be prepared to quickly erect measures to minimize sediment entering receiving waters if necessary. The overall goal is to isolate the work area and prevent any potential sediment laden runoff from entering a waterbody or encroaching onto adjacent properties or roadways.*
- *Minimize the area of soil exposed at any one time by: phasing construction activities; retaining vegetation as much as possible; and, once construction works are completed, stabilizing any exposed soils as soon as possible using temporary measures such as mulch, erosion sediment control blankets, hydro-seeding, and/or plastic sheeting or planting long-term vegetation (if during the appropriate time of year).*
- *Periods of heavy precipitation are possible during the proposed construction schedule. As much as possible, earthworks should be scheduled to be conducted and completed during dry weather. When significant wet weather is encountered, then additional measures may be required to minimize erosion potential.*

5.5.7 Contaminated Soil and Groundwater Management

Where applicable, the CEMP should include procedures for the management of contaminated soil and groundwater that may be removed or handled during construction-related activities. These procedures may include temporary stockpiling and monitoring of soil, provisional testing of contaminated soil and groundwater, decommissioning of monitoring wells and tracking and record keeping. In most instances, the CEMP should include procedures for handling contaminated environmental media not previously known during construction.

In instances where there is known contamination within the project footprint, a soil, sediment and/or groundwater management plan is required. The components of this plan include (as applicable) but are not limited to the following:

- Site introduction: a description of the existing soil, groundwater, and soil vapour conditions
- Regulatory Framework: the project proponent should describe the federal and provincial guidelines and standards they consider applicable to the site AND the receiving site
- Management procedures during excavation and/or dewatering works:
    - Monitoring well decommissioning plan
    - Confirmatory soil sampling plan
    - Field screening methodology
    - Management of suspect material
    - Stockpile management and sampling procedures
    - Material loading procedure, trucking rate, traffic management plan for trucking
    - Water storage and sampling procedures
- Backfill procedure
- Disposal Plan: loading, trucking, receiving site, etc. if not already discussed above
- Emergency response, health and safety
- Tracking and record keeping, plan for submitting manifest forms
- Appendices that could be included:
    - Existing analytical results applicable to the work area
    - Site figure
    - Existing analytical figures or delineation drawings
    - Figures overlaying the project plan with the areas of environmental concern (with specific boreholes on the detailed drawings).

5.5.8 Vegetation and Wildlife Management

Applicants must minimize the potential for negative impacts to wildlife and vegetation during construction-related activities through implementation of mitigation measures such as the following examples:

- *Should a rare or sensitive species be identified at the site at any time during the project, the EM should be notified immediately for further direction, followed by notification to the port authority.*

- *Vegetation removal should be minimized as much as possible. Retain large trees where possible and leave coarse woody debris on the ground to provide cover and reduce erosion potential.*
- *Vegetation removal that will affect trees used by birds and wildlife should be avoided while these animals are breeding, nesting, roosting or rearing young. Tree removal should be conducted outside of the general bird breeding season, which falls between April 1 and July 31.*
- *Any vegetation to be removed should be surveyed by an appropriately qualified environmental professional prior to the start of work to identify any breeding, nesting, roosting or rearing birds and determine appropriate mitigation.*

5.5.9 Concrete Works and Grouting

If wet concrete products are to be used during construction-related activities, applicants are expected to prevent and minimize the potential for concrete to impact the receiving environment, particularly aquatic environments.

It is expected that applicants will incorporate proper mitigation measures and appropriate work site isolation techniques within the CEMP to prevent and minimize the potential for adverse effects to the environment during concrete pouring and grouting. Uncured or wet concrete must be prevented from entering a waterbody.

For example:

- *Concrete should be carefully poured to minimize spillage. Complete isolation of the work area is required for cast-in-place concrete works near or below the high water mark of a waterbody.*
- *Proper housekeeping practices and appropriate work site isolation techniques will be employed to minimize the potential for spills.*
- *Appropriate spill cleanup materials will be readily available and easily accessible. Contractors will be aware of the materials required to clean up a concrete spill.*

5.5.10 Marine Works

Marine construction-related activities may take place from marine-based rigs, derricks and scows, as well as from land. Potential impacts to aquatic resources during construction-related activities should be mitigated by implementing appropriate measures.

