

ENVIRONMENTAL ASSESSMENT OFFICE

APPLICATION TERMS OF REFERENCE

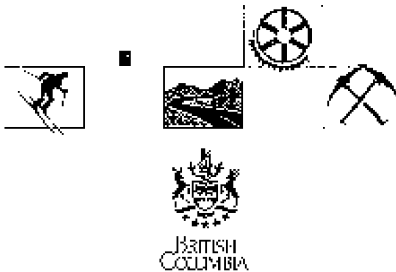
FOR

DELTAPORT THIRD BERTH PROJECT

With Respect To:

An Application for an Environmental Assessment
Certificate Pursuant to
the British Columbia *Environmental Assessment Act*,
S.B.C. 2002, c. 43

October 8, 2004



PREFACE

The Deltaport Third Berth Project (DP3 or Project), a project proposed by the Vancouver Port Authority (VPA or Proponent) is subject to review under both the British Columbia *Environmental Assessment Act*, SBC 2002, c.43 (BCEAA) and the *Canadian Environmental Assessment Act*, SC 1992, c.37 as amended (CEAA).

This document has been approved by the Environmental Assessment Office (EAO). It identifies the information that must be included by the Proponent in its application to the EAO for an environmental assessment certificate (Application) for the proposed DP3. The Terms of Reference (TOR) have been developed to meet the requirements of both the BCEAA and CEAA, and they have been prepared with input from the Proponent (who submitted the first draft), federal, provincial and local government agencies and First Nations.

If the lead review agencies for specific issues reach a more detailed written understanding with the Proponent on the information to be provided in the Proponent's Application, the option exists to have the written understanding appended as a formal component of the Approved TOR (ATOR). It should be noted that many study and impact assessment requirements for the Project have been formulated by Study Work Plans, discussed with members of the Technical/Bio-physical Working Group (TBWG) and the Socio-economic/Community Working Group (SEWG). These Study Work Plans are reflected in the enclosed ATOR.

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LIST OF ABBREVIATIONS

ATOR	Approved Terms of Reference
BCEAA	British Columbia <i>Environmental Assessment Act</i>
CDC	Conservation Data Centre
CEA	Cumulative Effects Assessment
CEAA	<i>Canadian Environmental Assessment Act</i>
CEA Agency	Canadian Environmental Assessment Agency
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
DP3	Deltaport Third Berth Expansion Project
EA	Environmental Assessment
EAO	British Columbia's Environmental Assessment Office
EMP	Environmental Management Plan
GVRD	Greater Vancouver Regional District
MWLAP	British Columbia's Ministry of Water, Land and Air Protection
RA(s)	Responsible Authority(ies) under CEAA
Section 11 Order	Procedural Order issued under Section 11 of BCEAA
SARA	Canada <i>Species at Risk Act</i>
SEWG	Socio Economic/Community Working Group
TBWG	Technical/Bio-Physical Working Group
TSI	Terminal Systems Inc.
VEC	Valued Ecosystem Components
VPA	Vancouver Port Authority

BACKGROUND TO TERMS OF REFERENCE DOCUMENT

1. INTRODUCTION

Collectively, this section and the next section of this document constitute the Approved Terms of Reference (ATOR) for the Proponent's application for an environmental assessment certificate for the Deltaport Third Berth Project. The ATOR identify the issues to be addressed and the information to be provided by the Proponent in its Application document.

The ATOR have been developed by the EAO, based on a first draft compiled by the Proponent and based on consultations with members of the TBWG and the SEWG. These two working groups have members from federal and provincial government agencies, from local governments, and from First Nations with an interest in the Project.

The process for developing the ATOR, as well as the process and procedures for conducting the review pursuant to the BCEAA and CEA, will be recognized and confirmed in an order to be issued by the EAO under Section 11 of the BCEAA (Section 11 Order), stipulating the scope, procedures and methods for the assessment of the Project. The ATOR have been developed in accordance with the general procedures set out in the *Guide to the British Columbia Environmental Assessment Process*, EAO, March 2003 and reflecting the *Guide to Preparing Terms of Reference for an Application for an Environmental Assessment Certificate*, EAO, July 2004.

2. PROPONENT

The Proponent is the Vancouver Port Authority (VPA), a federal Crown corporation with significant British Columbia port and marine activities. The Application is being developed by VPA's Container Development Group.

3. PROJECT LOCATION AND DESCRIPTION

The proposed Project is located 35 km south of Vancouver, at the existing Roberts Bank Port facility in Delta, BC. The existing VPA facilities at Roberts Bank include Deltaport, a 65 hectare (160 acres) container terminal operated by Terminal Systems Inc. (TSI), and Westshore Terminals, a 50 hectare (approximately 124 acres) bulk handling coal port facility. These terminals are connected to the mainland by a 4.1 km long causeway, which supports road and rail infrastructure. The proposed Deltaport Third Berth Project consists of the construction and operation of additional port facilities at Deltaport.

Principal components for the Project include:

- Construction of a fill area of approximately 20 hectares (50 acres) of land for an expanded container storage yard (dredge and fill);
- Construction of a wharf to accommodate a third berth; and
- Expansion of the existing ship channel to the north (part of the dredge works).

Ancillary components include:

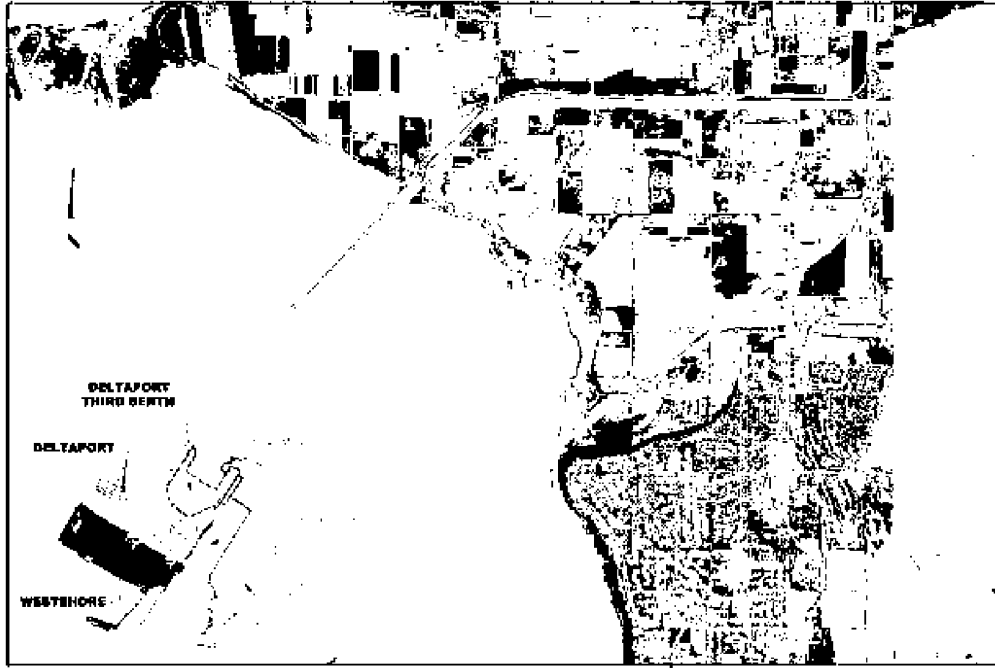
- Creation of a tug moorage area adjacent to north side of the third berth;
- Relocation of a safety boat launch (currently located on the north side of Deltaport); and
- Addition of approximately 7,000 meters (23,000 feet) of rail track, which includes:
 - The extension of the Gulf siding arrival/departure tracks from east of Arthur Drive to 64th Street, Delta (within BC Rail's right-of-way); and
 - Additional support track on the causeway, within BC Rail's property.

