Canadian Environmental Assessment Agency | Agence canadienne d'évaluation environnementale

UPDATED GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

Pursuant to the

Canadian Environmental Assessment Act, 2012

for the

Roberts Bank Terminal 2 Project

proposed by

Port Metro Vancouver

April 17, 2015

- Amended April 2019 -

Canada

Update to the Guidelines for Preparation of an Environmental Impact Statement

The *Guidelines for Preparation of an Environmental Impact Statement for the Roberts Bank Terminal 2 Project, January 2014* (EIS Guidelines) identify the minimum information requirements for the proponent in developing its Environmental Impact Statement. The document specifies the nature, scope and extent of the information required including a description of the Project, existing environment, predicted environmental effects and proposed measures to mitigate any adverse environmental effects. As footnoted in section 3.2 of those Guidelines, any additional matters relevant to the environmental assessment that the federal Minister of the Environment (the Minister) requires to be taken into account will be included in the Terms of Reference for the Review Panel.

Additional Matters Relevant to the Environmental Assessment

Pursuant to paragraph 19(1)(j) of the *Canadian Environmental Assessment Act 2012* (CEAA 2012), the Minister, in the Terms of Reference for the Review Panel, has identified an additional matter relevant to the environmental assessment that must be taken into account. This matter is:

1. Provincial Socioeconomic Assessment:

The potential economic, social, heritage and health effects of the Project, including cumulative effects, which may not be encompassed by the definition of environmental effects under the *CEAA 2012,* and practicable means to mitigate such potential adverse effects.

Scope of the Factors

In accordance with paragraph 19(2) of *CEAA 2012* the Minister has set scope of the factors to be considered in the environmental assessment to be those described in the *Updated EIS Guidelines*, which includes the January 2014 EIS Guidelines, and this addendum.

The EIS Guidelines issued in January 2014 provide principles and guidance on the methodology to establish baseline conditions and assess the environmental effects of the Project. The proponent shall apply these principles and information requirements in preparing information on the additional matters of marine shipping associated with the Project and the provincial socioeconomic assessment. The *Updated EIS Guidelines* include Sections 17 and 18, which outline the scope of the factors to be considered for the additional matters that must be taken into account, as well as the updated definition of the designated project, as outlined in the amended Review Panel Terms of Reference (April 2019) .

Text in sections 1 to 16 of the January 2014 Guidelines remains unchanged.

Environmental Assessment Decision

The Minister's decision under CEAA 2012 on whether the Project is likely to cause significant adverse environmental effects, and any conditions to the proponent, should the Project be allowed to proceed, will be based on environmental effects that are caused by the Project.

As outlined in the amended Review Panel Terms of Reference, marine shipping associated with the Project within the 12 nautical mile limit of Canada's territorial sea is incidental to the marine container terminal and therefore part of the description of the Project for the purposes of the environmental assessment. As a result, the Minister's decision under *CEAA 2012* will consider whether marine shipping associated with the Project is likely to cause significant adverse environmental effects.

The Minister would not make a decision under *CEAA 2012* as to whether the Project is likely cause significant adverse effects to direct social, economic, heritage and health matters. As appropriate, the province of British Columbia will make decisions on those matters for the purposes of the provincial environmental assessment.

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DISCLAIMER

This document is not a legal authority, nor does it provide legal advice or direction; it provides information only, and must not be used as a substitute for the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) or its regulations. In the event of a discrepancy, CEAA 2012 and its regulations prevail. Portions of CEAA 2012 have been paraphrased in this document, but will not be relied upon for legal purposes.

Abbreviations and Short Forms

CEAA 2012	*Canadian Environmental Assessment Act*, *2012*
Agency	Canadian Environmental Assessment Agency
EA	environmental assessment
EIS	environmental impact statement
VC	valued component

PART 1 - BACKGROUND

1 INTRODUCTION

The purpose of this document is to identify for the proponent the information requirements for the preparation of an Environmental Impact Statement (EIS) for a designated project[1] to be assessed pursuant to the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). This document specifies the nature, scope and extent of the information required.

It is the responsibility of the proponent to provide sufficient data and analysis on any potential changes to the environment to permit a thorough evaluation of the environmental effects of the project by the review panel. The EIS Guidelines set out minimum information requirements. It is the proponent's responsibility to provide any additional information required to assess the environmental effects of the project. Except where specified by the review panel or the Canadian Environmental Assessment Agency (the Agency), the proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the EIS.

2 GUIDING PRINCIPLES

2.1 Environmental assessment as a planning tool

Environmental assessment (EA) is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate the possible adverse effects of projects on the environment and to encourage decision makers to take actions that promote sustainable development.

2.2 Public Participation

One of the purposes of CEAA 2012 is to ensure opportunities for meaningful public participation during an EA. CEAA 2012 requires that the Agency (prior to the appointment of the review panel) and the review panel (once appointed) provide the public with an opportunity to participate in the EA.

The overall objective of meaningful public participation is best achieved when all parties have a clear understanding of the proposed project as early as possible in the review process. The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project.

2.3 Aboriginal Engagement

One of the purposes of CEAA 2012 is to promote communication and cooperation with Aboriginal peoples, including First Nations, Inuit and Métis. To work toward this goal, the proponent will ensure that it engages with Aboriginal people and groups that may be affected by the project or that have potential or established Aboriginal and Treaty rights and related interests in the project area, as early as possible in the project planning process. The proponent will provide Aboriginal groups with opportunities to learn about the project and its potential effects, make their concerns known about the project's potential effects and discuss measures to mitigate these effects. The proponent is strongly encouraged to work with

1 In this document, "project" has the same meaning as "designated project" as defined in the *CEAA 2012.*

Aboriginal groups in establishing an engagement approach. In addition, the proponent will provide potentially affected Aboriginal groups with timely access to relevant information that allows them to understand the proposed project and to determine its impacts on their community, activities and other interests. The proponent will make reasonable efforts to integrate “traditional Aboriginal knowledge” into the assessment of environmental impacts.

Information gathered through the EA process and associated engagement by the proponent and consultation by government with Aboriginal peoples will be used to inform decisions under CEAA 2012. This information will also inform the Crown’s understanding of the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests, and the effectiveness of measures proposed to avoid or minimise those impacts.

2.4 Application of the Precautionary Approach

In documenting the analyses included in the EIS, the proponent will demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to ensure that it would not cause serious or irreversible damage to the environment, especially with respect to environmental functions and integrity, system tolerance and resilience, and the human health of current or future generations. The proponent will also ensure that in designing and operating the project, priority has been and would be given to strategies that avoid adverse effects.

3 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

3.1 Scope of Project

The scope of project for the purposes of the EA includes the project components (section 7.1) and physical activities (section 7.2).

Based on information received in the project description from the proponent, the Agency defines the scope of project to be assessed as the construction, operation and where relevant, decommissioning of the project components and activities listed in sections 7.1 and 7.2, including the following:

- approach channel for both the marine terminal and tug basin;
- harbour basin for both the marine terminal and tug basin;
- berths for both the marine terminal and tug basin;
- marine terminal, including the container storage yard, intermodal yard, and linear infrastructure;
- tug basin;
- causeway expansion, including land, rail and road additions and alterations;
- temporary works necessary for project construction;
- dredging, site preparation, earthmoving, compacting, drilling, and blasting activities (if any);
- disposal at sea and sediment transfer pit location(s);
- marine, road and rail transportation within the areas for which the proponent has jurisdiction;
- cargo; and
- water management systems.

The proponent will consider all the components and activities as part of the effects assessment.

Finally, it is understood that some elements of the project must still be defined and that it will be necessary to include in the scope of the project, among other things, the environmental mitigation and compensation measures that would require the construction and management of works that may cause effects (e.g. sills, spits, upstream and downstream migration works for fish, temperature control structures, minimum flow control structures and management).

3.2 Scope of the Assessment

The scope of the assessment establishes the boundaries of the EA and focuses the assessment on relevant issues and concerns. The scope of the assessment can be broader than the scope of the project. For the purposes of this project, the scope of the assessment should include the effects of project components and activities on the environment, including those that may extend beyond the scope of the project.

Part 2 of this document specifies the factors to be considered in this environmental assessment and includes the factors listed in subsection 19(1) of CEAA 2012:

- environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other physical activities that have been or will be carried out;
- the significance of effects;
- comments from the public;
- mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- the requirements of the follow-up program in respect of the project;
- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternatives;
- any change to the project that may be caused by the environment;
- the results of any relevant regional study pursuant to CEAA 2012; and
- any other matter relevant to the EA that the Minister of the Environment requires to be taken into account[2].

3.3 Scope of the Factors[3]

3.3.1 Valued Components

Valued Components (VCs) refer to attributes of the physical, biophysical and human environment that may be affected by the project that have been identified to be of concern by the proponent, government

[2] Any additional factors to be considered that the Minister requires to be taken into account will be included in the Terms of Reference for the Review Panel.

[3] Section 19(2) of CEAA 2012 indicates that the Minister of the Environment shall set the scope of the factors to be considered for environmental assessments by review panel. In addition to the information contained in the EIS Guidelines, the Minister may provide additional direction in the Terms of Reference for the Review Panel.

agencies, Aboriginal peoples and the public. The value of a component not only relates to its role in the ecosystem, but also to the value placed on it by people.

The proponent will identify the VCs deemed appropriate to ensure the full consideration of the factors listed in subsection 19(1) and 19(2) of CEAA 2012 as well as the 2012 amendment to section 79 of the *Species at Risk Act*. As a minimum, the proponent must consider the list of environmental components provided in section 9.1 of this document. The final list of VCs to be presented in the EIS will be completed according to the evolution and design of the project and reflect the knowledge acquired on the environment through public and Aboriginal consultations. The proponent will describe how the VCs were selected and what methods were used to predict and assess the adverse environmental effects of the project on these components.

The VCs will be described in sufficient detail to allow the reader to understand their importance and assess the potential for environmental effects arising from the project activities. The rationale for selecting these components as VCs and for excluding others will be stated. Challenges may arise regarding particular exclusions, so it is important to document the information and the criteria used to make each determination. Examples of justification include primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement. If comments are received on a component that has not been included as a VC, these comments will be summarised and addressed in this section.

