

# Phase 4 Viterra-Cascadia Terminal Capacity Expansion Project – PER Application

**Prepared for:**

**CANADIAN PACIFIC**

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VFPA PER NO. 20-095

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## LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
AEA	Aquatic Effects Assessment
AIA	Archeological Impact Assessment
Ausenco	Ausenco Engineering Canada Inc.
BC	British Columbia
BMP	Best Management Practice
CEMP	Construction Environmental Management Plan
CP	Canadian Pacific Railway
CRA	commercial, recreational, and Aboriginal fisheries
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EM	Environmental Monitor
EMBC	Emergency Management British Columbia
FAA	<i>Fisheries Act</i> Authorization
Hemmera	Hemmera Envirochem Inc.
Logistro	Logistro Consulting International Inc.
MCTS	Marine Communications and Traffic Services
MECCS	Ministry of Environment and Climate Change Strategy
MSDS	Material Safety Data Sheet
MWLAP	Ministry of Water, Land, and Air Protection
CNWA	<i>Canadian Navigable Water Act</i>
PER	Project and Environmental Review
QEP	Qualified Environmental Professional
SAR	Species at Risk
SARA	Species at Risk Act
SDS	safety data sheets
Terra	Terra Archaeology Limited
VFPA	Vancouver Fraser Port Authority
WHMIS	Workplace Hazardous Materials Information System

## LIST OF SYMBOLS AND UNITS OF MEASURE

Symbol / Unit of Measure	Definition
CD	chart datum
cm	centimeter
g	gram
ha	hectare
km	kilometre
m	metre
mm	millimetre
ug	microgram

## 1.0 INTRODUCTION

As part of the Vancouver Fraser Port Authority (VFPA) Burrard Inlet Road and Rail Improvement Project, Canadian Pacific Railway (CP) is proposing Phase 4 of the Viterra-Cascadia Grain Terminal (Terminal) along the south shore of Burrard Inlet, approximately 1,000 m east of the Second Narrows in Burnaby, BC. (Project). This permit Application covers site preparation, construction and operation of the Project, which will take place on federal lands within the jurisdiction of the Vancouver Fraser Port Authority (VFPA); the foreshore section of the Project is undesignated and in part under current CP lease. The purpose of the proposed extension is to improve overall mainline and switching operations at the Terminal facility. The increased track length will also add capacity for additional grain product unloading. A detailed description of the Project is provided in **Section 2.0** of this Project and Environmental Review (PER) Application. As the Project proponent, CP operates from its headquarters at 7550 Ogden Dale Road S.E., Calgary, Alberta, T2C 4X9. Additional information about CP is available on the corporate website at [www.cpr.ca](http://www.cpr.ca).

This Application has been prepared to meet the Category C Application Submission Requirements, sent on January 12th, 2021, for the VFPA Project and Environmental Review (PER) No. 20-095. The PER requirements were developed by the VFPA, based on the correspondence in early 2020 and a preliminary application submission in June 2020. The Application includes supporting studies that are provided as attachments, which may include appended documents that are identified as appendices.

To assist the reader in navigating the document and to demonstrate compliance with the submission requirements, a Table of Concordance has been prepared, and is included as **Attachment 1.1**. The Table of Concordance presents details of all completed studies in support of the Application.

### 1.1 Application Fee and Documentation Deposit

The Application fee of \$13,125 (including GST) and documentation deposit were provided ahead of submission via electronic transfer (May 28, 2021). The documentation deposit is based on 1% of the construction value of the portion of works within VFPA's jurisdiction, which is estimated to be \$30,000,000, to a maximum of \$10,000. As such, a documentation deposit of \$10,000 is provided with this submission.

### 1.2 Project Team Members Contact List

**Attachment 2** provides a central contact list for all Project team members including name, title, address, phone number, and email address.

## 2.0 PROJECT DESCRIPTION

This Project Description provides general information about the Project, introduces CP as the Project proponent, and presents an overview of the activities anticipated to occur during the Project's lifecycle.

Located on the south side of the Burrard Inlet in Burnaby, BC, the upland portion of the Project Area is believed to have been historically filled around 1886 when the CP rail line was constructed and again in the 1990's to accommodate the Westcoast Express track construction.

### 2.1 General Information

The following sub-sections provide a summary of the Project, an overview of the background of CP as the proponent, and the rationale guiding Project development. In addition, these sub-sections present the proposed Project setting and schedule; outline the intended land use including ownership and tenure; and summarize the approach for consistent land use at the Project Area.

#### 2.1.1 Project Summary

Phase 4 will require reconfiguration of existing tracks associated with the Chevron Parkland Refinery (Parkland) and construction of a new control point at Mile 123.00. CP is also proposing a rail track extension east of the Viterra-Cascadia Grain Terminal along the south shore of Burrard Inlet, 1,000 m east of the Second Narrows in Burnaby, BC. Freight volumes in and out of the Terminal have resulted in a shortage of track capacity during peak shipping season. The purpose of the proposed extension is to improve overall mainline and switching operations at the Terminal facility and remove bottlenecks in the transportation network. The increased track length will also add capacity for additional grain product unloading. The proposed track extension is located approximately 1,300 m east of the Cascadia Terminal and would increase the length of the existing third track by approximately 1,500 metres (m), as shown on **Figures 1a** and **1b** and **Figure 2**.