The operation of the Deltaport Third Berth facility includes:

- Increase in associated marine traffic (container vessels and tugs);
- Increase in terminal loading and unloading equipment (ship-to-shore gantry cranes, rubber tire gantries, rail mounted gantries, tractor trailers); and
- Increase in associated road and rail traffic.

The location of the Project is depicted in Figure 1 below. The proposed Project budget is approximately \$225 million. This budget is subject to final design and could change.

For the purposes of BCEAA and CEAA, the scope of the Project will include all of these facilities, and the activities associated with their construction and operation and, in the case of temporary facilities, their decommissioning (dismantling, reclamation and abandonment) – see section 2.0 of ATOR below.



Credit: Vancouver Port Authority

Figure 1: The Setting of the Deltaport Third Berth Project

4. APPLICATION CONTENT

The Proponent has agreed to structure the Application with a Table of Contents to reflect the ATOR sections. The Application will therefore contain the following key project review and environmental assessment (EA) elements:

- Project Description;
- Information Distribution and Consultation;
- Existing Setting and Effects Information;
- Issue Identification and Project Impacts;
- Mitigation Measures and Monitoring; and
- Project Review Conclusions.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT¹

¹ The information outlined in the following pages identifies the information required in, as well as a suggested structure for the Proponent's Application for an Environmental Assessment Certificate for the Deltaport Third Berth Project.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Preface

PREAMBLE:

This section should provide a general statement of context and purpose for the development of the Application document.

Subsections

None

Application Coverage

- Indicate that the Project is subject to review under the BCEAA pursuant to a request by the Proponent and an Order issued under section 10 of BCEAA.
- Indicate that the Project is subject to a comprehensive study under CEAA and the relevant triggers.
- Indicate that the Project Application has been developed pursuant to the ATOR approved by EAO to meet the information requirements under both BCEAA and CEAA.
- Indicate that the Project Application has been developed pursuant to any other relevant instructions provided in the Section 11 Order pursuant to BCEAA.
- Indicate in general the agencies, First Nations and other parties who have been involved in the development of the Application.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Executive Summary

PREAMBLE:

This section should define the Project and concisely identify issues, impacts, consultation, recommended mitigation measures and conclusions in a succinct and summary manner. It should be possible to use the Executive Summary as a stand-alone document for those who do not wish to read the full Application for details of the Projects, its assumed impacts and the assessment requirements.

Subsections

Application Coverage

Discretionary

- Provide a concise description of all key facets of the Project.
- Provide a general outline of key impact issues and proposed mitigation strategies and measures.
- Include a succinct description of information distribution activities and First Nations and public consultation measures undertaken.
- Summarize issues raised, and solutions suggested, during these consultations.
- Present the review conclusions as discussed in the Application.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 1.0 - Introduction

PREAMBLE:

This section should provide contextual background information on the Project and the Proponent and on the regulatory regime which applies to the Project.

Subsections

Application Coverage

- | | |
|------------------------------------|--|
| 1.1 Proponent Identification | <ul style="list-style-type: none">• Provide VPA information (i.e., name, address, phone, fax, email). Include name of company representative managing the Project. Include any company incorporation and structure. |
| 1.2 Project Overview | <ul style="list-style-type: none">• Provide a brief description of the Project, its rationale and key components. Include capital cost and job creation information. Details to be covered in Section 3.0. |
| 1.3 Regulatory Framework | <ul style="list-style-type: none">• Provide a summary of federal and provincial legislation pertaining to the regulatory approval of the Project.• Outline the reasons for the environmental review.• Introduce Orders and agreements applying to the review.• Outline future licenses/permits/authorizations needed.• Document if request for concurrent certification/permitting is being solicited. |
| 1.4 General Application Background | <ul style="list-style-type: none">• Introduce the Application and its structure. |
| 1.5 Concordance Table | <ul style="list-style-type: none">• Provide a concordance table showing where in the Application relevant sections of the ATOR are covered. This table may also be appended as an Application appendix. |

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 2.0 - Project Description

PREAMBLE:

A clear and detailed project description will assist reviewers in assessing the Project and its impacts. All key Project components and activities will be identified and clearly explained. The level of details will be adjusted to the extent Project components are likely to cause biophysical and/or socio-community effects. The "how, when, where and what" will be described. A detailed Project description reduces the risk that the reviewers will require additional information to understand the Project and its interaction with the surroundings. Project details are also helpful to the general public that wants to review the Application and participate in the environmental assessment (EA) process.

Subsections

Application Coverage

2.1 Project Facilities and Design:

2.1.1 On-Site Facilities

- Describe in sufficient detail, supported by plans and diagrams, the components of the proposed port and container terminal expansion, including equipment and infrastructure.
- Clearly show the footprint of the Project, including marine works (e.g., dredged shipping channels, revetment works, etc.).
- Describe preliminary design and engineering, outlining appropriate design codes and results of any site investigations to establish site parameters (such as seismicity, soil bearing capacity and metocean conditions).
- Provide information on emission and effluent control technology.

2.1.2 Off-site Facilities (Transportation Requirement)

- Similar information will be provided for the off-site facility/infrastructure required for the Project, such as transportation improvement requirements (railway improvements, road improvements,), including temporary and permanent works.

2.1.3 Land and Water Lot Requirements

- Identify the land and water lot area requirements and acquisitions, including those required for temporary and permanent works.

2.2 Schedule and Activities:

2.2.1 General

- Include a general Project Plan and Schedule, including Approvals and Permitting Timeline, Pre-construction Schedule, Construction Schedule, Operation Schedule and Decommissioning Schedule and identify key Project design/construction milestones and highlight the timing of major design/construction activities and their anticipated duration.

- 2.2.2 Construction Phase
 - Describe all construction schedules and activities, such as for site-preparation, mobilization, dredging, densification, utilities, terminal equipment, facilities, tie-ins/metering, testing and start-up.
 - Describe the waste disposal, material requirements and associated logistics.
 - Describe on-site and off-site construction activities.

- 2.2.3 Operations Phase
 - Describe all schedules and activities, such as process operations, maintenance, emergency procedures, waste disposal, workforce logistics, etc. Includes terminal operations and associated off-site marine, rail and road operations.
 - Include on-site and off-site operations activities.

- 2.2.4 Decommissioning
 - Discuss expected lifetime of Project.

- 2.3 Capital Costs
 - Provide a total capital cost estimate.
 - Assess sales tax impacts on total costs and describe purchasing policies with BC content requirements (based on information collected from socio-economic studies).

- 2.4 Labour Force
 - Provide estimates of total labour force requirements (direct jobs only), with category of labour for the construction and operations phases (in person-years).

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 3.0 - Project Background

PREAMBLE:

This section should describe the need and rationale for the Project seen in context of container port expansion on the Pacific West Coast. Alternatives to the Project should be discussed, if considered. Under CEAA there is also a requirement to address alternative means of carrying out the Project.