For consultations associated with the identification of VCs, the proponent will identify those VCs, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent or that the proponent considers likely to be affected by the project. In doing so, the proponent will indicate to whom these concerns are important and the reasons why, including Aboriginal, social, economic, recreational, and aesthetic considerations. The proponent will describe any issues raised or comments noted regarding the nature and sensitivity of the area within and surrounding the project and any planned or existing land and water use in the area. The proponent will also indicate the specific geographical areas or ecosystems that are of particular concern to interested parties, and their relation to the broader regional environment and economy.

3.3.2 Spatial Boundaries

The EIS will clearly indicate the spatial boundaries to be used in assessing the potential adverse environmental effects of the proposed project and provide a rationale for each boundary. It is recognized that the spatial boundaries for each VC may not be the same.

Spatial boundaries will be defined taking into account as applicable the appropriate scale and spatial extent of potential environmental effects, community and Aboriginal traditional knowledge, current land and resource use by Aboriginal groups, ecological, technical and social and cultural considerations. The description of the project setting will be presented in sufficient detail to address the relevant environmental effects of the project.

The proponent is advised to consult with federal and provincial government departments and agencies, local government and Aboriginal groups, and take into account public comments when defining the spatial boundaries used in the EIS.

3.3.3 Temporal Boundaries

The temporal boundaries of the EA will span all phases of the project: construction, operation, maintenance, foreseeable modifications, and where relevant, decommissioning of sites affected by the project. Temporal boundaries will also consider variations related to VCs for all phases of the project, where appropriate. Community and Aboriginal traditional knowledge should factor into decisions around appropriate temporal boundaries. It is recognized that the temporal boundaries for each VC may not be the same.

If the temporal boundaries do not span all phases of the project, the EIS will identify the boundaries used and provide a rationale.

4 PREPARATION AND PRESENTATION OF THE EIS

4.1 Agency Guidance

The proponent is encouraged to consult relevant Agency Policy and Guidance[4] on topics to be addressed in the EIS. The proponent is further encouraged to consult with federal authorities (see section 4.4.1) during the planning and development of the EIS materials.

4.2 Study Strategy and Methodology

The proponent is expected to respect the intent of the EIS Guidelines and to consider the effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the technically and economically feasible mitigation measures that will be applied, and the significance of any residual effects. It is possible that the EIS Guidelines may include matters that, in the judgement of the proponent, are not relevant or significant to the project. If such matters are omitted from the EIS, the proponent will clearly indicate it and the justification for their conclusion provided so that the review panel, the Agency, federal authorities, Aboriginal groups, the public and any other interested party have an opportunity to comment on this decision. Where the Agency (prior to the appointment of the review panel) or the review panel (once appointed) disagree with the proponent's decision, it may require the proponent to provide the specified information.

In describing methods, the proponent will document how it used scientific, engineering, traditional and local knowledge to reach its conclusions. Wherever professional judgement or expert input is asserted, the name(s) and qualifications of the individual(s) making that judgement and the criteria that judgment is based on will be provided. Assumptions will be clearly identified and justified. All data, models and studies will be documented such that the analyses are transparent and reproducible. All data collection methods will be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated.

All significant gaps in knowledge and understanding related to key conclusions presented in the EIS must be identified. The steps to be taken by the proponent to address these gaps will also be identified. Where the conclusions drawn from scientific and technical knowledge are inconsistent with the conclusions

[4] Visit the Agency website: www.ceaa-acee.gc.ca/default.asp?lang=En&n=F1F30EEF-1

drawn from traditional knowledge, the EIS will contain a balanced presentation of the issues and a statement of the proponent's conclusions.

4.3 Integration of EA, Aboriginal and Public Consultation Information

In preparing the EIS, the proponent is encouraged to integrate Aboriginal engagement and public consultation outcomes into the consideration and mitigation of environmental effects at the appropriate EA analytical steps. The proponent will ensure that public and Aboriginal concerns are well documented in the EIS. The proponent will identify and explain all unresolved questions or concerns as part of its analysis of the impacts of the project as well as any related next steps or further action to be taken to resolve these issues.

4.4 Use of Information

4.4.1 Scientific Advice

Section 20 of CEAA 2012 requires that every federal authority with specialist or expert information or knowledge with respect to a project subject to an EA make that information or knowledge available to the Agency (prior to appointment of the review panel) and the review panel (once appointed). The Agency and/or review panel will advise the proponent of the availability of any pertinent information or knowledge so that it can be incorporated into the EIS, along with, as appropriate, expert and specialist knowledge provided by other levels of government.

4.4.2 Community Knowledge and Aboriginal Traditional Knowledge

Sub-section 19(3) of CEAA 2012 states that "the environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge". For the purposes of these guidelines, community knowledge and Aboriginal traditional knowledge refers to knowledge acquired and accumulated by a community or an Aboriginal community, through generations of living in close contact with nature.

The proponent will incorporate into the EIS the community and Aboriginal traditional knowledge to which it has access or that is acquired through public consultation and Aboriginal engagement activities, in keeping with appropriate ethical standards and without breaking obligations of confidentiality, if any. Agreement should be obtained from Aboriginal groups regarding the use, management and protection of their existing traditional knowledge information during and after the EA.

The proponent is encouraged to consult the document entitled "Considering Aboriginal traditional knowledge in environmental assessments conducted under the *Canadian Environmental Assessment Act* -- Interim Principles"[5] for general guidance on the consideration of Aboriginal traditional knowledge in the EA.

4.4.3 Existing Information

In preparing the EIS, the proponent is encouraged to make use of existing information relevant to the project. However, when relying on existing information to meet requirements of the EIS Guidelines, the proponent will either include the information directly in the EIS or clearly direct the reader to where it may

[5] Visit the Agency website at: http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=4A795E76-1

obtain the information (i.e. through cross-referencing). When relying on existing information, the proponent will also comment on how the data have been applied to the project, clearly separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from the existing information.

The proponent should describe and explain the specific circumstances under which existing studies and reports are to be considered relevant to the environmental assessment of the Project and the limitations of those studies and reports.

4.4.4 Confidential Information

In implementing CEAA 2012, the Government of Canada is committed to promoting public participation in the EA of projects and providing access to the information on which EAs are based. All documents prepared or submitted by the proponent or any other stakeholder in relation to the environmental assessment are included in the Canadian Environmental Assessment Registry (CEAR) and made available to the public, except where non-disclosure is deemed necessary by the review panel. For this reason, the EIS should not contain

- information that is sensitive or confidential (i.e. financial, commercial, scientific, technical, personal, cultural or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure, or
- information that may cause harm to a person or harm to the environment through its disclosure.

The proponent will consult with the Agency (prior to the appointment of the review panel) or the review panel (once appointed) regarding whether specific information requested by these guidelines will be treated as confidential.

4.5 Presentation and Organization of the EIS

To facilitate the identification of the documents submitted and their placement in the Canadian Environmental Assessment Registry, the title page of the EIS and its related documents will contain the following information:

- project name and location;
- title of the document, including the term “environmental impact statement”;
- subtitle of the document;
- name of the proponent; and
- the date.

The EIS will be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations will be included. The proponent will provide charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features.

For purposes of brevity and to avoid repetition, cross-referencing is preferred. The EIS may make reference to the information that has already been presented in other sections of the document, rather than repeating it. The exception to this preference is the cumulative effects assessment, which should be provided in a stand-alone section as described in section 12.1.2. Detailed studies (including all relevant and

supporting data and methodologies) will be provided in separate appendices and will be referenced by appendix, section and page in the text of the main document of the EIS. The EIS will explain how information is organized in the document. This will include a list of all tables, figures, and photographs referenced in the text of the EIS. A complete list of supporting literature and references will also be provided. A Table of Concordance which cross references all respective sections containing the information presented in the EIS with the information requirements identified in the EIS Guidelines will be provided. The proponent will provide copies of the EIS and its summary for distribution, including paper and electronic version in an unlocked, searchable PDF format, as directed by the Agency or review panel.

PART 2 – CONTENT AND STRUCTURE OF THE EIS

5 SUMMARY OF ENVIRONMENTAL IMPACT STATEMENT

The proponent will prepare a summary of the EIS in both of Canada's official languages (French and English) to be provided to the Agency and review panel, once appointed, at the same time as the EIS and which will include the following:

- a concise description of all key components of the project and related activities;
- a summary of the consultation and engagement conducted with Aboriginal groups, the public, and government agencies, including a summary of the issues raised and the proponent's responses;
- an overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures and any residual environmental effects; and
- the proponent's conclusions on the residual environmental effects of the project and the significance of adverse environmental effects after taking mitigation measures into account.

The summary is to be provided as a separate document and should follow the outline provided below:

1. Introduction and environmental assessment context
2. Project overview
3. Scope of project and assessment
4. Alternative means of carrying out the project
5. Public consultation
6. Aboriginal engagement
7. Summary of environmental effects assessment
8. Mitigation measures
9. Proposed significance conclusions

The summary will have a sufficient level of detail for the reader to learn and understand the entire project, potential impacts, mitigation measures proposed by the proponent, the residual and cumulative effects, and conclusions regarding their significance.

6 INTRODUCTION AND PROJECT OVERVIEW

6.1 Geographical Setting

The EIS will contain a description of the geographical setting in which the project will take place. This description will focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project. The description will address the natural and human elements of the environment as well as explain the interrelationships between the biophysical environment and people and communities. The following information will be included:

- UTM coordinates of the main project site;
- the land and water lot area requirements and acquisitions, including those required for temporary and permanent works;

- current land use in the area and the relationship of the project facilities and components with any federal lands;
- environmental significance and value of the geographical setting in which the project will take place and the surrounding area;
- environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, estuaries, and habitats of federally or provincially listed species at risk and other sensitive areas;
- local and Aboriginal communities; and
- Aboriginal traditional territories, treaty lands, Indian reserve lands.

The EIS will provide a description and mapping of the project location, including each of the project components as outlined in section 7 of this document.

Maps of the project's location at an appropriate scale will accompany the text. The location map should include the boundaries of the proposed site including UTM coordinates, the major existing infrastructure, adjacent land uses and any important environmental features. In addition, site plans/sketches and photographs showing project location, site features and the intended location of project components will be included.