The proposed track extension will involve widening of the existing CP rail embankment, including placement of clean, engineered, fill material extending into Burrard Inlet resulting in permanent alteration and some permanent loss of intertidal fish habitat in the marine environment, as indicated in **Figure 3a and b**. The Project involves construction of fish habitat offsetting features within the intertidal and subtidal marine environment.

#### 2.1.2 Proponent Background

Founded in 1881 to connect Canada, CP delivers transportation solutions that connect North America and the world. The Terminal is a modern, multi-purpose marine terminal. The facility handles wheat, durum, canola, barley and rye, with a storage capacity of 280,000 tonnes<sup>1</sup>.

Since 1881, CP has helped connect people, build communities, and provide a vital transportation service to North Americans. CP's sustainability practices are rooted in this long-standing legacy and support CP's commitments of driving long-term value creation for all our stakeholders and building for the future.

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<sup>1</sup> <https://www.viterra.com/web/canada/cascadia-terminal-virtual-tour>



CP is committed to minimizing the environmental footprint of rail operations. In recent years CP has made significant enhancements to its network, operating practices and locomotive fleet, to dramatically improve the efficiency of their operations. Implementation of precision scheduled railroading, investments in refurbished locomotives, integration of fuel use best practices, and upgraded infrastructure and technology, have helped CP improve fuel efficiency by approximately 15 percent since 2012<sup>2</sup>.

CP remains committed, throughout the Project design and environmental assessment process and beyond, to implementing best available technology that balances environmental controls with capital and operating cost of the technology, while minimising adverse socio-community and environmental effects.

### **2.1.3 Project Location**

The Project is approximately centred at 49°17'25.6" N latitude and 123°00'13.2"W longitude, east of the Viterra-Cascadia Grain Terminal between CP Mile 123.006 and 124.160 in CP's Cascade Subdivision, within the City of Burnaby (see **Figure 1a** and **1b**). The Project Area encompasses the area of infilling required for the track expansion, the Phase 4 footprint is estimated to be approximately 30,000 m<sup>2</sup>.

### **2.1.4 Project Dates**

Construction of the Project is scheduled to commence in January 2022 and will be completed in three main phases, Zone 1 and Zone 2 (January – February 2022), Zone 3 and Zone 2 (August – December 2022), Offsetting Construction (December 2022 – January 2023).

### **2.1.5 Project Rationale**

Freight volumes in and out of the Terminal have resulted in a shortage of track capacity during the peak shipping season. In addition, the Terminal is also expanding capacity inside their own facility in order to prepare for the acceptance of increased grain volumes in unit trains. The increased track length will add capacity for additional grain product unloading.

### **2.1.6 Present and Future Land Use**

The Project Area is currently active and contains existing rail infrastructure. Upland portions of the foreshore are within VFPA proprietary jurisdiction. Marine portions of the Project are located entirely on federal lands designated by the Port of Vancouver's Land Use Plan as 'Port Terminal and Recreation'. CP will be obtaining a lease from VFPA for all areas not already within the existing lease area, including land portions and waterlot areas in support of the proposed offsetting.

The Project Area is bordered to the south by Montrose Park, Parkland Refinery, and Confederation Park moving west to east. Second Narrows Bridge and the Viterra Cascadia Terminal to the west (800 m), and the north is open to Burrard Inlet. South of Montrose Park, existing land use is residential (distance to nearest houses is approximately 170 m) and institutional (distance to nearest school approximately 90 m).

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<sup>2</sup> <https://www.cpr.ca/en/about-cp/corporate-sustainability>

## **2.2 Project Construction**

The Project involves construction of a rail track extension to the Terminal along the south shore of Burrard Inlet, 800 m east of the Second Narrows in Burnaby, BC. The proposed track extension is located approximately 1,200 m east of the Terminal and would create a fourth track between Mile 124.160 and 123.006 for a total length of approximately 2,000 m.

A detailed Project schedule will be developed once a construction contractor is procured, which is expected in Fall 2021.

## **2.3 Project Operation**

The proposed Project will not result in an increase in operations, only additional train car storage length. The Project will result in approximately 1,654m (5,427 ft) of additional track capacity at the east end of Track K09 resulting in total track capacity of 2,925m (9,595 ft) east of the Viterra grain dumper. This will provide sufficient track capacity to hold a full indexed grain train without the need to split cars or occupy the main tracks – which is a requirement based on the current track length and configuration. There will be no additional locomotives added to service the Viterra terminal based on current grain throughput volumes. The seasonality or daily timing of workload for switching will not change either.

### 3.0 PROJECT DRAWING REQUIREMENTS

Drawings and associated information needs, as identified in the Submission Requirements, are listed in the drawing concordance table (**Table 3-1**). Engineering drawings listed below have been prepared by qualified professionals and are provided in PDF format in **Attachment 5**. A separate digital file will be provided in AutoCAD format.