Subsections

Application Coverage

- | | |
|---|--|
| 3.1 Project Background and Rationale | <ul style="list-style-type: none">• Provide information on the Project's history, including a summary of the history of development at Roberts Bank.• Provide a justification for the Project. Factors relevant to the need for and purpose of the Project will be discussed in the Application including, but not limited to: global, regional (West Coast North America) and Port of Vancouver container market demand/capacity.• Describe the Project objectives.• Discuss direct federal and provincial government participation in the Project (such as infrastructure provisions). |
| 3.2 Project Location, Alternatives and Site Selection | <ul style="list-style-type: none">• Provide a brief summary of the Project location and include maps/plans showing location of the proposed terminal (a summary from s.2 is appropriate).• Discuss results of studies demonstrating alternatives to the Project:<ul style="list-style-type: none">• Status Quo;• The feasibility of increasing efficiencies of existing VPA container terminals;• The feasibility of expansion of existing VPA container terminals; and• The construction of new VPA container terminals.• Provide rationale for selecting the preferred alternative to develop container capacity. The preferred alternative will be identified based on an analysis of broad environmental effects, costs and benefits. The level of assessment (alternative analysis) will reflect the more conceptual nature of the alternatives at this stage. |
| 3.3 Alternative Means of Carrying Out the Project | <ul style="list-style-type: none">• Describe the alternative means considered technically and economically feasible, the general environmental effects associated with the alternatives and the rationale for the preferred alternative. For DP3, this refers to the different terminal footprint configurations. |
| 3.4 Project Constraints | <ul style="list-style-type: none">• Describe any significant development constraints faced by the Project, such as energy sources, major physical barriers, and distance constraints, if applicable. |

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

SECTION 4.0 – Review Scope and Study Area

PREAMBLE:

Scope of Project:

Under the harmonized BCEAA and CEAA assessments, the EAO and federal agencies determine the scope of a project for which approval is to be considered. Project scoping is based on the Project description provided by the Proponent, and is subject to revision if the Proponent amends the Project description.

Scope of the Assessment:

The scope of the assessment of the Project includes the Project's potential direct, indirect and cumulative effects, as itemized in the ATOR. The Assessment will include the Project's direct and indirect effects on a broad range of environmental components including biophysical, resources use and socio-economic components. Relevant effects are usually (but not always) those for which the Proponent has the ability (including jurisdiction) to implement impact management measures to mitigate the concern.

Defining Study/Project Area for Assessment Purposes:

In the Application, the boundaries of the study area should be defined in time and space. The temporal (time) boundaries of the study must consider the length of time over which the environmental effects originating from the construction, operation and/or maintenance of the Project are anticipated to occur.

Two impact scenarios should be evaluated temporally: a baseline scenario for environmental and socio-community resources and a post-development (operation and maintenance) scenario. Specific mitigation and compensation strategies and designs (e.g. fish habitat) should be developed with appropriate regulatory agencies.

The spatial (space) boundaries must be based on the zone of Project influence beyond which the effects of the Project are expected to be non-detectable. Multiple boundaries will reflect the geographic areas where specific environmental effects may potentially occur. For the biophysical components, the Application must differentiate between a Local Study Area and a Project Study Area.

The bio-physical spatial boundaries for most of the anticipated environmental issues are expected to be limited to the Local Study Area at Roberts Bank. As a result, most of the effort will focus on characterizing the immediate Project footprint and near vicinity where environmental effects may arise. Spatial boundaries for the socio-economic/community assessment may extend into the communities within the Corporation of Delta and First Nation communities, including the Tsawwassen First Nation. First Nation issues are covered in a separate Section 12.0.

The Application must provide a description of all study area boundaries used and an explanation of the rationale adopted to establish the study area boundaries.

Subsections

Application Coverage

4.1 Scope of Project

Include Project scoping as defined in the Section 11 Order; in the federal-provincial project workplan to be issued; and as outlined in Section 3 of the general background part of the ATOR.

- 4.2 Scope of Assessment
 - Identify the scope of assessment. Discuss the influence of consultations with the public, First Nations and government agencies on the scoping of issues to be addressed in the Application.

- 4.3 Project and Study Region (Spatial Boundaries)
 - Identify the study area(s) to be employed for impact assessment purposes in the EA application.
 - Discuss the influence of consultations with the public, First Nations and government agencies on study area definition.

- 4.4 Temporal Boundaries
 - Describe the temporal boundaries of the Project assessment, adhering to the general principles outlined in the Preamble above.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

SECTION 5.0 – Environmental Assessment Methodology

PREAMBLE:

The Application shall describe: (i) how the EA was performed; (ii) which indicators and data sources were used to consider all project effects; and (iii) how the significance of a residual effect was determined.

Subsections

Application Coverage

5.1 Impact Assessment
Methodology:

5.1.1 General

- The Application shall describe and explain the rationale and methodology used to conduct the EA, including the rationale and methodology used to:
 1. Characterize the existing environment that may be affected by the Project (baseline conditions).
 2. Identify the Project-environment interactions and the potential effects of those interactions.
 3. Determine the mitigation measure(s).
 4. Identify any residual environmental and impact effects after mitigation measures.
 5. Determine the importance (significance and likelihood) of residual effects after mitigation measures.

5.1.2 Selection of VECs²

- The Application will contain a separate overview section that will describe the general criteria for determining VECs that may be affected by the Project.
- The selection of specific study VECs will be presented in each of the study assessment sections of the Application (e.g., specific marine VEC's will be presented in the marine environment assessment).

5.1.3 Determination of
Significance

- The Application will contain a separate overview section describing the general criteria for determining significance relating to residual environmental effects. Specific study component significance criteria will be presented in each of the study impact assessment sections.

² Valued Ecosystem Components (VECs) are any part of the environment that is considered important by the Proponent, members of the public, scientists, government and First Nations involved in the assessment process. Importance may be determined on the basis of cultural value or scientific concern.

5.2 Other Environmental
Assessment Requirements

- Under CEAA, the proponent will be required to provide information in the Application, in addition to that ordinarily required by the EAO for provincial review purposes. For the DP3 project, this will include the sectors defined in Section 10 of ATOR:
 - Accidents and Malfunctions;
 - Effects of the Environment on the Project;
 - Cumulative Effects Assessment; and
 - Sustainability.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 6.0 - Information Distribution and Consultation

PREAMBLE:

This section should summarize the Proponent's and other past and proposed Project consultation (approach and associated activities), in accordance with the consultation provisions of the Section 11 Order, once issued.

Project information distribution, and public and First Nations participation in environmental assessment are important aspects of project reviews, and are required under the BCEAA and CEAA. For the Project, the public consultation measures must be in compliance with the "Public Consultation Policy Regulation", BC Reg. 373/2002 and with requirements defined in the Project's Section 11 Order, when issued. Some relevant guidance may also be obtained from EAO's "Public Consultation Strategy/Framework for Lower Mainland Infrastructure Projects", April 2003.

The Application will include a separate Section 12 that is specific to the interests of potentially affected First Nations. The proposed First Nations consultation and communications program must be in compliance with the "Provincial Policy for Consultation with First Nations" (October 2002).

The consultation and communications plan for the Project is described in VPA's "Roberts Bank Container Expansion Program Consultation and Communications Plan". This plan has been designed to support the review process by offering an open and interactive program of consultation and communication. The intent of the VPA's consultation and communications program is to effectively consult with all interested parties, including: government agencies, local governments, non-governmental organizations, businesses and individuals and First Nations, in an effort to:

- *Provide timely access to project related information;*
- *Offer ongoing opportunities to engage in dialogue; and*
- *Identify project related concerns and issues.*

Subsections	Application Coverage
6.1 Overview of Consultation Program	<ul style="list-style-type: none">• Provide a summary of the consultation and communication plan.
6.2 Overview of Information Distribution	<ul style="list-style-type: none">• Include a summary of information material distributed, notification provided and communications mechanisms used.
6.3 Consultation Activities	<ul style="list-style-type: none">• Include summary of participation by interested parties, including public events.
6.4 Issues Identification	<ul style="list-style-type: none">• List Project issues raised by the public and government agencies and how these issues have been or will be addressed (First Nations issues are covered in Section 12.0).
6.5 Future Consultation	<ul style="list-style-type: none">• Outline a proposed public consultation program that the VPA will carry out for the purposes of the review of the Application, including the EA review period. The program will also include proposed consultation with government agencies and First Nations.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 7.0 - Project Settings and Characteristics. Technical/Bio-physical Studies.