6.2 Regulatory Framework and the Role of Government

To understand the context of the EA, this section will identify, for each jurisdiction, the government bodies involved in the EA as well as the EA processes. More specifically, it will identify:

- any federal power duty or function to be exercised that may permit the carrying out (in whole or in part) of the project or associated activities;
- environmental and other specific regulatory approvals and legislation that are applicable to the project at the federal, provincial, regional and municipal levels;
- any differences in the scope of assessment between the federal and provincial environmental assessments for this proposed project and include a concordance table which lists the locations within the EIS where specific provincial requirements are addressed;
- government policies, resource management, planning or study initiatives pertinent to the project and EA and discuss their implications;
- any treaty or self-government agreements with Aboriginal groups that are pertinent to the project or EA;
- any relevant Land Use Plans, Land Zoning, Community Plans, or Aboriginal communities' plans or initiatives; and
- a summary of the objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.

In planning for a port proposal in coastal British Columbia and in developing the EIS and technical supporting documentation, the proponent is advised to consider the document entitled "Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use: Sea Level Rise Guidelines for the Management of Coastal Flood Hazard Land Use (Process Infrastructure: Ports, Marine, and Offshore)" published by the British Columbia Ministry of Environment in 2011 or any subsequent replacement guidelines.

The submission of additional regulatory and technical information, necessary for federal authorities to make their regulatory decisions during the conduct of the environmental assessment is at the discretion of the proponent. Although that information is not necessary for the EA decision, the proponent is strongly encouraged to submit it concurrently with the EIS to ensure timely completion of regulatory reviews.

6.3 Participants in the Environmental Assessment

Clearly identify the main participants in the EA including jurisdictions other than the federal government, Aboriginal groups, community groups, and environmental organizations.

6.4 The Proponent

The proponent will:

- provide contact information (e.g. name, address, phone, fax, email);
- identify itself and the name of the legal entity that would develop, manage and operate the project;
- explain corporate and management structures, as well as insurance and liability management related to the project;
- specify the mechanism used to ensure that corporate policies will be implemented and respected for the project;
- summarize key elements of its environment, health and safety management system and discuss how the system will be integrated into the project; and
- identify key personnel, contractors, and sub-contractors responsible for preparing the EIS.

6.5 Purpose of the Project

The proponent will describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that the project is intended to satisfy and the stated objectives from the perspective of the proponent. If the objectives of the project are related to, or contribute to broader private or public sector policies, plans or programs, this information will also be included. The proponent should also include reference to any current opportunities and limitations that are guiding project development such as limited windows of opportunity for development due to economic or environmental concerns.

7 PROJECT DESCRIPTION

7.1 Project Components

The EIS will describe the project and present the project components, associated and ancillary works, and other characteristics that will assist in understanding the environmental effects. This description of the project components will include:

- the approach channel, harbour basin, and berth areas for the marine terminal and tug basin (including area and size, location, and orientation to existing terminals)[6];
- the marine terminal (including the three berth wharf) and tug basin, and all associated infrastructure, ancillary systems and support facilities (including size, dimensions, location, design criteria, and construction development plans);
- the container storage yard including installation of utility and electrical infrastructure, container handling equipment (e.g. electric stacking cranes), and paved surfaces;
- the rail intermodal yard, including the installation of utility and electrical infrastructure, container handling equipment (e.g. rail-mounted gantry cranes), and rail tracks;
- permanent and temporary linear infrastructures (including description and size of road, railroad, pipelines, power supply and overhead wires), identifying the route of each of these linear infrastructures, the location, types and ownership;
- causeway expansion for both road and rail improvements and upgrades (including size, location, design criteria and construction plans);
- water management, including infrastructure for drinking water, industrial water, storm water, wastewater treatment and discharge (e.g. site water run-off),and ballast and bilge water management (including options for disposal and plans for managing invasive species);
- marine traffic, including the anticipated increase in traffic (including number, type, size, weight and capacity of vessels, including approximate timing of arrivals and departures at the marine terminal and tug basin and increases relative to existing traffic volumes) in the proponent's jurisdiction;
- cargo traffic (including type, tonnage, and storage time in the terminal for goods handled), with data to be provided separately for imports, exports, ship-to-ship transfers, and land-to-land transfers and increases relative to existing traffic volumes);
- road and rail traffic (including number, type, size and capacity of trucks and trains including approximate timing of arrivals and departures and increases relative to existing traffic volumes) in the proponent's jurisdiction;
- permanent and temporary works related to the construction phase of the project, including the sediment transfer pit (including size, location, source, type and volume of sediments to be stored) and disposal site; and
- storage of hazardous materials, including inventories.

The EIS will include maps and bathymetric surveys, at an appropriate scale, of the project location including disposal at sea locations, the land and water lot area requirements and ownership, boundaries of the proposed site with UTM coordinates, major existing infrastructure, adjacent land uses and any important environmental features.

[6] The approach channel, harbour basin, and berth areas taken together include: (1) the area in which a marine vessel, in-bound for the Project, leaves the navigation channel up to the point at which the vessel arrives at the marine terminal, (2) the area in which an out-bound marine vessel leaves the marine terminal up until it enters the navigation channel and (3) the area in which any tug activity occurs in support of the arrival and/or departure of a marine vessel from the marine terminal.

7.2 Project Activities

The EIS will include expanded descriptions of the construction, operation, maintenance, foreseeable modifications, and where relevant, decommissioning of sites and facilities associated with the project.

This would include detailed descriptions of the activities to be carried out during each phase, the location of each activity, expected inputs and outputs and an indication of the activity's magnitude and scale.

Although a complete list of project activities is required, the emphasis will be on activities with the greatest potential to have environmental effects and those activities that are likely to affect species at risk or their critical habitat. Sufficient information will be included to predict environmental effects and address identified public and Aboriginal groups' concerns. Highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment.

Included in the EIS will be a detailed schedule including time of year, frequency, and duration for all project activities.

The following information will be provided:

- dredging activities (including any maintenance dredging anticipated), specifying the locations, depths, surface area, volumes and nature of sediment to be dredged (e.g. physical and chemical characteristics), dredging methods (e.g. type of dredge equipment, duration, frequency), sediment management plans (land and aquatic), and sediment transport methods for materials to/from construction location(s) and the size and location of disposal at sea location(s) inclusive of transfer pits;
- site preparation activities for the construction of the marine terminal and expansion of the tug basin (including berth areas) and causeway, blasting requirements (if any), installation of fill and mattress rock, water diversion(s) requirements, construction of perimeter and interior containment dikes, levelling, drilling, soil densification, pre-loading and compaction;
- construction methods and construction sequencing for the development of the marine terminal including the three berth wharf structure (including caisson installation, backfilling and soil densification, installation of rip-rap, pile driving and dredging, and sheet piling);
- construction methods and dimensions for anchorage areas at the main terminal and in the navigation channel, if any;
- construction methods for causeway rail improvements including construction of rail sub-ballast structures, ties, rails and ballast for new tracks and rail intermodal yard, tie-in of new lead tracks to existing mainline, and relocation of existing rail tracks;
- construction methods for causeway road improvements including construction of new access roads, overpass, and associated utilities (e.g. water main, electrical);
- installation and operation of lighting for all project components;
- power requirements for all project components, including for ship to shore power supply, if any;
- fueling and maintenance activities for marine vessels, locomotives, trucks, and cargo handling equipment;
- decommissioning of any construction-related temporary facilities;
- post-construction cleanup and on-site grounds reclamation;

- disposal at sea activities inclusive of transfer pit storage (e.g. location, type and volume of sediments to be disposed, timing and method of disposal);
- utilities (sanitary sewer, fire water, potable water, electical distribution, substations, fibre optic controls);
- fish habitat compensation plan and/or measures to offset serious harm to fish and associated works (if any); and
- wetland compensation plan and associated works (if any).

8 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

The EIS will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible. The proponent will complete the following procedural steps for addressing alternative means:

- Identify the alternative means to carry out the project.
  - ✓ Develop criteria to determine the technical and economic feasibility of the alternative means; and
  - ✓ Identify those alternative means that are technically and economically feasible, describing each alternative means in sufficient detail.
- Identify the effects of each technically and economically feasible alternative means.
  - ✓ Identify those elements of each alternative means that could produce effects in sufficient detail to allow a comparison with the effects of the project.
- Identify the preferred means.
  - ✓ Identify the preferred means based on the relative consideration of effects; and of technical and economic feasibility; and
  - ✓ Determine criteria to examine the effects of each remaining alternative means to identify the preferred means.

In its alternative means analysis, the proponent will address, at a minimum, the following project components:

- location of the marine terminal within B.C.;
- location, orientation, and layout of the approach channel, harbour basin, and berth(s) for both the marine terminal and tug basin;
- location, orientation, configuration and construction of the marine terminal and tug basin;
- configuration and construction of the causeway and the road and rail corridors;
- location and configuration of the sediment transfer pit;
- alternatives to dredging;
- methods for dredging;
- alternatives to disposal at sea of sediments; and
- disposal at sea location(s).

9 BASELINE CONDITIONS

9.1 Existing Environment

9.1.1 Methodology

The EIS will include a description of the environment, including the components of the existing environment and environmental processes, their interrelations and interactions as well as the variability in these components, processes and interactions over time scales appropriate to the project. The description will be sufficiently detailed to characterize the environment before any disturbance to the environment due to the project and to identify and assess the significance of the potential adverse environmental effects of the project. This data should include results from studies done prior to any physical disruption of the environment due to initial site clearing activities. The information describing the existing environment may be provided in a stand-alone chapter of the EIS or may be integrated into clearly defined sections within the effects assessment of each VC. This analysis will include environmental conditions resulting from historical and present activities in the local and regional study area.

In describing the physical and biological environment, the proponent will take an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health and integrity. The proponent will identify and justify the indicators and measures of ecosystem health and integrity used for analysis and relate these to the identified VCs and proposed monitoring and follow-up measures.

For the biophysical environment, baseline data in the form of inventories alone are not sufficient to assess effects. The proponent will consider the resilience of relevant species populations, communities and their habitats. The proponent will summarize all pertinent historical information on the size and geographic extent of relevant species populations as well as density, based on best available information. Where little or no information is available, specific studies will be designed to gather further information on species populations, densities and the interrelations of these species to the ecosystem.

The proponent will make all reasonable efforts to gather information from any previous studies, and include this information in relevant portions of its baseline conditions.