**Table 3-1 Drawing Concordance**

Drawing Requirements	Hatch Plan Number	Hemmera Drawing Number
<b>Location</b>		
Plan showing the relationship of the proposed Project to surrounding area at a 1:5000 scale	H362379-GA-100-S0-0001	-
<b>Site Plan</b>		
Lease and property boundaries, easements, and right-of-ways.	362379-PR-100S0-0005	-
Legal high-water mark where applicable.	-	Figure 3a and 3b
Location and dimensions of all existing and proposed buildings, structures, equipment, and marine structures.	H362379-RW-100-S0-0011-0017; H360165-CV-100-S0-0001-0002; and H360165-SR-100-S0-0002-0003	-
Access points including roadways, driveways, parking areas, walkways, berths, gangways, docks.	H362379-GA-100-S0-0001	-
Area of construction staging/laydown area.	-	Figure 4a - 4c
<b>Marine Structures</b>		
Site plan specific to proposed marine works only. Identify existing marine structures and those intended to be removed or relocated or will be impacted (e.g., storm water outfall impacted by rip rap placement).	H360165-CV-100-S0-0001-0002	-
Dimensions and cross sections of front, rear and two sides of proposed marine structures including dolphins, piles, docks, piers, gangways, floats, fenders, bollards, rip rap, navigational lighting, navigation aids, ranges, dredging channels, dams and areas to be filled etc.	H362379-RW-100-S0-0011-0017; H360165-CV-100-S0-0001-0002; and H360165-SR-100-S0-0002-0003	-
Dimensions and characteristics of proposed materials.	H362379-RW-100-S0-001	-
Structures in relation to the tidal Higher High Water and Lower Low Water lines including water depth.	H362379-RW-100-S0-001	-

Drawing Requirements	Hatch Plan Number	Hemmera Drawing Number
<b>Utilities</b>		
Separate plans showing existing and proposed utilities.	H362379-GA-100-S0-0001	-
Provide written confirmation of which other authorities or jurisdiction will need to provide consent or conduct works to establish connections to utilities, and confirmation that capacity exists within those 3 <sup>rd</sup> party networks.	N/A	-
The Applicant is responsible for location of all existing utilities. VFPA will provide known utility information, but location of buried utilities must be confirmed by the applicant.	N/A	-
<b>Rail</b>		
Existing and proposed rail tracks, switches, and other associated rail works. (both on and off site to support the proposed development).	H362379-GA-100-S0-0001	-
Provide name/number for each track shown on plans; ideally show rail plans with orthophoto overlay and lease boundaries depicted	H362379-GA-100-S0-0001	-

#### 4.0 REQUIRED STUDIES, REPORTS, AND PLANS

The following sections summarize the required studies, reports, and plans submitted to satisfy the PER Application Submission Requirements. Reports include stand-alone technical data reports, which document existing conditions within the Project Area as well as effects assessments. Plans for the Project identify management and mitigation measures during construction and operation to address potential adverse effects of the Project. **Table 4-1** provides a list of all required studies, reports, and plans that were completed for the Project.

**Table 4-1 Required Studies, Reports, and Plans**

Required Studies, Reports, and Plans	Location
Hazardous Materials Handling <sup>3</sup>	Attachment 6
Geotechnical Report	Attachment 7
Rail Operations Plan	<b>Section 2.3</b>
Marine Construction & Staging Plan	Attachment 8
Marine Communications Plan	Attachment 9
Navigation Impact Assessment	Attachment 10
Hydraulic Process and Alteration Report	Attachment 11
Noise Study	Attachment 12
Archaeological Potential – Preliminary Assessment	Attachment 13
Archaeological Overview Assessment	Attachment 13
Construction Environmental Management Plan (CEMP)	Attachment 6

Required Studies, Reports, and Plans	Location
Vegetation Plan	Attachment 14
Soil/Sediment Management Plan	Attachment 6
Biophysical Survey Report	Attachment 14 and 15
Nesting Bird Survey	<b>Section 4.2.8</b>
Species-at-Risk Assessment	Attachment 14
Invasive Species Assessment	Attachment 14
Spill Prevention and Emergency Response Plan (on land and water)	Attachment 6

#### 4.1 Project Studies and Report

The Project Studies and Reports described below were completed by qualified professionals in their respective fields.

##### 4.1.1 Hazardous Materials Handling

Hemmera prepared sections of the CEMP (**Attachment 6**) to meet Hazardous Materials Handling requirements. The Environmental Emergency Plan section identifies stored chemicals that will be temporarily onsite during Project construction.

During the operation phase cars operating along the rail corridor and within the Project Area will carry non-hazardous materials (i.e., grains, oilseeds and pulses) and, therefore, any spills will be encompassed within the Emergency Response Plan (**Attachment 6, Section 8**). No hazardous materials will be stored on site during operations.

The Hazardous Materials Handling section recommends measures for the storage, handling, and recycling or disposal of hazardous building materials prior to and during demolition to best address the identified hazardous materials, including retaining an abatement specialist contractor to manage handling and removal processes. Handling of hazardous building materials, adherence to contract specifications, quality control, and final acceptance of the work remain the responsibility of CP.

##### 4.1.2 Geotechnical Report

Geotechnical investigations were completed by Golder Associates Ltd. (Golder) and summarized in their Geotechnical Report (**Attachment 7**). The purpose of this investigation was to determine the subsurface conditions in the Project Area and, based on this information, to provide the engineering inputs on geotechnical aspects for the route option selection and preliminary design of the project. Golder executed two drilling programs: (i) an onshore drilling investigation within the footprint of the existing northern track and (ii) an intertidal drilling investigation on the shoreline along the eastern segment of the proposed track expansion.

In general, the subsurface soils at the Project consist of fill (on CP existing railway embankment), silt, silty clay to clayey silt, silty clay, clayey silt, and silty sand.