PREAMBLE:

This section should present a general description of the biophysical environment and setting for the Project. The Application should describe the existing environmental setting and characteristics of the Project sites and surrounding areas. The results of the various studies, as listed below, will be used to assess the ecological processes of the present system, including eutrophication, and to determine the effects of the proposed Project.

With respect to the biophysical environment, this section should focus on the environmental components that may be affected by the Project, such as the VECs described in Section 5.1.2 of the ATOR.

Subsections

Application Coverage

7.1 Coastal Geomorphology Study

- A coastal geomorphology study will be included in the Application. The objective of the study is to determine how the ocean waves, river and tidal currents may be impacted by the proposed developments and how, in turn, those impacts may alter the coastal processes and physical environment of Roberts Bank.
- The coastal geomorphology study area is defined by:
 - Steveston Jetty (City of Richmond) to the north (mouth of South Arm of the Fraser River);
 - Point Roberts to the south (approximately 8 km south of the Tsawwassen Ferry Terminal);
 - The 100m water depth contour to the west (approximately 3 km west of the existing Roberts Bank terminal); and
 - The top of the bank along the eastern Roberts Bank shoreline.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX A³.

7.2 Water Quality Assessment

- A water quality assessment will be included in the Application.
- The water quality assessment will describe the current baseline water quality conditions at Roberts Bank and will address potential impacts on water quality associated with the proposed Project.
- The purpose of the baseline water quality sampling program is to characterize the pre-project water quality conditions, such that post-project impacts on these conditions can be predicted, mitigated and monitored.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX B⁴.

³ The study details are also covered in a Draft Work Plan developed by Northwest Hydraulic Consultants, in association with Triton Consultants Ltd. for the VPA, dated November 10, 2003.

7.3 Sediment Quality Assessment

- A sediment quality assessment will be carried out to determine the baseline sediment quality.
- The assessment will address potential impacts on sediment quality associated with the proposed Project.
- The assessment will identify and develop appropriate mitigation and compensation measures relating to sediment quality; and identify follow up requirements associated with the construction and operation of the Project.
- The assessment will address the requirement to obtain a “Disposal at Sea Permit for Dredged Material” from Environment Canada, as per the *Canadian Environmental Protection Act*, 1999.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX C⁵.

7.4 Marine Environment Impact Assessment

- A marine environment impact assessment will be included in the Application.
- The marine environmental impact assessment will address the environmental effects of the Project on the marine environment, specifically for the following marine components:
 - Fish and fish habitats;
 - Intertidal habitat and epibenthic macro-invertebrates;
 - Eelgrass;
 - Intertidal ecology; and
 - Marine mammals.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX D⁶.

7.5 Waterfowl and Coastal Seabird Impact Assessment

- A waterfowl and coastal seabird impact assessment will be included in the Application (including an Overhead Powerline Bird Impact Study).
- The study area for the environmental assessment is based on the aerial extent of the program activities and their likely effects. The study area includes:
 - Areas proposed for the placement of fill;
 - The immediate dredge area including ship channel and turning basins;
 - Areas specific and immediately around where the effects of the project may be felt; and,
 - A wider area outside of the study area for comparison purposes when assessing the significance of those effects.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX E⁷.

⁴ The study details are also covered in a Draft Work Plan developed by EVS Environmental Consultants Ltd., for the VPA, dated May 2004.

⁵ The study details are also covered in a Draft Work Plan developed by Hemmera Envirochem Inc., for the VPA, dated July 2004.

⁶ The study details are also covered in a Draft Work Plan developed by Triton Environmental Environmental Consultants Ltd., in association with Precision Identification Biological Consultants, GL Williams and Associates Ltd., UBC Mammal Research Institute; and Archipelago Marine Research Ltd. for the VPA, dated September 8, 2003.

7.6 Terrestrial Wildlife Environment

- A terrestrial wildlife environment assessment will be included in the Application.
- The terrestrial wildlife environment assessment will assess the environmental effects of the Project on the terrestrial wildlife environment, specifically for the following terrestrial components:
 - Terrestrial mammals (including the Pacific Water Shrew);
 - Amphibians;
 - Reptiles;
 - Aquatic Invertebrates;
 - Birds (including raptors, waterfowl, herons, shorebirds, songbirds);
 - Insects (including dragonflies and butterflies);
 - Vegetation;
 - Species at Risk; and
 - Related wildlife resources.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX F⁸.

⁷ The study details are also covered in a Draft Work Plan developed by ECL Envirowest Consultants Ltd., for the VPA, dated September 4, 2003

⁸ The study details are also covered in a Draft Work Plan developed by Robertson Environmental Services Ltd. for the VPA, dated September 10, 2003.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 8.0 - Project Settings and Characteristics. Socio-Community Studies.

PREAMBLE:

This section should present a general description of the socio-economic/socio-community setting for the Project. The Application should describe the existing setting and characteristics of the Project sites and surrounding areas and should focus on the components that may be affected by the Project, such as the VECs described in Section 5.1.2. This section should address the socio-economic/socio-community setting and characteristics, including any public health issues, and the heritage setting and other interests within the Project area. First Nation issues are covered in Section 12.0 of the ATOR.

Subsections

Application Coverage

8.1 Air Quality Impact Assessment

- An air quality impact assessment will be included in the Application and will describe the baseline air quality conditions and predict air quality impacts associated with the Project.
- The geographic study area will include:
 - A local study area (15 km radius from the Roberts Bank terminal). This local area will encompass the communities of Tsawwassen, Tsawwassen First Nation, Ladner, Boundary Bay/Maple Beach, Beach Grove, Point Roberts (in the US) and Steveston (City of Richmond).
 - A Regional study area, the Lower Fraser Valley airshed, which is bounded by the Coast and Cascade Mountain ranges and the Strait of Georgia.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX G⁹.

8.2 Noise Impact Assessment

- A noise impact assessment will be included in the Application.
- The noise study will include assessing existing acoustic conditions in the vicinity of the proposed Project and determining sensitive receptors within an appropriate study area.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX H¹⁰.

⁹ The study details are also covered in a Draft Work Plan developed by RWDI West Inc. for the VPA, dated November, 2003.

¹⁰ The study details are also covered in a Draft Work Plan developed by BKL Consultants Ltd. for the VPA, dated May 12, 2004.

8.3 Visual Landscape Impact Assessment

- A visual landscape impact assessment will be included in the Application.
- The visual landscape impact assessment will include a visual landscape inventory of the proposed Project area. The inventory will delineate the landscape into landscape units and collect baseline information on natural characteristics (landform, foreshore and marine features, land cover, scenic features and atmospheric effects), level and type of landscape alteration, and social considerations. Night time lighting conditions are covered in a separate Lighting Impact Assessment, described in Section 8.4 below.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX I¹¹.

8.4 Lighting Impact Assessment

- A lighting impact assessment will be included in the Application.
- The lighting impact assessment will include an inventory of existing site lighting. The inventory will include lighting conditions such as: spill-over light (light trespass); night time glare from point light sources; sky-glow, and potential lighting effects on the surrounding marine and terrestrial environment.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX J¹².

8.5 Socio-Economic Assessment

- A socio-economic assessment will be included in the Application.
- The geographical scope of the socio-economic assessment will be defined in the Application. It is expected that the study area will include the Corporation of Delta (the communities of Delta, Tsawwassen and Ladner), the Tsawwassen First Nation, the Greater Vancouver Regional District (GVRD), the Province of British Columbia, and for some study components, Canada.
- An existing socio-economic community profile in the vicinity of the proposed Project will be conducted. This will include communities within the Corporation of Delta and First Nations, including the Tsawwassen First Nation. First Nations considerations are also covered in a separate Section 12.0 of the ATOR

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX K¹³.

¹¹ The study details are also covered in a Draft Work Plan developed by Catherine Berris Associates Inc. and Associated Engineering (BC) Limited for the VPA, dated May 2004.