Habitat at regional and local scales should be defined in ecological mapping of aquatic and terrestrial vegetation types and species (e.g. ecological land classification mapping). This mapping should include reference to Terrestrial Ecosystem Mapping using the applicable provincial Resource Information Standards Committee (RISC) standards. Habitat use will be characterized by type of use (e.g. spawning, breeding, migration, feeding, nursery, rearing, wintering), frequency and duration. This assessment will consider all relevant variations for all VCs as appropriate. Emphasis will be on those species, communities and processes identified as VCs. However, the interrelations of these components and their relation to the entire ecosystem and communities of which they are a part will be indicated (e.g. population-level risk assessment). The proponent will address issues such as habitat, nutrient and chemical cycles, food chains, productivity, to the extent that they are appropriate to understanding the effect of the project on ecosystem health and integrity. Range and probability of natural variation over time will also be considered. The proponent will also examine changes in the distribution, populations, behaviour, and availability of wildlife, fish, and flora in the important context of implications to current use of lands and resources by Aboriginal peoples.

If the baseline data have been extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modelling methods and equations will be described and will include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error. Models that are developed should be validated using field data from the appropriate local and regional study areas.

Based on the scope of project described in section 6, the proponent will present the following baseline information to facilitate the identification of valued components for the purposes of the environmental assessment. Should other VCs be identified during the conduct of the EA, these will also be described in the EIS.

9.1.2 Air Quality, Noise, Lighting and Climate

As a minimum, the EIS will include the following:

- ambient air quality at the project site and within the airshed likely to be affected by the project, including the following contaminants: total suspended particulates, $PM_{2.5}$, PM_{10}, CO, SOx, toxic VOCs (as defined by the *Canadian Environmental Protection Act*), NOx, ground-level ozone, black carbon and any other identified mobile-source air toxins (i.e. acetaldehyde, acrolein, benzene, etc.);
- temperature and wind profiles at the surface and vertical temperature and wind profiles (derived from high-resolution meteorological numerical models and complemented with aircraft-measured profiles, with consideration of coincident surface temperatures including the influence of tidal and Fraser River currents;
- existing night-time light levels for all moon phases at the project site;
- current ambient noise levels at key receptor points (e.g. local and Aboriginal communities, and seasonal residences), including the results of a baseline ambient noise survey. Information on typical sound sources, geographic extent and temporal variations will be included;
- existing ambient night-time light levels at the project site, including spill-over light, nighttime glare from point light sources and sky glow, and at any other areas where project activities could have an effect on light levels. The EIS will describe night-time illumination levels during different weather conditions and seasons; and
- multi-seasonal weather and climatic information including historical records and baseline information for precipitation, mean, max and min temperatures, air humidity, wind (duration, direction and forces), fog (frequency, duration), tidal fluctuations, storm surges, changes in sea level and extreme weather events.

9.1.3 Coastal Geomorphology, Seismic Hazard and Geotechnical Stability

As a minimum, the EIS will include:

- characterization, including maps at appropriate scales, and the results of multi-seasonal baseline surveys of the following, as appropriate:
  - ✓ bathymetry,
  - ✓ surface and subsurface current patterns and velocities,
  - ✓ waves (e.g. heights, direction and average length) and storm surges,
  - ✓ tides and currents,

    - ✓ other hydrodynamic processes,
    - ✓ sediment transport and coastal/subtidal erosion patterns, including long shore drift processes, and
    - ✓ sediment budget (sources and sinks);
- description and maps, at an appropriate scale, of major drainage basins (i.e. Fraser River), including watershed and sub-watershed boundaries, flood risk areas and wetlands, overlaid by key project components;
- characterization of the hydrological regime of the Fraser River Estuary, including monthly, seasonal and annual water flow (freshet) data from the Fraser River (including Canoe Pass) and groundwater flow through the Fraser Delta;
- a sediment transport model for the regional and local project areas as well as the disposal at sea location(s). The model should be verified against field measurements of currents and waves and will consider both short-term and long-term fates of sediment;
- description of surficial geology and marine sediment including:
    - ✓ sediment types and classifications (i.e. grain size, porosity, thickness/density),
    - ✓ characterization of marine sediment quality, including the physical properties (e.g. TOC, grain size, percent moisture), and chemical properties (e.g. Cd, Hg, As, Cr, Zn, total PCBs, total PAHs and other contaminants of concern,
    - ✓ sediment stability and load bearing capacity of marine sediments/seabed in the project area (in situ measurements of bed shear stress, porosity, and sediment density),
    - ✓ sediment stability and load bearing capacity of materials to be used for fill (grain size, sediment porosity and density), and
    - ✓ intertidal dendritic channels (locations, sizes and a characterization of the processes including their formation and/or breakdown); and
- geological hazards and geotechnical characteristics including:
    - ✓ potential shaking levels,
    - ✓ potential for seismic liquefaction,
    - ✓ history and potential impacts of seismic activity in the area,
    - ✓ isostatic rise or subsidence,
    - ✓ landslides (including submarine mass transport deposits), slope erosion and the potential for ground and rock stability problems, and subsidence following project activities, and
    - ✓ history and potential impacts of landslide-generated tsunamis and tsunamis related to earthquakes in the Cascadia subduction zone.

9.1.4 Aquatic Environment

As a minimum, the EIS will include:

- the characterization of marine water quality, including the results of multi-seasonal baseline surveys, temperature, pH, dissolved oxygen concentrations, available nitrogen, turbidity and salinity profiles, total suspended solids, polyaromatic hydrocarbons and persistent organic pollutants and their concentrations (e.g. PCBs, DDT);

- a description of the physical (e.g. coastal geomorphological), chemical and biological processes influencing the marine and estuarine ecosystems that could be affected by the project including disposal at sea location(s). Specific ecosystems described should at a minimum include those communities found in the intertidal, subtidal, and delta foreslope zones of the Roberts Bank/Fraser River Estuary (e.g. biofilm, benthic, eelgrass, sea pen colonies, sands and mudflats, and marsh communities);
- a description of current aquatic ambient noise levels;
- a description of marine plants, including all benthic and detached algae, biofilm, eelgrass, marine flowering plants, brown algae, red algae, green algae and phytoplankton;
- a description of any federally or provincially listed aquatic plant species including vascular and non-vascular plants (bryophytes) and lichens;
- a description of invasive plant species;
- a delineation and characterization of groundwater areas/sources including the locations of groundwater discharge and recharge areas;
- a description of groundwater flow patterns and rates, including seasonal changes in groundwater flow; and
- a description of local and regional potable groundwater sources including their current use and potential for future use.

9.1.5 Fish and Fish Habitat

Note that under CEAA 2012 and in this document, fish is defined as in Section 2 of the *Fisheries Act*, which includes shellfish, crustaceans, and other marine animals. Habitat is defined as in Section 34(1) of the *Fisheries Act* and includes spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes (i.e. food and forage).

In describing the baseline salmon population and associated fish habitat in the Roberts Bank area and Fraser River Estuary, particular attention should be paid to the findings of the Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, the Final Report – October 2012.

To enable analysis of the projects effects, the EIS will document the physical, chemical, and biological characteristics of the fish and fish habitat likely to be directly or indirectly affected by the project.

As a minimum, the EIS will include:

- a description of the hydrology, marine ecology, freshwater and marine biota, fish species, associated habitats and habitat distribution;
- a characterization, including the results of baseline surveys, of fish populations (e.g. marine invertebrates (such as crabs and bivalves), fish, marine mammals and other marine animals) found in or migrating through the local and regional study areas. This should include species abundance, distribution, and life stage (e.g. zooplankton and benthic stages for marine invertebrates, juvenile and returning adult stages for salmonids, juvenile and adult stages for forage fish), and also include seasonal and annual variations;
- a description of fish habitat by homogeneous section, including water depths, type of substrate (sediments), aquatic and riparian vegetation, and photos;

- maps, at a suitable scale, indicating the surface area of potential or confirmed fish habitat for spawning, nursery, feeding, overwintering, migration routes. This information should be linked to water depths (bathymetry) to identify the extent of the fish habitat;
- a description of predator-prey interactions for identified fish populations;
- a description and location of aquatic species at risk (e.g. Southern Resident Killer Whale) that appear on federal and provincial lists and that are likely to be effected by the project;
- the regional importance, abundance and distribution, including the results of baseline surveys, of any potentially effected aquatic species at risk;
- the residences, seasonal or local movements, movement corridors, habitat requirements, key habitat areas, designated or identified critical habitat and/or recovery habitat (where applicable) and general life history of aquatic species at risk that may occur in the project area, or be affected by the project; and
- a characterisation of the contaminant loading in fish species and aquatic species at risk and the pathways of bio-accumulation, for those species whose contaminant loadings may be affected by the project. The results of baseline surveys will be included, as appropriate.

9.1.6 Birds, Wildlife and their Habitat

As a minimum, the EIS will include:

- a description of any terrestrial and intertidal ecosystems (e.g. dendritic channels, brackish marshlands and eelgrass beds) used by migratory birds and by federally or provincially listed species that are likely to be affected by the project as well as a description of the physical (e.g. coastal geomorphological), chemical and biological processes influencing these ecosystems[7];
- a description of the regional, continental and global importance of Roberts Bank for migratory birds, as well as a description of how migratory birds use habitat and food resources in the project area;
- abundance, distribution, and life stages of migratory and non-migratory birds in the area (including waterfowl, raptors, shorebirds, marsh birds and other land birds), including species values (with error bars) and species composition for each season;
- a characterization of year-round migratory bird use of the area (e.g. over-wintering, spring migration, breeding season, fall migration), including results of baseline surveys;
- areas of concentration of migratory birds, such as breeding, feeding, resting, nesting, milting and wintering areas;
- an description of the extent to which bird predators of the Fraser River Delta utilize existing artificial lighting associated with port structures;
- a characterization of the way existing artificial light affects bird distributions at the project site;
- a characterization of the way moon phase affects bird distributions at the project site;
- a description of terrestrial invasive plant species;

[7] Surveys should be designed with reference to the Canadian Wildlife Service's guidance such as Technical Report No. 508, *A Framework for the Scientific Assessment of Potential Project Impacts on Birds* (Hanson *et al*. 2009). Appendix 3 of the Framework provides examples of project types and recommended techniques for assessing impacts on migratory birds.