For example:

- *Marine construction will coincide with DFO timing windows for least risk in marine and estuarine habitat.*
- *Barges or other vessels will not ground on the foreshore or river/seabed or otherwise disturb the foreshore or river/seabed (including disturbance as a result of vessel propeller wash).*

- *Visual and hydrophone monitoring will be conducted during pile driving activities to assess impacts on fish. If sound pressures over 30 kPa are measured, or distressed, injured or dead fish are observed following the initiation of pile driving, work will be halted immediately and measures to reduce the sound pressure waves will be implemented before the work is resumed.*
- *No equipment will operate on the intertidal foreshore.*

5.5.11 Archaeological Resources

The applicant must ensure that archaeological resources are not impacted during construction-related activities. Procedures should be established to mitigate impact in the event that evidence of what is suspected to be an archaeological resource is encountered.

For example:

- *Immediately stop any activities that might disturb the archaeological resource or the site in which it is contained.*
- *Do not move or otherwise disturb the artifacts or other remains present at the site.*
- *Stake or flag off the site to prevent additional disturbances.*
- *Immediately notify the port authority.*

5.5.12 Sensitive Habitat Features and Species

It is expected that the applicant will have a good understanding of sensitive habitat features and environmental resources which may be impacted by construction-related activities. The BMPs to be employed in order to mitigate the potential effects would vary greatly depending on the identified feature or species, its sensitivity to the project, and the proximity of the feature/habitat to the project footprint. Consultation with relevant specialists and/or liaison with federal and/or provincial species at risk specialists may be required.

5.6 EMERGENCY RESPONSE

An integral part of effective environmental management during construction-related activities is a comprehensive emergency response plan, which, when initiated allows for the rapid response of emergency services and/or the containment and cleanup of environmental emergencies. The following sections provide a general outline for incorporating an effective response plan into the overall project CEMP.

5.6.1 Emergency Communication

Clear and rapid communication is essential when dealing with emergencies. The CEMP should include a communication plan, including contact information for all parties who are responsible for the project, or are critical to the response or reporting of accidents or environmental emergencies. Below is an example contacts table.

Table: Emergency Contact Numbers

Agency	***Phone Number***
Emergency Services	*911*
Port of Vancouver Operations Centre	*604-665-9086*
LOCAL Non-emergency police	
LOCAL Non-emergency fire	
Hospital	
Emergency Management BC	
BC Emergency Spill Reporting Line	
Canadian Coast Guard	

5.6.2 Environmental Emergency Plan

Applicants should identify potential environmental emergencies that may occur while construction is ongoing. These 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 the Port of Vancouver Operations Centre.

5.6.3 Spill Response Plan

The inclusion of a spill response plan specific to the types and quantities of potentially hazardous materials which are to be used during construction is required in all CEMPs, and the applicant is expected to review, understand and include reportable spill quantities.

The following represents the minimum scope for applicant spill response/management procedures:

- Assess safety – ensure unnecessary people are kept clear of the area and that people with proper training and equipment deal with the spill. Put on any required personal protective equipment and consult Material Safety Data Sheets.
- Stop the source – if required, and when it is safe to do so, stop the spill at its source. This may simply be righting an overturned container or sealing a hole.
- Contain and control the spill – the spill should be prevented from infiltrating into the ground or entering a waterbody. If the spill occurs on water, booms should be immediately deployed to prevent its spread.
- Clean up the spill – utilize appropriate absorbent pads or other materials based on the type of substance spilled. The method of disposing of the waste is dependent on the amount and type of deleterious substance that was spilled.

- Notify appropriate authority – spills of a reportable quantity must be reported to the appropriate agency. Minor spills should be reported to the EM.
- Record the incident – make a note of what, how and where the incident happened as well as what was done to clean it up. Depending on the spill, further assessment of the impact to land and water and/or additional cleanup may be required.

It is important to clarify in the CEMP that when reporting a spill, the caller should be prepared to provide the dispatcher with the following information, as accurately as possible:

- Name and contact phone number of the person initiating the call;
- Name and telephone number of the person who caused 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.

A CEMP is expected to include measures to be implemented as part of the spill response plan such as:

- *Identification of any/all hazardous materials/products as well as waste storage and secondary containment. Materials Safety Data Sheets (MSDS) should be kept on site and made available to all construction team members.*
- *Identification of the locations of spill response equipment and materials for containment and cleanup (spill kits and contents) as well as instruction on how to use them effectively. Locations of product/material storage and spill kit should be readily identified on a figure or map and posted in an appropriate location on site.*
- *Holding pre-construction meeting to identify all materials of a deleterious nature that could be spilled.*

5.7 FUEL MANAGEMENT PLAN

The CEMP should identify specific location(s) for equipment re-fueling and show this on a site plan. The fuel management plan should provide a bulleted list of measures being incorporated during construction to ensure the receiving environment is adequately protected from construction-related fuels and products on site.