¹² The study details are also covered in a Draft Work Plan developed by Catherine Berris Associates Inc. and Associated Engineering (BC) Limited for the VPA, dated May 2004.

¹³ The study details are also covered in a Draft Work Plan developed by CitySpaces Consulting Ltd. In association with Novacorp Consulting Inc. for the VPA, dated May 10, 2004.

8.6 Archaeological Overview and Impact Assessment

- An archaeological overview assessment and impact assessment will be included in the Application.
- The study area for the archaeological overview assessment and impact assessment is based on the aerial extent of the program activities and their likely effects. The study area includes the land, whether covered by water or not, to be altered during development of the DP3. The most potential for archaeological impacts are anticipated to be along expanded rail facilities on the upland portion of the Project area.

FURTHER DETAILS OF THE STUDY AND ATOR COVERAGE ARE INCLUDED IN APPENDIX L¹⁴.

¹⁴ The study details are also covered in a Draft Work Plan developed by Millennia Research Limited for the VPA, dated May 11, 2004.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 9.0 – Summary of Project Impacts, Mitigation Requirements and Residual Effects

PREAMBLE:

This section should provide conclusions on bio-technical and socio-community impacts of the Project and present proposed mitigation measures. The section should also discuss any identified residual effects of the Project. The conclusions should be based on the review and assessment methodology contained in Section 5.0 of ATOR. Assessments of First Nations effects should be presented or summarized in Section 12.0.

Subsections

Application Coverage

9.1 Summary of Project Mitigation and Significant Residual Effects

- Summarize from Sections 7.0 and 8.0, all of the mitigation strategies proposed for the Project and the predicted residual effects (post mitigation impacts).
- Include a summary of the presence of residual effects, their significance and likelihood. The specific criteria for determining significance and the likelihood of the residual effects will be presented in each of the study program sections in Sections 7.0 and 8.0 above based on guidance from CEAA and will not be repeated in this section.
- The significant residual effects of the Project will form the basis of the Cumulative Effects Assessment, Section 10.3 of the ATOR.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 10.0 – Other Considerations

PREAMBLE:

As the Project is subject to the CEAA as well as BCEAA, the Proponent is required to provide information in the Application that addresses:

- The environmental effects of accidents and malfunctions;
- Changes to the project that may be caused by the environment;
- Cumulative environmental effects; and
- Effects on the sustainability of renewable resources.

Subsections

Application Coverage

10.1 Accidents and Malfunctions

- An assessment of the environmental effects of any potential Project malfunctions or accidents, which may occur in connection with construction, operation and decommissioning of the Project, will be included in the Application.
- The potential accidents and malfunctions may include, but are not limited to, those associated with the following project activities:
 - The transport of goods which are potentially harmful to the environment, to and from the Project;
 - Waste management and disposal (solid and liquid waste);
 - Marine ballast water exchange; and
 - Any other Project component or system, which has the potential, through accident or malfunction, to adversely affect the natural environment.
- An Environmental Protection Plan to address potential accidents and malfunctions must be provided (see Section 11.0).

10.2 Effects of the Environment on the Project

- Assess the potential of environmental factors that may affect the Project and the predicted effects of those environmental factors.
The following are examples of issues that would be addressed:
(i) seismic activity; (ii) climate change; (iii) erosion; and (iv) flooding (e.g., waves).
- Include information from the geology and seismic overview study and the coastal geomorphology study.
- Identify any measures taken to mitigate these effects.

10.3 Cumulative Effects Assessment¹⁵:

10.3.1 Methodology

- A cumulative effects assessment will be included as a separate section in the Application, in accordance with the framework for addressing these effects pursuant to current CEAA guidelines¹⁶.
- The assessment will follow an acceptable methodology such as the recommended five step framework (AXYS et. al., 1999): (i) Scoping (VECs, spatial and temporal boundaries, projects); (ii) Analysis of Effects; (iii) Identification of Mitigation; (iv) Evaluation of Significance and (v) Follow-up.
- Future projects include those projects that are “certain” (the action will proceed or there is a high probability the action will proceed) and “reasonably foreseeable” (the action may proceed, but there is some uncertainty about the conclusion).
- Define the significance criteria to be used in the cumulative effects assessment.

10.3.2 Cumulative Effects Assessment (CEA)

- Conduct a CEA for the selected VECs identified during the cumulative effects scoping exercise.
- Include tables summarizing the CEA.

10.4 Sustainability¹⁷:

10.4.1 Sustainability of Renewable Resources

- Consider the renewable resources that may be significantly affected by the Project and whether their sustainable use will be affected.

10.4.2 Overall Sustainability

- This section will present the overall environmental, social and economic sustainability of the project.

¹⁵ Cumulative effects (CE) are defined as residual effects that, when combined with the impacts of other past, existing or imminent projects and activities may have a compounding or interactive effect.

¹⁶ Such as: “Addressing Cumulative Environmental Effects under CEAA” (The Cumulative Effects Assessment Working Group and AXYS Environmental Consulting Ltd. 1999). “CEAA Operational Policy Statement (OPS-EPO/3-1999): Addressing Cumulative Environmental Effects under CEAA” (CEAA 1999) and “A Reference Guide for the CEAA: Addressing Cumulative Environmental Effects” (CEAA 1994).

¹⁷ The CEAA requires that the EA consider the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future (CEAA Section 16 (2)d).

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 11.0 - Environmental Management Program

PREAMBLE:

The Application shall include an outline of an Environmental Management Plan (EMP) for the Project, to be finalized in discussion with the relevant permitting agencies before start of construction. EMPs outline the Proponent's approach to project planning and the development of protection measures to mitigate potential environmental effects and other impacts. EMPs are general documents that describe the environmental practices and procedures to be applied during planning, construction, and operation of the Project. The Proponent shall only describe general approaches to individual EMP plans in the Application.

Subsections

Application Coverage

- | | |
|---|---|
| 11.1 Habitat Mitigation and Compensation Plan | <ul style="list-style-type: none">• Overall habitat impact mitigation and compensation plans will be outlined in the Application. Fisheries and aquatic assessment must be completed which identifies impacts and prescribes preliminary impact mitigation and compensation measures. Habitat mitigation and compensation plans that may be required to satisfy the federal <i>Fisheries Act</i>, Section 35(2) Authorization will be developed and submitted for DFO approval. |
| 11.2 Construction EMP | <ul style="list-style-type: none">• The Application will outline VPAs approach to environmental management during construction.• The Application will include preliminary outlines of required EMPs during construction. Such general commitments shall be transferred from the Proponent to contractors and detailed EMPs shall be developed and approved by relevant agencies and authorities. These plans may include, but not limited to:<ul style="list-style-type: none">• Construction/Dredging Timing Plan;• Surface Water Quality and Sediment Control Plan;• Hazardous Waste Management and Spill Plan;• Environmental Protection Plan;• Construction Waste Management Plan;• Air Quality and Dust Control Plan;• Noise Management Plan;• Landscape Design and Restoration Plan;• Lighting Mitigation Plan;• Archaeological Mitigation Plan;• Wildlife Monitoring Plan; and• Bird Monitoring Plan |
| 11.3 Operational EMP | <ul style="list-style-type: none">• The Application will outline the Proponent's approach to environmental management during Operations. The Application shall also include a preliminary outline of an Operational EMP, to be committed to by contractors¹⁸. |

¹⁸ The Plan should include all areas which may negatively impact the environment, such as: agency reporting procedures, post construction monitoring program requirements, operations and maintenance facilities, waste management, energy

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 12.0 – First Nations Considerations

PREAMBLE:

The Application should include a separate section which draws together the relevant project-related baseline, assessment, mitigation and consultation information that is specific to the interests of First Nations having an interest in the Project. For completeness elsewhere in the Application, and where it makes sense to do so, the Proponent may also wish to discuss First Nations issues and perspectives as part of other broader discussions. As such First Nations issues may be covered in other sections of the ATOR, but this Section 12.0 summarizes relevant review material and Project information expected in the Application. Aboriginal traditional use and knowledge information should be considered in the assessment.