- a characterization of other wildlife and their habitat that could be impacted by project activities using existing data, supplemented by surveys as appropriate, with particular consideration to areas of concentration of migratory animals, such as breeding, denning and/or wintering areas;
- a description of existing or proposed protected areas, special management areas, and conservation areas in the regional study area, including results of baseline surveys;
- locations and extent of wetlands likely to be affected by project activities according to their location, size, type (wetland class and form), species composition and ecological function (Canadian Wetland Classification System, National Wetlands Working Group, 1997);
- abundance and distribution of key plant, bird and wildlife communities that rely on wetlands;
- description of submerged floating and emergent aquatic vegetation including the composition and dynamics of forage fish, biofilm and eelgrass, with particular attention to the interactions of these communities with migratory birds;
- a description of trophic interactions for migratory birds and federally or provincially listed bird and wildlife species, including influence of light valence, predator-prey interactions, timing of patch use, flock size and composition;
- a description of the distribution and productivity of habitat that supports migratory birds and species at risk;
- a list of all potential or known species at risk that may be affected by the project (fauna and flora), using existing data and literature as well as surveys to provide current field data;
- the regional importance, abundance and distribution of species at risk;
- residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, designated or identified critical habitat and recovery habitat (where applicable) and general life history of species at risk that may occur in the project area, or be affected by the project; and
- a description of the contaminant loading in migratory bird species and species at risk and the pathways of bio-accumulation, for those species whose contaminant loadings may be affected by the project. The results of baseline surveys will be included, as appropriate.

9.1.7 Human Environment

Note: the description of the human environment for Aboriginal peoples is covered more specifically in subsection 9.1.8.

As a minimum, the EIS will include a description of:

- the rural and urban settings likely to be affected by the project;
- any federal lands, including submerged lands, and land or water located in the United States that may be affected by the project;
- the current use of land in the study area, including a description of hunting, recreational and commercial fishing, trapping, gathering, outdoor recreation, use of seasonal cabins, outfitters;
- current use of all waterways and water bodies that will be directly affected by the project, including recreational and commercial uses;
- location of and proximity of any permanent, seasonal or temporary residences or camps;

- health[8] and socio-economic conditions, including the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities; and
- physical and cultural heritage, including structures, sites or things of historical, archaeological, paleontological or architectural significance.

9.1.8 Aboriginal Peoples

With respect to Aboriginal peoples that might be affected by the project, at a minimum, the EIS will include a description of the relevant information from 9.1.7 as well as the following:

- general health conditions and demographics based on publicly available information;
- drinking water sources (permanent and seasonal, periodic, or temporary);
- reliance on country foods;
- any other relevant exposure pathways that could affect health;
- general social and economic conditions of the community/Aboriginal group;
- location of reserves and communities;
- commercial harvesting activities (e.g. fishing, trapping, hunting, forestry, outfitting);
- recreational uses of the project area;
- current use of all waterways and water bodies that will be directly affected by the project, including Aboriginal uses;
- traditional uses currently practiced (e.g. fishing for crab, bivalves and fin-fish, harvesting plants, birds, trapping wildlife and gathering berries) that could be affected by the project;
- places where fish, wildlife and plants are harvested;
- fish, wildlife and plants of importance for traditional use;
- access and travel routes for conducting traditional practices;
- location of hunting camps, cabins and villages;
- location of traditional territory (including maps where available);
- physical and cultural heritage[9] (including any site, structure or thing of archaeological, paleontological, historical or architectural significance); and
- culturally important sites, structures, objects and viewscapes (e.g. burial sites, spiritual places).

With respect to potential effects on Aboriginal peoples and the related VCs, baseline information will be provided for each Aboriginal group identified. The EIS will also indicate how input from Aboriginal groups was used in establishing the baseline conditions related to health and socio-economics, physical and cultural heritage and current use of lands and resources for traditional purposes. Other information or factors of importance to Aboriginal groups should be reflected as necessary.

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[8] The proponent should refer to Health Canada's Useful Information for Environmental Assessments document in order to include the appropriate baseline information relevant to human health. This document can be obtained at http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/environ_assess-eval/index-eng.php

[9] Heritage resources to be considered will include but not be limited to, physical objects (e.g. middens, culturally-modified trees, historic buildings), sites or places (e.g. burial sites, sacred sites, cultural landscapes) and attributes (e.g. language, beliefs).

9.2 Potential or Established Aboriginal and Treaty Rights and Related Interests

For the purposes of developing the EIS, the proponent will engage with Aboriginal groups whose potential or established Aboriginal and Treaty rights and related interests may be affected by the project.

In preparing the EIS, the proponent will ensure that Aboriginal groups have access to timely and relevant information that they require in respect of the project and how the project may adversely impact them.

For the following Aboriginal groups, the proponent will hold meetings and facilitate these by making key EA summary plain language documents (baseline studies, EIS and key findings) accessible:

- Tsawwassen First Nation;
- Musqueam First Nation;
- Semiahmoo First Nation;
- Tsleil-Waututh Nation;
- Stz'uminus First Nation;
- Cowichan Tribes;
- Halalt First Nation;
- Lake Cowichan First Nation;
- Lyackson First Nation;
- Penelakut Tribe; and
- Métis Nation British Columbia;

At a minimum, the EIS will summarize available information on the potential or established Aboriginal and Treaty rights and related interests of the above-named Aboriginal groups that have the potential to be adversely impacted by the project. As part of this summary, the EIS will include for each of the above mentioned Aboriginal groups:

- background information and a map of the group's asserted traditional territory;
- maps and descriptions of lands, and harvesting and cultural activities as outlined in the Tsawwassen First Nation Final Agreement that are relevant to the project and potential project impacts;
- a summary of engagement activities conducted prior to the submission of the EIS, including the date and means of engagement (e.g. meeting, mail, telephone);
- information on each group's potential or established rights (including geographical extent, nature, frequency, timing), including maps and data sets (e.g. fish catch numbers) when this information is provided by a group to the proponent;
- an overview of key comments and concerns provided by each group to the proponent;
- responses provided by government and the proponent, as appropriate;
- future planned engagement activities; and
- efforts undertaken to engage with Aboriginal groups as part of developing the information identified above.

There are additional Aboriginal groups that are less likely to be affected by the project and its related effects. The proponent will make key EA summary documents (EIS, key findings, plain language summaries) accessible to the following Aboriginal groups and ensure their views are heard and recorded:

- Stó:lō Tribal Council (Seabird Island First Nation, Scowlitz First Nation, Soowahlie Band, Kwaw'Kwaw'Apilt First Nation, Kwantlen First Nation, Shxw'ow'hamel First Nation, Chawathil First Nation, Cheam Indian Band); and
- Stó:lō Nation (Aitchelitz First Nation, Leq'a:mel First Nation, Matsqui First Nation, Popkum First Nation, Skawahlook First Nation, Skowkale First Nation, Shxwha:y Village, Squiala First Nation, Sumas First Nation, Tzeachten First Nation, Yakweakwioose Band).

The proponent will describe all efforts, successful or otherwise, taken to solicit the information required to prepare the EIS.

Information provided related to potential adverse impacts on potential or established Aboriginal or Treaty rights will be considered by the Crown in meeting its common law duty to consult obligations as set out in the document "Updated Guidelines for Federal Officials to Fulfill the Duty to Consult (2011)"[10].

The Agency, in its capacity as Crown Consultation Coordinator, will provide additional instructions to the proponent in cases where further research and engagement effort by the proponent is required to support Canada's ability to fulfil the duty to consult with one or more Aboriginal groups that may be adversely affected by the project.

Should the proponent have knowledge of potential adverse impacts to an Aboriginal group not appearing on the above list; the proponent will bring this to the attention of the Agency and the review panel, once appointed, at the earliest opportunity.

10 EFFECTS ASSESSMENT

10.1 Environmental Effects

10.1.1 Methodology

The proponent will indicate the project's effects during construction, operation, maintenance, foreseeable modifications, and where relevant, restoration of sites and facilities associated with the project, and describe these effects using appropriate criteria. To the maximum extent possible, this documentation will include, for each potential project-related environmental effect, an indication of the nature of the effect, mechanism, magnitude, duration, frequency, geographic extent, and the degree to which it may be reversible. The proponent will consider both the direct and indirect, reversible and irreversible, short- and long-term environmental effects of the project. In predicting and assessing the project's effects, the proponent will indicate important details and clearly state the elements and functions of the environment that may be affected, specifying the location, extent and duration of these effects and their overall impact.

The assessment of the effects of each of the project components and physical activities, in all phases, will be based on a comparison of the biophysical and human environments between the predicted future

[10] Visit the Aboriginal Affairs and Northern Development Canada website at: www.aadnc-aandc.gc.ca/eng/1100100014680/1100100014681

conditions with the project and the predicted future conditions without the project. In undertaking the environmental effects assessment, the proponent will use best available information and methods. All conclusions will be substantiated. Predictions will be based on clearly stated assumptions. The proponent will describe how it has tested each assumption. With respect to quantitative models and predictions, the proponent will detail the model assumptions, the quality of the data and the degree of certainty of the predictions obtained.

Risk Assessment Framework

The proponent is expected to employ, where appropriate, standard ecological risk assessment frameworks that categorize the levels of detail and quality of the data required for the assessment. These tiers are as follows:

Tier 1: Qualitative (expert opinion, including traditional and local knowledge, literature review, and existing site information);

Tier 2: Semi-quantitative (measured site-specific data and existing site information); and

Tier 3: Quantitative (recent field surveys and detailed quantitative methods).

Thus, if the Tier 2 assessment still indicates a potential for effects to VCs, a Tier 3 assessment may need to be conducted to reduce the level of uncertainty. If the risk characterization component is uncertain this may necessitate the probabilistic modelling of the population-level consequences of the proposed project.

Biophysical changes to the environment that may affect human health include changes to: air quality, water quality, including drinking water, noise levels, and contaminants in country food sources. Such changes in the biophysical environment, as described in Section 9 (Baseline Conditions), can affect human health. When risks to human health due to changes in one or more of these components are predicted, a complete Human Health Risk Assessment examining all exposure pathways for pollutants of concern may be necessary to adequately characterize potential risks the human health.

Impact Matrix

An impact matrix methodology in combination with identification of VCs should be used to evaluate environmental effects of the proposed project, including those related to Aboriginal peoples. The assessment will include the following general steps:

- identification of the activities and components of the project;
- predicting/evaluating the likely effects on identified valued components;
- identification of technically and economically feasible mitigation measures for any adverse environmental effects;
- conclusions regarding any residual environmental effects;
- ranking of each residual adverse environmental effect based on various criteria; and
- conclusions of the potential significance of any residual environmental effect following the implementation of mitigation.