## 4.2 Existing Conditions and Project Effect Reports

Existing conditions for the Project for biophysical and socio-community components were documented in technical data reports, and potential Project-related effects were considered in assessment reports. This section summarizes the technical data reports and Project effects assessments conducted in the vicinity of the Project.

The environmental components selected for inclusion in the Application are listed in **Section 4** of the PER Application Submission Requirements. **Table 4-1** above, identifies the technical data reports completed and their location within this Application.

### 4.2.1 Navigation Impact Assessment

Logistro Consulting International completed the navigational risk, impacts and mitigation assessment for the Project (**Attachment 10**). The scope of the study was to review safety of navigation and operations related to the construction of the Project in VFPA's waters including the requirement for the Contractor's<sup>3</sup> vessels to navigate through two marine control areas; First Narrows (Traffic Control Zone 1) and Second Narrows (Traffic Control Zone 2) and maintain safe navigation. These detailed and comprehensive Traffic Control Zones have been developed by VFPA to mitigate risks associated with navigation through the "narrows".

The Contractor has not been selected but the marine navigation requirements will be the same as for all other commercial navigation in the Port of Vancouver. The navigation impact assessment was conducted based on an assessment of typical marine equipment such as cranes on barge, marine barges for construction materials, support tugs and work boats. The selected Contractor will be required to provide to VFPA Marine Operations the specific number and dimensions of proposed marine equipment intended for use. Further, based on the detailed equipment list, specific working requirements may apply to the Contractor working in and around the Project Area. Based on the proposed construction methodology, the Project will conservatively generate the movement of two additional barges to the regular daily Port of Vancouver traffic over the Project construction window. This is based on transportation of approximately 1000 tonnes per day during the construction windows.

Several procedures and mitigation measures are in place to ensure the safety and security of marine activities. The proposed Contractor's vessels will be sailing through waters under VFPA jurisdiction that has well established practices and procedures to ensure safety of navigation. Once the Contractor is selected by CP, they will be required to prepare a project-specific Marine Activities & Operational Plan (MAOP) addressing all anticipated marine navigation/operation activities of its entire marine assets and equipment proposed for construction of the Project, and also any applicable mitigation measures to alleviate impacts to navigation specific to the proposed works. The MAOP will be submitted to VFPA for review and approval following selection of the Contractor and prior to the start of construction.

The review and analysis of the overall regulatory framework (Transport Canada, Canadian Coast Guard, Port of Vancouver, Pilotage, etc.) indicates very high-level requirements are presently in place to oversee marine safety, security and environmental protection in Canada in general and in the Port of Vancouver in particular. CP will also be applying for a *Canadian Navigable Waters Act* assessment for the Project.

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<sup>3</sup> The Contractor has not been selected by CP.

As far as marine traffic management, monitoring and control, the VFPA, Canadian Coast Guard (CCG) and the marine community have state of the art equipment and systems to ensure safe navigation within Port of Vancouver waters. The First and Second Narrows channels transit procedures are well established to ensure safety and security. Moreover, the marine infrastructures in both narrows are well designed for strength and equipped with protection against accidental vessel strikes.

#### **4.2.2 Hydraulic Process and Alteration Report**

Ausenco completed the Hydraulic Process and Alteration Report (**Attachment 11**). The potential impacts on hydraulics within Burrard Inlet due to the construction of the widened embankment and placement of engineered fill material (riprap) were investigated.

It is expected that the average velocity of the hydraulic flow through the channel section at the embankment could increase by up to 0.21% during HHWLT and less than 0.1% at MWL. Further, the flow disturbance is expected to be primarily confined to the areas adjacent to the embankment. These are designed to resist scour as a result of their interaction with the flow. This is not expected to result in a measurable impact on the overall morphology of the Inlet. Furthermore, the channel flow velocity will revert to existing velocities both upstream and downstream of the Project Area.

The effect on flow hydraulics, if any, within the Second Narrows Traffic Control Zone (i.e., TCZ-2) is expected to be unnoticeable for navigational purposes.

#### **4.2.3 Noise Assessment**

CP completed Appendix I of the PER Guidelines - Environmental Noise for the proposed Project construction activities. Based on the assessment results, the Weighted Project Score is 21, which is below the 30 points threshold and, therefore, a detailed noise assessment is not required. The Noise Assessment Project Score Sheet is appended as **Attachment 12**. There are no recorded noise complaints specific to the Project Area. Recorded noise complaints are situated west of Mile 125 where the Viterra Cascadia Terminal is located, with Columbia Containers and CP's K and L Yards also in the vicinity.

As per the PER Guidelines - Environmental Noise is intended for the assessment of "potential noise impacts associated with operational activities and proposed projects" and the VFPA has separate guidelines for addressing construction phase noise: PER Guidelines – Construction Environmental Management Plan (CEMP). The CEMP (**Section 4.3.3, Attachment 6**) identifies mitigation that would be applied to temporary noise from construction activities. The hours of work will be consistent with the VFPA's standard work hours of Monday to Saturday 7:00 am to 8:00 pm. However, the Contractor has not been selected by CP and if it becomes necessary to work outside of these hours (which appears likely given the requirement to focus fill placement below the HHWLT during low tides), a request for extended work hours will be submitted to VFPA after issuance of the PER permit.

#### **4.2.4 Archaeological Potential – Preliminary Assessment**

See **Section 4.2.6**.