Note: VPA is not required to provide information that, by arrangement with First Nations, is to be treated as confidential.

Subsections

Application Coverage

- | | |
|--|---|
| 12.1 Identify Local First Nations | <ul style="list-style-type: none">• Identify First Nations potentially affected by the Project, or likely to have an interest in the Project. |
| 12.2 Consultation with First Nations ¹⁹ | <ul style="list-style-type: none">• Overview of First Nations Consultation: describe briefly the consultation undertaken with First Nations at the pre-application stage; list significant events and measures, including any consultation agreements reached with First Nations.• Consultation Initiatives Undertaken: describe efforts undertaken to distribute project material to First Nations during the pre-application stage; record First Nations' responses and issues; document relevant consultation agreements with First Nations (exclude confidential information); document how issues raised have been addressed and the respective views of the proponent and First Nations on those issues (e.g. resolved or unresolved).• Future Consultation Programs: outline proponent's proposed First Nations consultation program following submission of the Application, and covering the Application review stage; document the proposed process for attempting to resolve outstanding issues. |
| 12.3 Study Areas ²⁰ | <ul style="list-style-type: none">• Identify Study Area(s) used for baseline characterization and assessment of First Nations issues. |

management, emergency spill response, containment and management, storm water runoff, surface water runoff, noise and traffic attenuation measures and vegetation management.

¹⁹ See also Section 6.0 of ATOR.

²⁰ Not likely to be significantly different from study areas selected for impact assessments, see Section 4.0 of ATOR.

- 12.4 Project Setting – Traditional Use Issues in Vicinity of Project
 - Provide a non-confidential overview of traditional use of the project area lands and resources, and the associated traditional and contemporary First Nations economy.
 - Include consideration, among other things, of culturally modified trees, rock paintings, trails, legendary land features and wildlife and vegetation species of special significance to First Nations.
 - Note any identified First Nations land use plans or planning objectives proposed for areas in the vicinity of the Project.

- 12.5 Project Setting – Archaeological Resources
 - Provide a non-confidential summary of identified archaeological resources in the Project area.
- 12.6 Project Setting – Socio and Economic Considerations
 - Provide a local and regional socio-economic, social/socio-community and public health profile, as required above more generally (see Section 8.0 of ATOR), but focussed on the First Nations communities in the vicinity of the Project.

- 12.7 Potential Project Effects on First Nations Interests
 - The Application should identify the specific areas where the Project could directly affect First Nations, as identified by First Nations, at any phase of project development – during construction, operations or, where relevant, decommissioning. More specifically:
 - Identify and describe those First Nations components of the Project setting that will be, or could be, affected by project development.
 - Summarize impact assessment findings, indicating the potential impacts identified.
 - As part of this summary, address all potential direct, indirect and cumulative First Nations effects of the Project, as identified by First Nations, and indicate how the proponent proposes to manage these effects to reduce them to acceptable levels.
 - Document any relevant agreements with First Nations with respect to impact concerns (e.g. any benefits agreement).

- 12.8 Environmental Management Plan²¹
 - Identify any Environmental Management Plans (EMPs) or other mitigation tools that can be used to minimize potential First Nations effects.
 - EMPs specific to First Nations concerns could include:
 - Archaeological Resources Monitoring Plan; and
 - Other, if need identified.
 - Describe how archaeological and other First Nations interests will be monitored during Project construction, and outline a process for handling issues that may arise (e.g. stop work plans, modification of design).

²¹ See Section 11.0 of ATOR.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 13.0 - Conclusions

PREAMBLE:

The Application must present a clear conclusion from the Project impact assessment, cross-referencing the findings from relevant sections of the Application.

Subsections

Application Coverage

None

- Based on the analysis contained in the Application, the Proponent should reach one of the following conclusions:
 1. The Project is not likely to cause significant environmental, socio-economic/community or other effects, taking into account the implementation of appropriate impact management measures; or
 2. The Project is likely to cause significant environmental, socio-economic/community or other effects; even taking into account the implementation of appropriate impact management measures; or
 3. It is uncertain at the time of the review whether or not the Project is likely to cause significant environmental, socio-economic/community or other effects, taking into account the implementation of appropriate impact management measures.

CONTENT REQUIREMENTS OF APPLICATION DOCUMENT:

Section 14.0 - List of References and Supporting Documents

PREAMBLE:

This section should itemize reference documents cited in the Application.

Subsections

Application Coverage

None

- Include documentation with respect to referenced consultation meetings with the public and First Nations.
- Include records of meetings and discussion topics/ agreement with review agencies prior to filing Application.
- Provide a list of all enclosures (such as appendices) included with the Application.

APPENDICES

APPENDIX A
Coastal Geomorphology Study
See ATOR Section 7.1

- Field studies and site investigations will be carried out to characterize the present hydrodynamic and sedimentary environment in the area of interest. Studies will be carried out to assess the main physical processes that have governed historical changes on Roberts Bank. These studies will be based on an analysis of existing data including historical charts and air photos, bathymetry data, sediment grain size data and a review of previous studies and reports. The assessment of historical changes will extend back to approximately 1930. Case histories of dendritic drainage channel formation will be compiled from various sites on Roberts Bank, Sturgeon Bank and Boundary Bay.
- Analytical and numerical modelling will be conducted for the following geomorphic components:
 - Wave Climate;
 - River and Tidal Currents; and
 - Sediment Transport by Waves and Currents.
- The modelling will be verified based on known past effects at Roberts Bank from historical Roberts Bank Terminal and Tsawwassen Ferry Terminal developments.
- An overview of project impacts will be provided and will assess net bed level changes and erosion/deposition patterns. Differences between “without” and “with” Project conditions will be displayed graphically using GIS mapping techniques in order to aid in interpreting the spatial extent and magnitude of the impacts.
- The study will suggest mitigation measures required for construction and operation (including operational dredging requirements) and provide an assessment of their potential effectiveness.
- The mitigation and compensation measures identified will be incorporated into the final Project design.
- The geomorphologic study will provide results related to historical geomorphic changes to the area, predicted future geomorphic changes (including global warming), project impacts and mitigation measures.
- The environmental assessment study team will provide the geomorphology consultant with the Valued Ecosystem Components (VECs) that are inter-connected to geomorphology (e.g., eelgrass, mudflats, etc.) to ensure that all geomorphologic impacts to the relevant VECs are being addressed through the geomorphology study.
- The geomorphology results will then be provided back to the environmental assessment study team to predict impacts to VECs in each respective study component. It is anticipated that the geomorphologic results may be used in other studies, including, but not limited to:
 - Marine Environment Impact Assessment;
 - Waterfowl and Coastal Seabird Impact Assessment;
 - Water Quality; and
 - Sediment Quality.