Application of Precautionary Approach

In documenting the analyses included in the EIS, the proponent will:

- demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to ensure that they would not cause serious or irreversible damage to the environment, especially with respect to environmental functions and integrity, system tolerance and resilience, and the human health of current or future generations;
- outline and justify the assumptions made about the effects of all aspects of the project and the approaches to minimize these effects;
- ensure that in designing and operating the project, priority has been and would be given to strategies that avoid the creation of adverse effects;
- develop contingency plans that explicitly address accidents and malfunctions; and
- identify any proposed follow-up and monitoring activities, particularly in areas where scientific uncertainty exists in the prediction of effects.

10.1.2 Changes to the Environment

Section 5 of CEAA 2012 describes specific categories of direct and indirect environmental effects that will be considered in the EA. However, to be able to assess these categories of environmental effects, a complete understanding of the changes the project will cause to the environment is required, including changes that are directly linked or necessarily incidental to any federal decisions that would permit the project to be carried out.

The EIS will describe any change that may be caused by the project on the environment, which is defined as the components of the Earth, including:

- land, water and air, including all layers of the atmosphere;
- all organic and inorganic matter and living organisms; and
- the interacting natural systems that include the components described above.

These descriptions will be integrated into the effects assessment sections of each VC included in the EIS.

Changes to components of the environment within federal jurisdiction

The EIS will include a stand-alone section that summarises those changes that may be caused by the project on the components of the environment listed in paragraph 5(1)(a) of CEAA 2012, namely fish and fish habitat, aquatic species and migratory birds.

Changes to the environment that would occur on federal or transboundary lands

The EIS will include a stand-alone section that summarises changes the project may cause to the environment on federal lands or lands outside of British Columbia (including outside of Canada). For example, potential transboundary effects could include noise (including underwater noise) and air quality effects to Blaine, Lynden, Birch Bay, Bellingham and the shipping channel though the Strait of Juan de Fuca.

Changes to the environment that are directly linked or necessarily incidental to federal decisions

As the project requires one or more federal decisions identified in section 6.2, the EIS will also include a stand-alone section that summarizes changes that may be caused by the project on the environment that are directly linked or necessarily incidental to these decisions.

10.1.3 Effects of Changes to the Environment

Effects of changes to the environment on Aboriginal peoples

From the perspective of the proponent, the EIS will describe the effects of any changes the project may cause to the environment, with respect to Aboriginal peoples, on health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Effects of changes to the environment that are directly linked or necessarily incidental to federal decisions

In relation to the changes to the environment that are directly linked or necessarily incidental to federal decisions identified through section 6.2, the EIS will also include a stand-alone section that describes the effects of these changes on health and socio-economic conditions, physical and cultural heritage, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, other than as they pertain to Aboriginal peoples (who are considered in the previous section).

10.1.4 Effects of Potential Accidents or Malfunctions

The proponent will list and identify the probability of potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the environmental effects), and the plausible worst-case scenarios and the effects of these scenarios.

The geographical and temporal boundaries for the assessment of malfunctions and accidents may be different than those in the scope of factors for each VC. This will include an identification of the magnitude of an accident or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events.

The EIS will also describe the safeguards that have been established to protect against such occurrences and the contingency/emergency response procedures in place or required if accidents or malfunctions do occur and the efficacy of those respective plans. Detailed contingency and response plans will be presented.

10.1.5 Effects of the Environment on the Project

The EIS will take into account how local conditions and natural hazards, such as severe or extreme weather conditions and external events (e.g. flooding, submarine landslides, avalanches, erosion, subsidence, fire, earthquake shaking, storm surges and tsunamis) could adversely affect the Project and how this in turn could result in impacts to the environment (e.g. extreme environmental conditions result in malfunctions and accidental events). These events will be considered in different probability patterns (e.g. 5-year flood vs. 100-year flood). Longer-term environmental effects of potential future sea level rise and other changes to the climate on the project and surrounding ecosystems will also be assessed. This assessment will include a description of methodological approaches and climate data used as well as the scenarios and the assumptions made.

The EIS will provide details of a number of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the project.

10.2 Adverse Impacts on Aboriginal and Treaty Rights and Related Interests

The EIS will describe, from the perspective of the proponent, the potential adverse impacts of the project on the ability of Aboriginal peoples to exercise the potential or established Aboriginal and Treaty rights and related interests identified in section 9.1.8. As part of this description, this section will summarise:

- potential adverse impacts (on potential or established Aboriginal and Treaty rights and related interests) that were identified through the environmental effects described in section 10;
- specific issues and concerns raised by Aboriginal groups in relation to the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests;
- VCs suggested for inclusion in the EIS by Aboriginal groups, whether or not those factors were included, and the rationale for any exclusions;
- where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into the consideration of environmental effects and potential adverse impacts on potential or established Aboriginal rights and related interests; and
- efforts undertaken to engage with Aboriginal groups as part of collecting the information identified above.

The assessment of the potential adverse impacts of each of the project components and activities, in all phases, will be based on a comparison of the exercise of the identified rights between the predicted future conditions with the project and the predicted future conditions without the project. It is recommended that the impact matrix methodology described in section 10.1.1 be adapted for this purpose.

10.3 Public Concerns

This section will detail public concerns raised in relation to the project, including through public consultation conducted prior to the preparation of the EIS, and community knowledge that may have been provided.

11 MITIGATION

11.1 Environmental Mitigation

11.1.1 Methodology

Every EA conducted under CEAA 2012 will consider clear, enforceable measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effects at the source. Such an approach may include the modification of the design of the project or relocation of project components.

The EIS will describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location. The proponent will then describe its environmental protection plan and its environmental management system, through which it will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time.

The EIS will then describe mitigation measures that are specific to each environmental effect identified in section 10.1. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them. Where mitigation measures have been identified in relation to species listed under the *Species at Risk Act* or critical habitat, the mitigation measures will be consistent with any applicable recovery strategy and action plans.

The EIS will describe proponent commitments, policies and arrangements directed at promoting beneficial or mitigating adverse socio-economic effects. The EIS will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs.

The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases (construction, operation, modification, or other undertaking related to the project) to eliminate or reduce the significance of adverse effects. The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The reasons for determining if the mitigation measure reduces the significance of an adverse effect will be made explicit.

The EIS will indicate what other technically and economically feasible mitigation measures were considered, including the various components of mitigation, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The EIS will identify who is responsible for the implementation of these measures and the system of accountability.

Where mitigation measures are proposed to be implemented for which there is little experience or for which there is some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective will be clearly and concisely described. In addition, the EIS will identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation, management and the development of the Follow-up Program as described in section 11.4.

Adaptive management is not considered a valid mitigation measure, but if the Follow-up Program indicates that corrective action is required, the proposed approach for managing the response should be identified.

11.1.2 Summary of Environmental Mitigation

In addition, the EIS will summarise the mitigation measures, follow-up and related commitments identified to address the categories of environmental effects specified in section 10:

- changes to components of the environment within federal jurisdiction;
- changes to the environment that would occur on federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to federal decisions
- effects of changes to the environment on Aboriginal peoples; and
- effects of changes to the environment that are directly linked or necessarily incidental to federal decisions

11.2 Measures to Address Impacts on Aboriginal and Treaty Rights

This section will describe, from the perspective of the proponent, the measures identified to mitigate the potential adverse impacts of the project described in section 10.1.3 on the potential or established Aboriginal and Treaty rights and related interests identified in section 10.2. These measures will be written as specific commitments that clearly describe how the proponent intends to implement them. This description will include a summary of:

- specific suggestions raised by Aboriginal groups for avoiding, reducing, mitigating or otherwise accommodating the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights and related interests in relation to environmental effects specified in section 10.1.3;
- environmental mitigation and avoidance measures identified in section 11.1 that also serve to address potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests;
- any potential cultural, social or economic impacts or benefits to Aboriginal groups that may arise as a result of the project;
- where and how Aboriginal traditional knowledge or other Aboriginal views were incorporated into the mitigation or avoidance of environmental effects of potential adverse impacts on potential or established Aboriginal rights and related interests; and
- efforts undertaken to engage with Aboriginal groups as part of developing the information identified above.

In preparing the EIS, the proponent will ensure that Aboriginal people and groups have access to the information that they require in respect of the project and of how it may impact them. The proponent will describe all efforts, successful or not, taken to solicit the information required to prepare the EIS.

The proponent will structure its Aboriginal engagement activities to provide adequate time for Aboriginal groups to have reviewed the relevant information in advance and to ensure there are sufficient opportunities for individuals and groups to provide oral input in the language of their choosing. Engagement activities must be appropriate to the groups' needs and should be arranged through discussions with the groups.

11.3 Measures to Address Public Concerns

This section will describe measures identified for addressing public concerns in relation to the project identified in section 10. Measures will be written as specific commitments that clearly describe how the proponent intends to implement them.

For any consultations undertaken with the general public, the EIS will describe the ongoing and proposed consultations and information sessions with respect to the project at the local, regional and provincial levels, where applicable. The EIS will provide a summary of discussions, indicate the methods used and their relevance, locations, the persons and organizations consulted, the concerns raised, the extent to which this information was incorporated in the design of the project as well as in the EIS, and the resultant changes. The proponent will also provide a description of efforts made to distribute project information and provide a description of information and materials that were distributed during the consultation process.

11.4 Follow-Up Program

A Follow-up Program is designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the project. The EIS will describe the proposed Follow-up Program in sufficient detail to allow independent judgment as to the likelihood that it will deliver the type, quantity and quality of information required to reliably verify predicted effects (or absence of them), and to confirm both the assumptions and the effectiveness of mitigation. The Follow-up Program will include specific commitments that clearly describe how the proponent intends to implement them.

The Follow-up Program will be designed to incorporate baseline data, compliance data (such as established benchmarks, regulatory documents, standards or guidelines) and real time data (such as observed data gathered in the field). The proponent will describe the reporting methods to be used, including frequency, methods and format, as well as the involvement of any local, regional or Aboriginal groups in the design, implementation and evaluation of the Follow-up Program.

The effects predictions, assumptions and mitigation actions that are to be tested in the Follow-up Program must be converted into field-testable monitoring objectives. The monitoring design must include a statistical evaluation of the adequacy of existing baseline data to provide a benchmark against which to test for project effects, and the need for any additional pre-construction or pre-operational monitoring to establish a firmer project baseline.

The Follow-up Program will include a schedule indicating the frequency and duration of effects monitoring. This schedule is to be developed after an evaluation of the length of time needed to detect effects given estimated baseline variability, likely magnitude of environmental effect and desired level of statistical confidence in the results (Type 1 and Type 2 errors).