#### **4.2.5 Archaeological Overview Assessment**

See **Section 4.2.6**.

#### 4.2.6 Archeological Impact Assessment

Terra completed an AIA for the Project (**Attachment 4.2.4**). The entire Project area was surveyed on foot by a crew of two on June 22, 2020. Ninety-five bagged geotechnical samples, and nine boxed core samples from 11 geotechnical tests (boreholes) were examined at Golder's Burnaby laboratory.

On-site monitoring of the geotechnical testing program was considered impractical due to safety and logistics concerns which restricted on-site inspection of drilling activities; however, excavated samples were examined off site on August 12-13, 2020, shortly after completion of the drilling program.

Four possible lithic artifacts were collected from the intertidal zone adjacent to Rainbow Creek during the survey on June 22, 2020. These were examined at Terra's lithics laboratory. Three of these were determined to be non-cultural. The remaining artifact is a fine-grained volcanic platform remnant bearing flake. A thorough search of the surrounding area on June 22 and on August 20 did not result in any additional finds; in addition, six shovel tests in the vicinity of the find did not identify any intact or disturbed archaeological deposits. However, as the single artifact has been collected, and potential project activities in this location do not involve excavations, no further archaeological work (i.e., construction monitoring) is recommended for the Viterra-Cascadia Terminal Capacity Expansion Project.

Several project design options are currently being considered, including design(s) which involve infilling to extend the existing railway bed north over the intertidal zone, including the DhRr-895 site area. Avoidance is the preferred management option for site DhRr-895.

An Archaeological Chance Find Procedure has been developed for the Project and is included in CEMP (**Attachment 6**). A 1 hr Cultural and Archeological Awareness Presentation will be given to all on-site staff. A Cultural Monitor will ensure communications with all involved Indigenous communities continue for the duration of this Project. This will provide an effective forum for archaeological or heritage concerns to be raised, discussed, and addressed in a timely manner.

#### 4.2.7 Biophysical Survey Report

Hemmera conducted a Species at Risk and Invasive Species Assessments with Vegetation Overview Plan (**Attachment 14**, and Aquatics Effects Assessment (**Attachment 14 and 15**, respectively) and in accordance with VFPA's Project PER Guidelines for Habitat Assessment. The two reports assess Project-related effects on fish and fish habitat, invasive species, and species of conservation concern. The assessments reviewed both potential effects in the Burrard Inlet and in upland watercourses.

The Project is located just east of the Second Narrows, a 600 m wide narrowing in the inlet which results in high tide-driven currents that can reach up to ~6 knots. Marine and intertidal substrates at the Project are predominantly cobble and boulder (including rip rap) from +3.6 m to -1.0 m CD with sand, silt, and gravel dominating depths of about -1 m to -5.5 m CD. The intertidal marine assemblages within the Project Area are typical of those commonly observed on hard substrates in Vancouver Harbour. Riparian vegetation occurs as an approximately 3 – 6 m wide band (average of 5 m) of low-density, scattered vegetation concentrated near the crest of any rip rap.



The Project may result in potential effects to aquatic and riparian resources, including changes to aquatic sediment concentrations, changes in aquatic contaminant concentrations, changes in habitat structure and cover, and incidental injury or mortality of fish.

The Project is expected to result in the destruction of a total of approximately 11,314 m<sup>2</sup> of fish habitat. This will require offsetting as part of a DFO *Fisheries Act* Application (FAA).

Project-related effects are anticipated to be addressed through the application of appropriate mitigation measures, including adherence to the CEMP, BMPs, and Offsetting Plan.

#### 4.2.8 Nesting Bird Survey

Vegetation clearing will occur outside the nesting bird risk window of March 15 – August 15 and, therefore, nesting bird surveys are not required for this work. Should vegetation clearing occur within the timing window, nesting bird surveys will be conducted prior to clearing.

During foreshore surveys, song sparrows (*Melospiza melodia*) were observed in marine riparian vegetation and upland of the railway tracks. Northwestern crow (*Corvus caurinus*) and glaucous-winged gulls (*Larus glaucescens*) were observed flying over the Project Area, while double-crested cormorant (*Phalacrocorax auritus*), Canada geese (*Branta canadensis*), unidentified ducks (Anatidae), and unidentified gulls (Laridae) were observed flying over the water near the Project Area. Additionally, numerous waterfowl such as double-crested cormorant and unidentified ducks were floating several hundred metres offshore.

There are bird species that are provincially or federally at-risk with the potential to use the Project Area (**Attachment 14, Section 4**). These species are either have a low likelihood of occurring at the Project Area or are anticipated to avoid the Project during construction activities.

In summary, the Project has the potential to disturb birds during Project preparation, vegetation clearing, and construction activities; however, the application of a CEMP and adherence to BMPs are anticipated to mitigate potentially adverse effects (**Attachment 14, Section 4.2.2**).

#### 4.2.9 Species at Risk Assessment

Hemmera identified all federal and provincial listed species-at-risk associated with the Project through desktop analysis and field survey. From the desktop research, 110 species were identified; however, suitable habitat at or near the Project area potentially exists for only 27 of the 110 species identified: 14 birds, 9 mammals, 3 amphibians, 1 snake, and 1 turtle.