- Consideration will be given to estimating the residual effects and long-term morphological response after mitigation measures have been implemented.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX B
Water Quality Assessment
See ATOR Section 7.2

- Sampling methodology will be outlined in the Application.
- Baseline water quality sampling will involve collecting water samples at eight (8) sites between Canoe Pass and Point Roberts, as well as two (2) reference sites remote from the Roberts Bank terminal, over a 6 to 12 month period.
- The following parameters will be measured in surface water: *in situ* dissolved oxygen (DO₂) concentrations, pH, temperature, turbidity and salinity profiles; and laboratory analysis of chlorophyll *a*, ammonia, nitrate, nitrite, orthophosphate and total suspended solids.
- The water quality study will compare the existing water quality in the study area (including reference sites) to established water quality criteria.
- The water quality study will assess the potential impacts to water quality from the construction and operation phases of the Project, develop of mitigation options; and include a residual effects assessment pursuant to CEEA guidance.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX C
Sediment Quality Assessment
See ATOR Section 7.3

- Sampling methodology will be outlined in the Application.
- The study area for the sediment assessment corresponds to areas proposed for dredging works. The Project involves dredging works for the wharf construction, ship channel extension, terminal land construction and material sourcing of fill for terminal land (borrow areas).
- Sediment quality sampling will involve collecting a total of 44 sediment samples including 19 surface grab samples (9 at geotechnical borehole locations and 10 at surface grab locations) and 25 samples collected at various depths from the 10 geotechnical boreholes.
- As per Environment Canada's *Ocean Disposal Regulations* and *Interim Contaminant Testing Guidelines*, each sample will be analysed for total metals (including trace metals mercury and cadmium), polycyclic aromatic hydrocarbons (PAHs), total organic carbon (TOC), and grain size. A representative number of samples (approximately 15 samples) will also be analysed for sulphur/sulphides for characterizing material to be used for beneficial use (i.e. fish habitat compensation projects).
- Mitigation and follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX D
Marine Environment Impact Assessment
See ATOR Section 7.4

- The assessment will address red and blue listed species identified through the Conservation Data Centre (CDC), species identified under the Species at Risk Act (SARA), and species identified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (*e.g.*, status as threatened, endangered, etc.); and also species identified through the traditional use study.
- A description of study methods, habitat surveys, sampling programs and results of fieldwork to determine existing environmental (baseline) conditions will be presented in the Application.
- The study area for the environmental assessment is based on the aerial extent of the program activities and their likely effects. The study area includes:
 - Areas proposed for the placement of fill, including sediment disposal sites;
 - The immediate dredge area including ship channel and turning basins;
 - Those specific areas in which the direct and indirect effects of the project may be felt; and
 - A wider area for comparison purposes when assessing the significance of those effects.
- The geographic scope of the marine assessment has been determined to be limited to:
 - The northwest by the influence of the Fraser River through Canoe Passage;
 - The southeast by the existing ferry terminal causeway;
 - The northeast by the existing shoreline;
 - 1 km to the southwest, as measured from the existing port facilities, for the majority of marine species; and
 - 5 km radius as measured from the existing port facilities for marine mammal survey.
- The impact assessment will include: review of existing literature; year long seasonal field studies; identification of VECs; assessment of effects; development of mitigation and compensation options; and a residual effects assessment pursuant to CEEA guidance.
- The impact assessment will also include discussion of any proposed habitat compensation works, which may be legally required in a federal *Fisheries Act* authorization in order to achieve “no net loss” of fish habitat. It will include sufficient detail to meet authorization for Harmful Alteration, Disturbance or Destruction (HADD) of Fish Habitat. Additional details will be provided in Section 11.0, Habitat Mitigation and Compensation Plan.
- The mitigation and compensation measures identified will be incorporated into the final Project design.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX E
Waterfowl and Coastal Seabird Impact Assessment
See ATOR Section 7.5

7.5.1 General

- The field program to collect baseline data will consist of bi-weekly bird surveys and will be conducted in collaboration with the Tsawwassen First Nation (TFN) and the Canadian Wildlife Service (CWS). The collected data feeds into two independent projects (the Roberts Bank Container Expansion Program and a CWS shorebird monitoring project). As such, the CWS partnership extends only so far as these two independent projects require the collection of similar data.
- Roberts Bank will be divided into five survey areas, plus one control area, as outlined below:
 - Control site: from the Main Arm of the Fraser River to the Canoe Pass Arm of the Fraser River;
 - From the Canoe Pass Arm of the Fraser River to the base of the Roberts Bank causeway;
 - From the base of the Roberts Bank causeway to the tip of the existing terminal (west side);
 - From the base of the Roberts Bank causeway to the tip of the existing terminal (east side);
 - Along the shoreline between the bases of the Roberts Bank causeway and Tsawwassen ferry terminal causeway; and
 - From the base of the Tsawwassen ferry terminal to the tip of the terminal (west side).
- The observers will count birds:
 - At five equally spaced observation points within each of the survey areas, resulting in a total of 30 observation points (25 project oriented observation points, 5 control observation points);
 - Twice a day (high tide and low tide) for the biweekly counts; and
 - At distance intervals of 100m inland to the daily high tide line (0m); from 0m to 250m; from 250m to 500m; and 500m plus.
- The impact assessment will include: review of existing literature; year long seasonal field studies; identification of VECs; assessment of effects; development of mitigation and compensation options; and a residual effects assessment pursuant to CEEA guidance.
- The assessment will address red and blue listed species identified through CDC, species identified under SARA, and species identified by COSEWIC (*e.g.*, status as threatened, endangered, etc.); and also species identified through the traditional use study.
- The mitigation and compensation measures identified will be incorporated into the final Project design.
- Follow up requirements associated with the construction and operation of the Project will be identified

7.5.2 Overhead Power Line Bird Impact Study

- An overhead power line bird impact study will be included in the Application, even though no power line upgrades are required for the Project. The goal of the proposed study is to test the efficacy of the vibration dampers installed in 1997/1998 on the causeway power lines to reduce collisions by birds.
- The 2004 study results will be compared to the results for census flights, flight activity, carcass searches and related data collected from historical 1994/1995 and 1998 studies where relevant.
- The study will estimate the number, species, chronology and spatial distribution of birds killed by collisions with the wires along the causeway through weekly searches under the transmission wires for bird carcasses using adapted methodologies in historical reports.
- The survey data will be analyzed with the current on-going Waterfowl and Coastal Seabird surveys to assess the number and species of birds at risk that use the overhead wires and assess the mortality of specific species.

APPENDIX F
Terrestrial Wildlife Environment
See ATOR Section 7.6

- The Application will provide information on study methodology.
- The study area is based on the aerial extent of the program activities and their likely effects. The geographic scope of the terrestrial wildlife assessments includes:
 - A 200m area on either side of the BC Rail line, westward from Highway 17 to the edge of the Port complex;
 - The areas proposed for the Roberts Bank causeway expansion (areas of proposed fill); and
 - Additional study area width for raptors up to 500m.
- The emphasis of the terrestrial wildlife assessment is on species at risk and their habitat, and species and habitats likely to be affected by the project footprint. The field surveys will focus on presence/absence and habitat use patterns. The Application shall discuss red and blue listed species identified through CDC, species identified under SARA, and species identified by COSEWIC (*e.g.*, status as threatened, endangered, etc.); and also species identified through the traditional use study when assessing potential project impacts.
- The impact assessment will include: review of existing literature; year long seasonal field studies (actual extent of field studies varies by study group, *e.g.*, birds, reptiles, etc.); identification of VECs; assessment of effects; development of mitigation and compensation options; and a residual effects assessment pursuant to CEAA guidance.
- The mitigation and compensation measures identified will be incorporated into the final Project design.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX G
Air Quality Impact Assessment
See ATOR Section 8.1