The description of the Follow-up Program will include any contingency procedures/plans or other adaptive management provisions as a means of addressing unforeseen effects or for correcting exceedances as required to comply or to conform to benchmarks, regulatory standards or guidelines.

The Follow up Program will also be designed to monitor the implementation of mitigation measures resulting from Aboriginal engagement, including:

- verifying predictions of environmental effects with respect to Aboriginal peoples, as well as residual effects that could not be addressed within the context of the EA;
- determining the effectiveness of mitigation measures as they relate to environmental effects with respect to Aboriginal peoples in order to modify or implement new measures where required;
- supporting the implementation of adaptive management measures to address previously unanticipated adverse environmental effects with respect to Aboriginal peoples or unanticipated adverse impacts to Aboriginal or treaty rights;
- verifying measures identified to prevent and mitigate potential adverse effects of the project on potential or established Aboriginal rights; and
- providing information that can be used to improve and support future EAs and Aboriginal engagement processes.

Where appropriate, the Follow-up Program can also encompass measures identified to address public concerns identified in section 11.3.

11.5 Proponent Commitments

Proponent commitments identified in the EIS, including environmental mitigation measures to address public and Aboriginal peoples concern, and Follow-up Program elements, may be considered for inclusion as conditions in the EA decision statement or as part of other compliance and enforcement mechanisms. Each commitment will be specific, achievable, measurable and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation.

12 RESIDUAL EFFECTS

12.1 Residual and Cumulative Environmental Effects

12.1.1 Residual Environmental Effects

After having established the technically and economically feasible mitigation measures, the EIS will present any residual environmental effects of the project on the biophysical and human environments after these mitigation measures have been taken into account. The residual effects, even if very small or deemed insignificant, will be described.

12.1.2 Cumulative Environmental Effects

The proponent will identify and assess the project's cumulative effects using the approach described in the Agency's Operational Policy Statement "Addressing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act, 2012*"[11].

Cumulative effects are defined as changes to the environment due to the project combined with the existence of other works or other past, present and reasonably foreseeable physical activities. Cumulative effects may result if:

- implementation of the project being studied may cause direct residual adverse effects on the environmental components, taking into account the application of technically and economically feasible mitigation measures; and
- the same environmental components may be affected by other past, present or reasonably foreseeable physical activities.

The EIS will describe the analysis of the total cumulative effect on a VC over the life of the project, including the incremental contribution of all current and proposed physical activities, in addition to that of the project. The EIS will include different forms of effects (e.g. synergistic, additive, induced, spatial or temporal) and identify impact pathways and trends.

The EIS will include a narrative discussion of existing projects in the vicinity of the proposed project, including but not limited to the Tsawwassen Ferry Terminal, Deltaport Terminal Road and Rail Improvement Project, South Fraser Perimeter Road, Tsawwassen First Nation Industrial Land Development, Tsawwassen Mills and Power Centre and Deltaport Third Berth.

The narrative will include the description of any existing studies of changes to the environment resulting from those projects that are similar to potential changes resulting from the project, including any mitigation

[11] Visit the Agency's website at: www.ceaa-acee.gc.ca/

measures that were implemented, and any long term monitoring or follow up program that were conducted. Existing studies should include, but are not limited to, any relevant studies taken into account in the following reports: Roberts Bank Port Expansion Report of the Environmental Assessment Panel (FEARO, 1979); Deltaport Third Berth Project Environmental Assessment Report (2006); the Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, the Final Report – October 2012. The effectiveness of those mitigation measures and key results of monitoring or follow-up programs from past projects and projects currently underway will be described. This narrative discussion should include historical data, where available and applicable, to assist interested parties to understand the potential effects of the project and how they may be addressed.

The cumulative effects assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEAA 2012.

12.1.3 Summary of Residual Environmental Effects

In addition, the EIS will summarise the residual environmental effects (including cumulative environmental effects) identified in relation to the categories of environmental effects specified in section 10:

- changes to components of the environment within federal jurisdiction;
- changes to the environment that would occur on federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to federal decisions;
- effects of changes to the environment on Aboriginal peoples; and
- effects of changes to the environment that are directly linked or necessarily incidental to federal decisions.

12.2 Outstanding Aboriginal Issues

This section will describe, from the perspective of the proponent, the potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests that have not been fully mitigated as part of the environmental assessment and associated engagement with Aboriginal groups. This includes potential adverse impacts (on potential or established Aboriginal and Treaty rights and related interests) that may result from the residual and cumulative environmental effects described in section 10.

12.3 Outstanding Public Concerns

This section will describe the outstanding public concerns in relation to the project that have not been resolved as a result of changes to the project, mitigation measures, or public consultation.

13 SIGNIFICANCE DETERMINATION

13.1 Significance of Adverse Environmental Effects

13.1.1 Methodology

This section will provide a detailed analysis of the significance of the residual environmental effects (including cumulative environmental effects) that are considered adverse, using the approach described in the Agency's Reference Guide "Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects"[12].

The EIS will identify the criteria used to assign significance ratings to any predicted adverse effects. It will contain clear and sufficient information to enable the review panel, the Agency, technical and regulatory agencies, Aboriginal groups and the public to review the proponent's analysis of the significance of effects. The proponent will define the terms used to describe the level of significance.

The following elements should be used in reaching conclusions on the significance of residual effects:

- magnitude;
- geographic extent;
- duration and frequency;
- reversibility;
- ecological and social context; and
- existence of environmental standards, guidelines or objectives for assessing the impact, and the implications of any currently proposed revisions.

In assessing significance against these criteria the EIS will, where possible, employ relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment. The EIS will contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each VC.

Where significant adverse effects are identified, the EIS will set out the probability (likelihood) that they will occur, and describe the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.

13.1.2 Summary of Significant Adverse Environmental Effects

In addition, the EIS will summarise the significant adverse environmental effects identified in relation to the categories of environmental effects specified in section 10:

- changes to components of the environment within federal jurisdiction;
- changes to the environment that would occur on federal or transboundary lands;
- changes to the environment that are directly linked or necessarily incidental to federal decisions;
- effects of changes to the environment on Aboriginal peoples; and

[12] Visit the Agency's website at: www.ceaa-acee.gc.ca/default.asp?lang=En&n=D213D286-1&offset=&toc=hide

- effects of changes to the environment that are directly linked or necessarily incidental to federal decisions.

14 SUMMARY TABLES

The EIS will contain a series of tables summarising the following key information:

- potential environmental effects (section 10.1), adverse impacts on potential or established Aboriginal and Treaty rights and related interests (section 10.2) and public concerns (section 10.3);
- proposed mitigation measures and commitments (section 11.5) by proponent to address potential impacts on environment, (section 11.1), Aboriginal and Treaty rights (section 11.2) and public concerns (section 11.3), and the Follow-up Program (section 11.4);
- potential residual and cumulative environmental effects (section 12.1) and the significance of the residual environmental effects (section 13.1) ; outstanding Aboriginal issues (section 12.2) and outstanding public concerns (section 12.3);
- comments from the public and responses;
- comments from Aboriginal groups and individuals and responses; and
- relationship of the identified VCs to Aboriginal groups' potential or established Aboriginal and Treaty rights and related interests (section 9.1.8).

Proponent commitments may be considered for inclusion as conditions in the EA decision statement and as part of other compliance and enforcement mechanisms.

15 BENEFITS TO CANADIANS

15.1 Changes to the Project Since Initially Proposed

The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal peoples, and the public.

15.2 Benefits of the Project

The EIS will include a section describing the predicted environmental, economic and social benefits of the project. This information will be considered by the Government of Canada in assessing the justifiability of the significant adverse environmental effects, if necessary.

16 MONITORING PROGRAM AND ENVIRONMENTAL MANAGEMENT PLANS

The goal of a monitoring program is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety. In the EIS, the proponent will describe the monitoring activities at all stages of the project, the proponent's proposed commitment to implementing these activities and the resources provided for this purpose. The program will need to provide the key information such as contacts, protocols, measured parameters, deadlines, intervention in case of non-compliance of legal requirements and production of monitoring reports.

The finalization of a detailed monitoring program will occur through consultation with federal and provincial government agencies, Aboriginal groups, the public and other stakeholders. This may occur after the environmental assessment but will be consistent with the information presented in the EIS. Pertinent legislation, regulations, industry standards, documents and legislative guides will be used in the development of the monitoring program.

Environmental management plans (EMPs) are an example of a tool that can be used to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and environmental health and safety. The EMPs will serve to provide guidance on specific actions and activities that will be implemented to decrease the potential for environmental degradation during construction and operation, and to clearly define the proponent's ongoing environmental commitment.

17 MARINE SHIPPING

Anticipated Level of Effort

In preparing information on marine shipping activities, the proponent is expected to employ the standard ecological risk assessment framework that categorizes the levels of detail and quality of the data required for the assessment, as presented in section 10 of the EIS Guidelines. It is likely that a Tier 1 approach (Qualitative; description based on expert opinion and traditional and local knowledge) will be an appropriate level of detail in most cases. For select environmental effects and locations where there may be a higher risk of environmental effects, a Tier 2 approach (Semi-quantitative; measured site-specific data and existing site information) would likely be an appropriate level of detail.

To the degree possible, the proponent should maximise the use of existing material that is relevant to marine shipping activities which is beyond proponent's care and control and within the 12 nautical mile limit of the territorial sea. Existing material may be utilized from academic studies, work of government and non-government working groups, past or ongoing environmental assessments, Aboriginal traditional knowledge reports or any other source the proponent deems appropriate for its presentation of this material.

17.1 Scope of the Factors

The assessment of marine shipping activities that are beyond the care and control of the Port will focus on relevant issues and concerns. The proponent will define the appropriate boundaries used for its assessment for each biophysical or socio-economic Valued Component (VC).

17.1.1 Valued Components

Using the procedure outlined in section 3.3 of the EIS Guidelines, the proponent will identify VCs for any environmental effects that may result from marine shipping associated with the Project.

At a minimum, the proponent will consider the effects on:

- fish and fish habitat;
- federally and provincially listed species at risk and species of special status;
- marine mammals and their habitats;
- water quality;

- atmospheric environment (air quality, noise, greenhouse gas emissions, and lighting);
- current use of land and resources by Aboriginal peoples including fishing, cultural practices, and sites of importance; and
- tourism, commercial and public recreational use.