The species at risk identified during the desktop research face an elevated risk due to their rare occurrence and often specific habitat requirements. Most of these species are not expected to be affected by Project activities, however, due to their habitat preferences differing from most of the habitat located within the work area. The species at risk with a moderate to high potential to occur within the Project area are summarized in Attachment 14; Section 4, including their habitat needs and potential impacts and interaction with Project activities.

Mitigation measures are included in the CEMP (**Attachment 6**).

#### 4.2.10 Invasive Species Management

Previous work conducted in the area (Hemmera 2020a) identified recorded occurrences of non-native and invasive species Himalayan balsam (*Impatiens glandulifera*), Himalayan blackberry, English ivy (*Hedera helix*), buttercup species, and Japanese wireweed (*Sargassum muticum*) (**Attachment 14; Section 5**).

Mitigation measures for invasive plant management are included in **Attachment 14, Section 5.2**. The general guidelines for invasive plant management during vegetation removal include:

- Before clearing any vegetation, confirm that a QEP has checked all areas of disturbance for the presence of invasive vegetation. Where invasive vegetation is present, a site-specific Invasive Species Management Plan will be required; include mitigation measures in the plan for working in and around areas of invasive vegetation.
- Minimize the vegetation clearing area to the extent practicable. Minimize excessive soil disturbance to the extent practicable when removing invasive species to avoid new introductions.
- Clear vegetation toward patches of invasive species to prevent spread into un-infested areas.
- Dispose of all above-ground parts of invasive species and any excavated soil containing roots at an approved landfill following protocols as described by the Invasive Species Council of Metro Vancouver (2020); do not compost or leave on site.
- Inspect footwear, clothing, and equipment to confirm they are free of invasive alien species, individuals, seeds, propagules (i.e., any other material that may cause the species' spread) and pathogens.
- Clean and inspect equipment before arriving and before leaving the worksite.
- Clean and inspect equipment daily and at a regular basis, especially when working near areas with invasive species.
- Obtain all untreated construction lumber, erosion and sediment control products (e.g., straw, mulch), or other applicable materials from outside the Project area from a certified weed-free source.
- Minimize bare soil exposure to the extent practicable (e.g., cover stockpiled material with tarps, plant native species, cover with natural mulch/ground coverings etc.).

### 4.3 Project Plans

#### 4.3.1 Rail Operations Plan

The Project will re-configure the CP Cascadia-Viterra railway spur, which will enhance the capacity of rail car storage on the way to Viterra grain terminal. Existing rail traffic will not increase, as outlined in **Section 2.3** above. Project rail reconfiguration is shown on the rail drawings in **Attachment 5** (Project Drawing Requirements) of the PER Application.

#### 4.3.2 Marine Construction and Staging Plan

Hemmera has prepared a Marine Construction and Staging Plan (**Attachment 8**) that describes the construction methods of the rock infills required for the slope expansion planned for the east section of the Project. A Project Schedule provides anticipated start and end dates of specific activities.

## **Marine Communications Plan**

Logistro has prepared a Marine Communication Plan (**Attachment 9**) that provides the Requirements Prior to Commencing Work, Requirements During Work and Requirements at the Termination of Project. A contractor-specific Marine Communications Plan will be required once the Contractor is selected.

### **Requirements Prior to Commencing Work**

At least 10 days prior to commencement of work, the Contractor is required to prepare and submit to VFPA for approval a project-specific MAOP addressing all anticipated marine navigation/operations activities of its entire marine assets and equipment involved and have mitigation measures to alleviate impacts.

At least 10 days prior to commencement of work, the Contractor is required to prepare and submit to VFPA for endorsement the required Stakeholder/Concerned Parties Awareness Lists, Notification Protocol, and Notifications or sample copies.

At least 10 days prior to commencement of work, the Contractor shall notify DFO and the Canadian Coast Guard.

### **Requirements During Work**

Over the duration of the Project work, the Contractor must ensure the following: quality & reliability, reporting, regular meetings with VFPA other parties (if requested by VFPA or CCG), weekly advisories/notices (e.g., NAVWARN), marine notification, and public notification.

### **Requirements at the Termination**

At the end of the Project/work, the Contractor must ensure the following: notification, NOTSHIP removal, closing of the project (lessons-learned).

### **Miscellaneous**

Several other marine communication requirements may be required including Standby Tug (Assist Vessel) requirements, Noise and Light Mitigation, Discharge Notification, Black and Grey Water Treatment, and hydrographic surveys.

### **4.3.3 Construction Environmental Management Plan**

The CEMP (**Attachment 6**) was prepared by Hemmera consistent with the VFPA Guidelines. Included in the CEMP are measures that will avoid or mitigate potential construction-related effects to environmental resources and the surrounding community. Best practices proposed in the CEMP are based on Project scope and design, existing environmental conditions of the site, recommended mitigation based on assessments completed at the Project Area to date, and industry-standard environmental construction techniques. On-site environmental monitoring of the construction works is a key component for compliance with the CEMP.

The following elements are considered in the CEMP:

- General Practices
- Site Access, Mobilisation, and Laydown Areas
- Air Quality
- Noise and Vibration
- Water Quality
  - General best practices
  - Erosion and Sediment Control
  - Water Quality Monitoring Plan
  - Water Quality Contingency Plan
- Machinery and Equipment
- Contaminated Soil and Groundwater Management
- Vegetation and Wildlife Management
- Marine and Foreshore Works
  - Marine Lifeform Salvage
  - Marine Mammal Monitoring Plan
- Freshwater Habitat Management
- Archaeological and Cultural Resources
- Sensitive Habitat Features and Species
- Emergency Response Plan
  - Emergency Communication
  - Environmental Emergency Plan
  - Spill Response Plan
- Fuel Management
- Waste Management
- Mitigation Contingency Measures.