- The impact assessment will focus on health risks to people living in communities in closest proximity to the Roberts Bank facility. "Receptor locations" will be selected based on a number of criteria:
 - Proximity to the proposed expansion;
 - Predicted dispersion of the air emissions from the proposed project;
 - Size of population;
 - Land use; and
 - History of concern relating to the potential impacts of the air emissions on air quality and health.
- The impact assessment will also assess environmental receptors (*i.e.*, VECs). The air quality VEC selection process will be summarized in the Application.
- Baseline air quality conditions will be determined from local ambient air quality data and plume dispersion modelling. An emission inventory will be developed including the existing and proposed Deltaport facilities. Westshore facility and Tsawwassen Ferry terminal. The project emission inventory will be compared to the regional emission inventory developed by the GVRD to determine the relative contribution of project emissions to regional emissions.
- Climatology and meteorology data from the Vancouver International Airport, four GVRD meteorology stations and a wind direction and wind speed station located at the Westshore facility will be used as inputs into the air quality modelling.
- The impact assessment will include modelling air pollutant emissions from activities associated with the construction and operation of the Project. Air pollutants will include: Particulate matter (PM₁₀/PM_{2.5} from combustion sources and from fugitive dust sources), oxides of nitrogen (NO, NO₂), oxides of sulphur (SO₂), volatile organic compounds (VOC), carbon monoxide (CO), air toxics, PM₁₀/PM_{2.5} precursors; and ozone precursors.
- The impacts of the proposed Project on greenhouse gas emissions will also be evaluated.
- The impact assessment will estimate the emission inventory for both the construction and operational phases of the Project and compare this inventory against existing GVRD baseline inventories. Project sources may include construction emissions (combustion sources and fugitive dust emissions), marine vessel emissions, road traffic emissions and rail traffic emissions.
- Numerical dispersion modelling will be conducted using the model CALPUFF to estimate the incremental impacts of the Project on air quality in the vicinity of the local study area of the proposed Project.
- Results of the modelling will be compared to appropriate ambient air quality objectives and guidelines as an initial indication of level of risk.

- The impact assessment will include a human health risk assessment, which will meet the suggested requirements proposed in the *Health Risk Assessment from Air Emissions*, (Dr David Bates, published by the West Coast Environmental Law Association, 2002) and the BC Lung Association's *Health and Air Quality Report, Phase I* (BCLA, 2003).
- Mitigation options will be developed for both the construction and operational phases of the project. Mitigation options will focus on reducing air contaminants and greenhouse gas emissions.
- The impact assessment will also include a residual effects assessment pursuant to CEAA.

APPENDIX H
Noise Impact Assessment
See ATOR Section 8.2

- The study area for noise assessment will include the Roberts Bank Port facility and causeway, residential communities adjacent to the BC Rail line extending as far east as 156 St., and residential areas along the shoreline from the Roberts Bank causeway to Tsawwassen Beach.
- 48-hour noise monitoring will be conducted at four representative locations and these will be supplemented by short-term measurement sessions as required, to assess specific noise sources.
- The noise study will also look at low frequency sound waves and determine if the noted vibration response of window glass is due to impact noise from trains, specifically on the Tsawwassen First Nation reserve land.
- Future acoustic conditions associated with the proposed Project will be predicted and outlined in the Application.
- Potential socio-community and human health effects associated with future acoustic conditions will be identified.
- Appropriate measures for mitigating acoustic impacts of the proposed Project will be identified.
- Monitoring and follow up requirements associated with the proposed Project will be identified.
- The impact assessment will also include a residual effects assessment pursuant to CEAA.

APPENDIX I
Visual Landscape Impact Assessment
See ATOR Section 8.3

- The geographical scope of the Visual Landscape Impact Assessment will be presented in the Application; preliminary viewpoints have been identified as:
 - Tsawwassen First Nation Band Office;
 - BC Ferries causeway (pullout);
 - English Bluff hillside (park or residential backyard); and
 - Reiffel Bird Sanctuary viewing platform.
- Sensitive receptor areas with respect to visual attributes will be identified and described in the Application. Sensitive receptor areas are those areas that could be potentially impacted by the construction and operation of the Project.
- Changes in visual conditions and visual impacts in the sensitive receptor areas will be predicted for the construction and operation of the Project. The operational related impacts include those associated with rail, road and marine traffic and loading and unloading activities at Deltaport Third Berth.
- Appropriate mitigation measures will be identified to address the potential visual impacts associated with the construction and operation of the Project.
- The presence, significance and likelihood of residual visual effects will be presented after taking into account the implementation of proposed mitigation measures and follow up requirements.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX J
Lighting Impact Assessment
See ATOR Section 8.4

- The geographical scope of the lighting inventory and impact assessment will be presented in the Application. It is expected that baseline measurements will be taken:
 - At regular intervals within the existing container facility;
 - Around the perimeter of Deltaport as well as adjacent access roads and foreshore areas; and
 - At specific locations within a 5 km radius of Roberts Bank including English Bluff.
- Sensitive receptor areas and Valued Ecosystem Components (VECs) will be identified and described in the Application. VECs will include environmental and human health which could be potentially impacted by the construction and operation of the Project. Other environmental study groups (e.g., marine, wildlife, etc.) will provide input to VEC selection.
- Changes in lighting conditions in the sensitive receptor areas and to the VECs will be predicted for the construction and operation of the Project. The operational related impacts include those associated with rail, road and marine traffic and loading and unloading activities at the terminal.
- Appropriate mitigation measures will be identified to address the potential lighting impacts associated with the construction and operation of the Project.
- The presence, significance and likelihood of residual lighting effects will be presented after taking into account the implementation of proposed mitigation measures and follow up requirements.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX K
Socio-Economic Assessment
See ATOR Section 8.5

- An existing socio-economic profile of key base socio-economic conditions that could be potentially impacted by the construction and operation of the Project will be determined. These may include, but are not limited to:
 - **Socio-Community:**
Population and demographics, Land use, Resource use (including agricultural community), Health Services (Clinics, Ambulance, Hospital), Emergency Services (Police and Fire), Social Services, Schools, Traffic (Commuter and Residential use), Recreation, Visual and Noise Characteristics.
 - **Economic:**
Employment/job generation, Wages and Salaries paid, Goods and Services Purchased, Taxes paid, Economic Development, Labour Force, Local Businesses, Personal Income Characteristics, and Housing.
- First Nations' traditional knowledge, particularly Tsawwassen First Nation, will be used in conducting the socio-economic impact assessment. First Nations' input and use of traditional knowledge will assist in the identification of potential impacts to socio-economic resources that are of interest to First Nations.
- Potential socio-economic issues associated with the Project will be identified, and an assessment of socio-economic activities that may be affected by the Project will be provided. Direct employment and economic impacts will be based on existing study results and supplementary research. Secondary economic impacts (including indirect and induced impacts) will be estimated based on research and application of suitable multipliers.
- Mitigation measures will be identified that can be used to minimize potential negative impacts during construction and operation of the Project.
- The presence, likelihood and significance of residual socio-economic impacts will be presented in the Application.
- Follow up requirements associated with the construction and operation of the Project will be identified.

APPENDIX L
Archaeological Overview and Impact Assessment
See ATOR Section 8.6

8.6.1 Archaeological Overview:

- The archaeological overview assessment included in the Application will identify and assess archaeological resource potential or sensitivity within the proposed study area. The overview precedes an impact assessment and guides the impact assessment process by indicating areas of increased potential to find archaeological sites and recommending how to assess these areas in light of the proposed development.
- The overview will include a review of archaeological and traditional use information currently available. It will demonstrate why the areas selected are deemed to have archaeological potential.

8.6.2 Archaeological Impact Assessment:

- The Application will also include an archaeological inventory and impact assessment of the potential impacts from the Project and ancillary works.
- The impact assessment will follow the *BC Archaeological Impact Assessment Guidelines* and will locate and record archaeological deposits and assess their significance in relation to the scope of the proposed development. First Nations input will be included in the assessment of cultural significance of any identified archaeological resources.
- Measures for mitigating and/or compensating archaeological impacts of the proposed Project will be identified, if appropriate.
- The presence and significance of impacts to archaeological resources will be assessed considering the implementation of proposed mitigation measures.
- Study results will be provided in the Application subject to any confidentiality agreements with relevant First Nations.
- Follow up requirements associated with the construction and operation of the Project will be identified.