17.1.2 Marine Spatial Boundaries

In addition to marine shipping that is within the care and control of Port Metro Vancouver, the EIS will consider marine shipping activities associated with the Project that occur beyond the care and control of Port Metro Vancouver and within the 12 nautical mile limit of Canada's territorial sea. The proponent will determine the spatial boundaries of the various environmental effects resulting from marine shipping activities based on the approach described in Section 3.3.2 of the EIS Guidelines.

In determining the spatial boundaries to be used in assessing the potential adverse environmental effects of marine shipping, the proponent shall consider, but not be limited to:

- the physical extent of the marine shipping activities between the 12 nautical mile limit and the limit of Port Metro Vancouver's care and control; and
- the extent of aquatic and terrestrial ecosystems, local communities, potential or established Aboriginal or Treaty rights, and current use of lands or resources for traditional purposes which could potentially be affected by marine shipping, including potential accidents and malfunctions.

The spatial boundaries should take into account the areas that could potentially be affected by the worst-case scenario for dispersal of marine fuel oil or other cargo, or other scenarios considered in the assessment of the potential effects related to accidents and malfunctions.

17.1.3 Marine Temporal Boundaries

The temporal boundaries for the consideration of marine shipping associated with the Project shall be based on the approach outlined in Section 3.3.3 of the EIS Guidelines.

17.2 Description of marine shipping activities

17.2.1 Marine Shipping Overview

The proponent will provide information related to marine shipping activities based on the sub-headings outlined in section 6 of the EIS Guidelines (Geographic setting, regulatory framework and role of government, participants in the environmental assessment etc). This information will include a description of the geographic setting of the area between the extent of Port Metro Vancouver's care and control and the 12 nautical mile limit of the territorial sea, an overview of the existing regulatory framework and role of government – including for emergency response to safety or environmental emergencies, including communication planning - and any additional participants in the environmental assessment that were not initially included for involvement.

17.2.2 Description of Activity

In addition to the project description, including information on components and activities of the Project required by section 7 of the EIS Guidelines, the EIS should also include a detailed description of the marine shipping activities along the anticipated shipping routes, including:

- frequency, routing, speed and transit time of vessels;
- anticipated increases to traffic beyond the proponent's care and control, and along the shipping

routes. This analysis should include a description of the projected increase along various segments of the route;
- associated activities such as ballasting, anchorage, maneuvering, loading bunkering and fuel types used, pilotage, and tugboat escort; and
- alternatives considered, such as different routing, frequency and vessel types.

17.3 Baseline Conditions

The proponent shall refer to section 9.1 of the EIS Guidelines and its subsections when describing the baseline conditions for the existing environment along the shipping route.

17.3.1 Existing Marine Environment

In addition to the information requirements in Section 9.1 of the EIS Guidelines, the EIS will include:
- an overview of oceanography, including a description of the physical characteristics of all waters along the proposed shipping routes beyond Port Metro Vancouver's care and control over marine shipping to the 12 nautical mile limit of the territorial sea;
- the identification and relative predominance of aquatic vegetation;
- a description of marine environments, including the type of water body and any special management areas in or near the study area;
- a description of marine habitat use and species presence;
- the identification and description of any additional federally and/or provincially listed species at risk in the study area;
- the identification, description and mapping of marine habitats for areas at higher risk of environmental effects from marine shipping associated with the Project, or accidents and malfunctions; and
- Pre-SCAT (Shoreline Cleanup Assessment Technique) surveys and mapping for shorelines adjacent to and down-current from areas at higher risk of accidents and malfunctions from marine shipping associated with the Project (as outlined in "A Field Guide to Oil Spill Responses on marine Shorelines, Environment Canada, 2010).

17.3.2 Existing Human Environment

The information required to describe the baseline for the human environment is described in Section 9.1.7 of the EIS Guidelines. In addition, the proponent will provide:
- a description of major commercial traffic routes, network focal points or notes where close-quarter situations and/or crossing traffic are likely to occur, and the frequency and magnitude of shipping incidents;
- a description of the types and sizes of vessels currently operating in the region, particularly those likely to be encountered by vessels associated with the Project. Variations in traffic density statistics, types of cargo, and ports of origin and destination should also be described;
- a description of fishing activities, including:
    - Aboriginal and non-Aboriginal activities, as well as seasonality of these activities;
    - types, number, size and capacity of fishing vessels used in the area, gear types and existing interactions with shipping;
    - commercial, recreational and aboriginal fisheries statistics (e.g. species, annual catch and number of licenses);
    - maps of fishing areas in the study area and descriptions of their relative importance in a broader regional context (e.g. representative percentage of regional landings or economic value); and
- an inventory, description (including maps), and evaluation of any archaeological, cultural and

historical resources, sites or practices that may be affected by the marine shipping associated with the Project.

17.4 Effects Assessment

The proponent shall refer to Section 10 of the EIS Guidelines and its subsections when conducting the effects assessment for marine shipping activities. The proponent will, where relevant, present as accurately as possible the anticipated effects on the valued components described in the EIS Guidelines and pursuant to sub-section 17.1.1 of this addendum.

Where necessary, the proponent will consult with federal government departments and agencies to obtain further specific guidance related to the identification and analysis of environmental effects.

17.4.1 Effects on the Marine Environment

In accordance with sub-section 10.1.2 of the EIS Guidelines, the proponent will provide a description of the changes to the environment that may result from marine shipping activities. This shall include changes to components of the environment within federal jurisdiction, changes to the environment that would occur on federal lands, or would be transboundary effects, and changes to the environment that are directly linked or necessarily incidental to federal decisions.

17.4.2 Effects on Human Environment

As described in sub-section 10.1.3 of the EIS Guidelines, the EIS will describe the effects of changes to the environment resulting from marine shipping activities. This will include the effects of changes to the environment on Aboriginal peoples (including health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes or any structure site or thing that is of historical, archaeological, paleontological or architectural significance).

Additionally, the proponent will include in the EIS a description of effects of changes to the environment that are directly linked or necessarily incidental to federal decisions.

17.4.3 Potential Accidents and Malfunctions

The proponent will describe and evaluate the potential effects on the environment of accidents and malfunctions arising from marine shipping activities, including impacts on social, economic or cultural elements of the environment and human health of people in close proximity of spilled contaminants.

Where there is the potential for serious accidents or malfunctions and the necessary data are available, the proponent will consider whether an assessment of the probability and consequences of such an occurrence should be conducted, taking into account contributing factors such as weather or external events.

The proponent will also assess the potential for minor and major accidental releases of fuel oil or loss of containerized hazardous cargo. As appropriate, the proponent shall also provide an analysis of the potential environmental effects of such releases on the marine and terrestrial environment and on human health within the spatial boundaries described in this document.

The proponent will also describe the existing emergency response mechanisms and arrangements with Response Organizations within the spatial extent of marine shipping associated with the Project, and describe what role it would play in the event of a spill, collision, grounding or other accident or malfunction

at or adjacent to the marine shipping area, including any emergency spill response training and exercise regimes.

17.5 Aboriginal Engagement and Concerns

In preparing the EIS, the proponent will meet with and engage all the Aboriginal groups listed below that may be affected by marine shipping activities, to obtain their views on:

- Effects of changes to the environment on Aboriginal peoples (health and socio-economic issues; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes), and
- Potential adverse impacts of the Project on potential or established Aboriginal or Treaty rights.

- Tsawout First Nation
- Pauquachin First Nation
- Tsartlip First Nation
- Tseycum First Nation
- Malahat First Nation
- Beecher Bay Indian Band (Scia'new First Nation)
- Esquimalt Nation (No'ilung Si'em 'i' sche'le'chu)
- Songhees First Nation
- T'sou-ke First Nation
- Pacheedaht First Nation
- Ditidaht First Nation
- Maa-nulth First Nations (Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h First Nations, Toquaht Nation, Uchucklesaht Tribe, and Ucluelet First Nation)

In addition, the proponent will do the same for the following Aboriginal groups already engaged in the environmental assessment process on the marine shipping activities.

- Tsawwassen First Nation
- Musqueam Indian Band
- Semiahmoo First Nation
- Tsleil-Waututh Nation
- Stz'uminus First Nation
- Cowichan Tribes
- Halalt First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Penelakut Tribe
- Metis Nation British Columbia

At a minimum, the proponent will meet all the requirements laid out in the Updated EIS Guidelines related to the potential impacts of marine shipping activities on the exercise of potential or established Aboriginal or Treaty rights and factors to be assessed under subsection 5(1)(c) of CEAA 2012. The proponent will make reasonable efforts to integrate Aboriginal Traditional Knowledge into the assessment of environmental impacts.

As necessary, the Agency, in its capacity as Crown Consultation Coordinator, will provide additional instructions to the proponent in cases where further research and engagement effort by the proponent may be required to support Canada's ability to fulfil the duty to consult with one or more Aboriginal groups that may be adversely affected by the Project who may not be identified on the lists above.

Should the proponent have knowledge of potential adverse impacts to an Aboriginal group not appearing on the above list; the proponent, at the earliest opportunity, will bring this to the attention of the Agency and the review panel, once appointed.

18 PROVINCIAL SOCIO-ECONOMIC ASSESSMENT

18.1 Social, Economic, Heritage and Health Effects not resulting from changes to the Environment

The proponent will include in its EIS a description of the effects of the Project on social, economic, heritage and health matters that do not arise from changes to the environment caused by the Project. In addition to environmental matters, the *British Columbia Environmental Assessment Act* requires an assessment to consider the economic, social, heritage and health effects of a reviewable project. British Columbia refers to these broadly as 'pillars'. For the economic, social, heritage and health pillars, the proponent will identify appropriate Valued Components (VCs) in a manner consistent with Section 3.3.1 of the EIS Guidelines.

The proponent shall, at a minimum, include in its EIS a description of, and an assessment of the effects of the Project on the following VCs:

Economic:
- Employment and income opportunities
- Business opportunities, local and regional economic development
- Commercial marine use
- Local government finances

Social:
- Infrastructure and community services
  - Housing and accommodation
  - Community infrastructure and services
  - Emergency services, health and public safety
- Community demographics
- Community well-being
- Education, skills development and training
- Visual quality

Land and resource use:
- Access
- Quality of experience
- Quantity of resources
- Traditional/heritage value of land
- Recreational activities
- Subsistence (e.g. fishing)
- Land management objectives
- BC government and local government land use designations