The Project is located on federal land administered by VFPA; therefore, federal and VFPA acts, regulations and policies are applicable to the site. The Contactor will be responsible for preparing work plans that comply with the CEMP and having all required permits necessary to undertake the construction and ensure compliance with the terms and conditions of these permits.

#### **4.3.4 Vegetation Plan**

Hemmera prepared a description of vegetation removal, topography, hydrology, substrate and vegetation removal area and species lists as part of the Species at Risk and Invasive Species Assessments with Vegetation Overview Plan (**Attachment 14, Section 3**).

#### 4.3.5 Soil/Sediment Management Plan

Contaminated soil and groundwater has not been identified on-site during previous investigations, and as such, works on-site are not anticipated to encounter impacted soil and/or groundwater. Hemmera prepared the Contaminated Soil and Groundwater Management section, as part of the CEMP (**Attachment 6; Section 5.7**), for use in the unlikely event that contaminated soil or groundwater are encountered.

#### 4.3.6 Spill Prevention and Emergency Response Plan

Hemmera prepared the Emergency Response Plan, and Spill Response Plan, as part of the CEMP (**Attachment 6, Section 8.3**), which provides guidance for on-site and off-site personnel on the required actions for preventing and responding to spills and emergencies. This plan also provides guidance to mitigate the risk of environmental contamination from the accidental release of deleterious materials by providing clear procedures for their storage and handling, as well as clear plans of action should such a release occur.

Emergency response planning includes an emergency response hierarchy, response tiers (i.e., level of response), roles and responsibilities, resources, and internal and external communications that will be implemented during and after an incident at the Project Area.

## 5.0 CONSULTATION REQUIREMENTS

### 5.1 Indigenous Engagement

Hemmera has prepared an Indigenous Engagement Summary (**Attachment 16**) that describes which Indigenous communities were engaged, as well as engagement objectives and activities, as well as feedback, issues, and interests raised by Indigenous communities up to December 18, 2020.

Indigenous communities with potential overlapping interests were identified through the BC Consultative Area Database (CAD). Although not identified through CAD, Kwikwetlem First Nation was also engaged due to their existing relationship with CP, as well as interest and involvement in the Viterra-Cascadia Expansion – Phase 3 project. The following Indigenous communities were identified as having potential overlapping interests with the Project, and were therefore engaged throughout the planning and application process:

1. Cowichan Tribes
2. Halalt First Nation
3. Kwikwetlem First Nation
4. Lake Cowichan First Nation
5. Lyackson First Nation
6. Musqueam Indian Band
7. Penelakut Tribe
8. Seabird Island Band
9. Squamish Nation

10. Stó:lō Nation including:
  - Shxw'ōwhámél First Nation
  - Skawahlook First Nation
  - Soowahlie First Nation
  - Stó:lō Tribal Council
11. Stz'uminus First Nation
12. Tseil-Waututh Nation

Engagement commenced on April 9, 2020 with an introductory letter outlining the scope and rationale for the Project and requesting that the Indigenous communities express their level of interest in the Project. Subsequent to CP's communication, Kwikwetlem First Nation, Tseil-Waututh Nation, Musqueam Indian Band, and Squamish Nation expressed their interest in the Project. Halalt First Nation indicated they did not require further engagement on the Project, and Stó:lō Nation deferred the Project to Musqueam Indian Band, Squamish Nation, and Tseil-Waututh Nation. As of December 18, 2020, the following Indigenous communities have not formally responded to the Project Introduction Letter and follow-up correspondence:

- Cowichan Tribes
- Lyackson First Nation
- Penelakut Tribe
- Seabird Island Band
- Stz'uminus First Nation
- Ts'uubaa-asatx Nation (formerly known as Lake Cowichan First Nation)

CP continues to reach out to Indigenous communities that have not responded to confirm receipt of the introduction letter and offer opportunities for further engagement. Specific dates of correspondence are provided in Attachment 16; Appendix B.

### 5.1.1 Engagement Objectives

CP engaged Indigenous communities early in the application planning and preparation process. Engagement objectives for the Project include:

1. Identify Indigenous communities with Aboriginal Interests (i.e., Aboriginal rights, including title) overlapping the Project area.
2. Develop collaborative working relationships with potentially impacted Indigenous communities by sharing Project information and providing opportunities for Indigenous communities to share comments, concerns, and recommendations regarding Project activities.
3. Help ensure that potential adverse impacts to Aboriginal Interests related to the Project are appropriately identified, mitigated, and/or otherwise addressed.

CP is committed to fostering and maintaining regular communications throughout the Project's planning and permitting phases, including the Porth Authority's formal consultation period, and as required during the construction phase.