Example best practices include:

- *Equipment should not be fueled within 30 m of a waterbody. If possible, one area should be designated for fuel transfer. Refueling should occur on a flat surface to minimize potential off-site runoff.*
- *All fuels, oils, lubricants and other petrochemical products should not be stored within 30 m of any waterbody.*

- *Refueling equipment and tanks should be clean and in good working order. Fuel tanks should be situated within appropriate secondary containment (an impermeable containment facility capable of holding 110% of the storage tank contents). This may be achieved through the use of double-walled storage tanks or sit-in containers constructed out of impermeable material, such as aluminum or plastic.*

5.8 WASTE MANAGEMENT

The applicant is expected to give consideration to the end destination of all products and materials brought on to their construction site. This will include hazardous wastes such as fuels and lubricants and their empty containers following use, as well as used oily rags and used spill kit products, but also non-hazardous construction wastes and general refuse (wood, cigarette butts, coffee cups, water bottles etc.). A plan to deal with such wastes must form part of the CEMP. A list of best practices can be incorporated into the CEMP, along with a figure identifying specific locations for waste collection and sorting, as appropriate. Example best practices include:

- *Contractors are expected to adhere to all applicable legislation with respect to the handling, transportation, and/or disposal of all materials related to this project (waste or otherwise). These regulations may include (but not be limited to) the BC Hazardous Waste Regulations, Spill Reporting Regulations, Workers Compensation Board Regulations, Transportation of Dangerous Goods Regulations, etc.*
- *Hazardous wastes generated could include waste petroleum products (engine oils, lubricants) from machinery and equipment, spent batteries, solvents and cleaning agents, etc. Contractors should provide labelled separate container(s) for potentially hazardous waste such as oily rags and hydrocarbon absorbent pads.*
- *All hydrocarbon products and other hazardous wastes potentially present during project activities should be identified and the associated Workplace Hazardous Materials Information System (WHMIS) and Materials Safety Data Sheets (MSDS) made available to all construction team members.*
- *All recyclable or compostable materials should be collected separately from general waste as per Metro Vancouver Regional District requirements.*

6. DEFINITIONS

Best Management Practice (BMP) means an approach based on known science that, if followed, should allow the activity to meet the required standard(s) or achieve the desired objective(s). BMPs take the form of a schedule of activities, prohibitions of practices, maintenance procedures, and other management techniques to prevent or reduce impacts to the environment.

Environmental monitor (EM) means a qualified environmental professional engaged in environmental monitoring on behalf of the applicant for the purposes of compliance, due diligence and guidance on implementing mitigation measures.

Habitat means (a) in respect of aquatic species, spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced; and (b) in respect of other wildlife species, the area or type of site where an individual or wildlife species naturally occurs or depends on directly or indirectly in order to carry out its life processes or formerly occurred and has the potential to be reintroduced.

Noise means environmental noise pollution as it relates to ambient sound levels beyond the comfort levels caused by traffic, construction, industrial and some recreational activities.

Qualified environmental professional (QEP) means an applied scientist or technologist who is registered and in good standing with an appropriate BC professional organization or who, through demonstrated suitable education, experience and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within their area of expertise. A qualified environmental professional could be a biologist, agrologist, forester, geoscientist, engineer, or technologist.

Sound level means a measure of sound pressure that is frequency-weighted and time-averaged for the purposes of reporting in the units of decibels (dB).

Species at risk means species designated as extirpated, endangered, threatened or of special concern in Appendices 1 through 3 of the *Species at Risk Act*.

Waterbody includes a lake, canal, reservoir, ocean, river and its tributaries and wetland, up to the annual high-water mark, but does not include a sewage or waste treatment lagoon or a mine tailings pond.

Wildlife means a species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and (a) is native to Canada; or (b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

7. NOTES/LINKS TO OTHER DOCUMENTS

These guidelines are to be used in conjunction with the Vancouver Fraser Port Authority's Project and Environmental Review Application Guide. Legislation such as the *Fisheries Act*, *Migratory Birds Convention Act* and *Species at Risk Act*, may also be relevant.

8. CONTACT INFORMATION

If you require clarification, or assistance with respect to any of these guidelines, please contact Vancouver Fraser Port Authority staff who are available to help. Environmental Programs staff can be contacted as follows:

Phone: 604-655-9082 General Environmental Programs Line

Email: EnvironmentalPrograms@portvancouver.com

9. UPDATES

These guidelines are available for viewing and downloading from our website (www.portvancouver.com).To ensure that you are referring to the most up-to-date document please reference the version date clearly indicated on the front page.