### 5.1.2 Key Engagement Activities

To date, key engagement activities have included the following (see Table 2 in **Attachment 16**):

- Providing Indigenous communities with a Project introduction letter
- Following up with Indigenous communities by phone and email to confirm receipt of the Project introduction letter
- Answering initial questions
- Holding introductory meetings, as requested
- Providing opportunities to participate in the archaeological program, as requested
- Holding fisheries offsetting workshops, as requested
- Providing key Project documents to Indigenous communities, as requested (e.g., Draft Archaeological Impact Assessment Report<sup>4</sup>, Draft Aquatic Effects Assessment<sup>5</sup>, and Draft Geotechnical Report<sup>6</sup>).

Offsetting has been a key engagement activity with Kwikwetlem First Nation and Tsleil-Waututh Nation, and CP has held multiple meetings with both Indigenous communities to discuss offsetting efforts. CP continues to work with Musqueam Indian Band to organize an offsetting workshop. Kwikwetlem First Nation and Tsleil-Waututh Nation have reviewed and provided comment on the draft Aquatic Effects Assessment and draft Offsetting Plan. The Draft Offsetting Plan has also been shared with both Musqueam Indian Band and Squamish Nation. Offsetting discussions will remain ongoing.

### 5.1.3 Feedback, Issues and Interests

Indigenous communities feedback, issues, and interests shared with CP, and CP's responses to these issues and concerns are detailed in **Appendix B**. Common feedback, issues and interests shared by multiple Indigenous communities include:

- Archaeology
- Avoidance or minimization of geotextiles
- Fish and fish habitat, including riprap
- Specific feedback on individual species of vegetation and fish including bull kelp, crabs, salmon, and herring and invasive species.
- Ongoing engagement including construction environmental monitoring opportunities, review of environmental management plans, and discussions on offsetting activities.

CP will continue to work collaboratively with engaged Indigenous communities to obtain their feedback on the Project, consider appropriate mitigation measures, and to facilitate their involvement in ongoing Project activities.

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<sup>4</sup> Terra Archaeology Limited. 2020. Viterra-Cascadia Expansion Project – Phase 4. Archaeological Impact Assessment (October 2, 2020).

<sup>5</sup> Hemmera Envirochem Inc. 2020a. Viterra-Cascadia Expansion Project – Phase 4. Aquatic Effects Assessment ( November 9, 2020).  
Golder. 2020b. Viterra-Cascadia Expansion Project – Phase 4. Geotechnical Site Investigation Report ( November 20, 2020).

## 5.2 Stakeholders

The proposed Project may have an impact on stakeholder interests. Stakeholder notification and consultation will be led by the VFPA during the application review phase with the involvement of the Applicants at the request of the VFPA (responding to stakeholders, attending meetings etc.). The following stakeholders will be involved:

- City of Burnaby
- Metro Vancouver
- Parkland Refinery

VFPA may revise the list of stakeholders upon acceptance and review of a complete Project Application.



## 6.0 OTHER REQUIREMENTS/CONSIDERATIONS

### 6.1 Fisheries and Oceans Canada Review and Offsetting

An Aquatic Effects Assessment (AEA) dated October, 2020 was prepared by Hemmera and formed the bases for development of mitigation strategies and habitat offsetting for residual impacts as a result of the embankment infill.

In summary, a total of 56,265 m<sup>2</sup> of habitat will be affected with 29,185 m<sup>2</sup> requiring offsetting. Further details can be found in **Attachment 15**.

Hemmera prepared an Offsetting Plan, which was, along with other supporting documents, submitted to DFO for consideration and issuance of a Fisheries Act Authorization, details can be found in **Attachment 17**.

In order to gain input from Indigenous Communities and provide opportunities for the identification of any additional fisheries management objectives or goals, an effort was made to meet with those Indigenous Communities with traditional territories and interests overlapping with the Project. As of the date of this Offsetting Plan, workshops to discuss the Project and potential offsetting were undertaken with the Tsleil-Waututh Nation and Kwikwetlem First Nation on August 11, 2020. An additional workshop took place with both the Tsleil-Waututh Nation and Kwikwetlem First Nation on October 28, 2020 and November 2, 202, respectively.

### 6.2 Transport Canada Review

Hemmera is preparing and will be submitting a “Notice of Works” package to Transport Canada, in accordance with the federal *Navigation Protection Act*. Once this application has been submitted to Transport Canada, a copy of the submission package with reference to date of submission will be provided to VFPA.

### 6.3 Land Requirements

CP will need to obtain land and water lot leases from VFPA, in support of both the Project infrastructure and the offsetting works (as described in **Section 6.1**).

## 7.0 CLOSURE

This Work was performed in accordance with the Contract (Number 5600019939) between Hemmera, a wholly owned subsidiary of Ausenco, and Canadian Pacific, dated April 30<sup>th</sup>, 2020. This report has been prepared by Hemmera, based on fieldwork conducted by Hemmera, for sole benefit and use by Canadian Pacific. In performing this work, Hemmera has relied in good faith on information provided by others and has assumed that the information provided by those individuals is both complete and accurate. This work was performed to current industry standard practice for similar environmental work, within the relevant jurisdiction and same locale. The findings presented herein should be considered within the context of the scope of work and project terms of reference; further, the findings are time sensitive and are considered valid only at the time the report was produced. The conclusions and recommendations contained in this report are based upon the applicable guidelines, regulations, and legislation existing at the time the report was produced; any changes in the regulatory regime may alter the conclusions and/or recommendations.

If there are any questions, please do not hesitate to contact the undersigned by phone at 236-808-5396.

Report prepared by:  
**Hemmera Envirochem Inc.**

***DRAFT***

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