Fraser Surrey Canola Oil Transload Facility

Project Environmental Review (PER) Application for a S.82 *Impact Assessment Act* Permit
Vancouver Fraser Port Authority PER No. 22-017

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Application Form

Form provided on the ePER Portal.

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Abbreviations

AOA	Archaeological Overview Assessment
BATNEC	Best Available Technology Not Entailing Excessive Cost
BC	British Columbia
CD	Chart Datum
CEMP	Construction Environmental Environment Plan
CSD	Crude Super Degummed
DFO	Fisheries and Ocean Canada
DWT	deadweight tonnage
km	kilometres
m^2	square metres
m	metres
MCC	Motor Control Center
MSDS	Material Safety Data Sheet
MT	Metric Tonne
OD	Outer Diameter
PER	Project Environmental Review
PLC	Programmable Logic Control
POV	Personally Owned Vehicles
RBD	Refined, Bleached and Deodorized
SARA	*Species at Risk Act*
VFD	Variable Frequency Drives
VAC	volt alternating current
VFPA	Vancouver Fraser Port Authority

1.0 INTRODUCTION

1.1 GENERAL OVERVIEW

DP World Canada Inc. (DP World) is proposing to develop a canola oil transload facility (the Project) at DP World's Fraser Surrey Terminal (see Dwg 7704-GA-000) located at 11060 Elevator Road, Surrey, British Columbia (the site). The Project includes development of new marine infrastructure to support vessel mooring and loading at the existing Berth 10, and the development of canola storage facilities and supporting transfer infrastructure on a parcel of land within the leased DP World Fraser Surrey terminal area. The Project site is within federal lands and waters managed by the Vancouver Fraser Port Authority (VFPA).

The Project is subject to Category C application review under VFPA's Project Environmental Review (PER No 22-017) process intended to satisfy Section 82 of the *Impact Assessment Act*. DP World has prepared this Application submission and accompanying drawings, supporting studies and reports in accordance with the PER Application Submission Requirements (draft) issued by VFPA on April 19, 2022.

This document provides an overview of the information submitted as part of the PER application, outlines specific content to support this Application, and highlights where specific requirements can be found within the supporting material.

1.2 DP WORLD FRASER SURREY

DP World Canada is Western Canada's premier container terminal operator, part of a global network of over 295 business units across six continents, employing a dedicated, professional workforce of over 97,000 employees. In western Canada, DP World operates ports and terminals at Prince Rupert, Vancouver, Nanaimo (Duke Point), and Fraser Surrey.

DP World leases a property from VFPA at 11060 Elevator Road in Surrey, BC for the operation of the Fraser Surrey Terminal. The terminal currently handles containers, steel, agri-bulk, and break-bulk cargo via marine, truck, and rail gateways. The terminal is one of the largest multi-use terminals on the west coast of North America, currently comprising seven vessel berths, three quay cranes with lifting capacities of up to 70 metric tons, over 190-acres of terminal footprint and three sheds with 30,900 square metres (m^2) of covered warehouse storage. DP World Canada acquired operating rights for the terminal in 2020.

For more information about DP World Canada and the Fraser Surrey Terminal, please visit the DP World website www.dpworldcanada.com.

1.3 PRIMARY CONTACT INFORMATION

The primary contacts for the Project are:

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1.4 BUILDING PERMIT

The preparation, application and coordination of project building permit(s) will be carried out by the design and build Contractor as the design progresses into the detailed design stage. It will be a project requirement that building permits are in place before construction begins on any associated work.

1.5 OTHER PERMITS

In addition to the PER permit, other permits, advice, or approvals are required from federal regulators for the Project to proceed, these include:

- *Fisheries Act* —DP World has applied to Fisheries and Oceans Canada (DFO) for a Request for Review for the Project. DFO may provide a letter of advice following the review or request an application for authorization to satisfy paragraph 36(2)(b) of the *Fisheries Act*. The file number is 22-HPAC-00562.
- *Canadian Navigable Waters Act* — DP World has applied *under the* Navigation Protection Program for approval or notice of works under the *Canadian Navigable Waters Act*. The file number is 2022-506592.

2.0 PROJECT DESCRIPTION

2.1.1 Project Description

The Project comprises the redevelopment of Berth 10 at DP World's Fraser Terminals with construction of a marine access trestle, loading platform and pedestrian catwalk to complement existing Berth 10 mooring infrastructure (see Dwg 7704-GA-002). The Project also includes the development of a canola storage facility and rail receiving and unloading infrastructure on Schedule A and B federal lands and waters lots within the VFPA leased DP World Fraser Surrey area. The Project is non-designated under the federal *Impact Assessment Act* but requires VFPA PER approval under Section 82 for projects on federal lands and waters. The Project will not require any changes to the existing Fraser River dredging program. The Berth 10 vessel mooring area is currently dredged to – 11.5 m chart datum (CD) under the annual routine maintenance dredging program within the South Arm Fraser River and the Fraser Surrey Terminal (VFPA 2021). In line with the size of vessels currently served at Berth 10, the Project is designed to service Handymax (40,000 to 50,000 deadweight tonnage [DWT]) and Handy (less than 40,000 DWT) sized vessels. A summary description of the individual components of the Project is provided in the sections below. Project drawings are provided with this application, as referenced in Section 3.1.

2.1.1.1 Canola Loadout Terminal

The Project includes loadout terminal activities and components comprising:

- Construction of a concrete access trestle to the loading arm platform at Berth 10 including:
  - Selective vegetation removal as required to provide safe clearance of the access trestle from terminal lands
  - Abutment excavation abutting the existing operating terminal area
  - Access trestle from the upland terminal to the loading platform, suspended on three pile caps with a length of 67 m and width of 4 m, supported by approximately 19 x 1.2 m outer diameter (OD) piles (15 piles in-water footprint 17 m^2)
- Construction of a canola loading platform at Berth 10 with a length of 26 m along the berth and a width of 14 m suspended on approximately 21 X 1.2 m OD piles (total in-water footprint 25 m^2)
- Construction of a new catwalk connection between Berth 9 and the Berth 10 loading arm platform with a length of 23 m and a width of 1 m with no expected shading or in-water supports
- Ancillary loading deck and platform infrastructure, including:
  - Articulating canola oil marine loading arm, with canola loading and recycle lines, sump tank and pressure recovery vessel
  - Upgraded marine bollards, fenders, ladders, and ship access gangway
  - Fire water hydrant at the jetty area

2.1.1.2 Storage Tank Facility and Rail Offload Area

The Project includes Construction of a storage tank and rail offload area adjacent to the realigned Timberland Road South (see Dwg 7704-GA-001), consisting of:

- Rail receiving facilities including:
  - Two rail spurs from the existing intermodal yard branch
  - Railcar bottom offloading stations, unloading pumps, piping, and control cables
  - 32 rail car unloading capacity on two new tracks, one replacing an existing spur, and one parallel to this replaced spur, complete with automated pumping system for unloading, with slops capture system.
- Storage tank area:
  - Three carbon steel construction 15,000 metric tonne (MT) capacity tanks (Approx. 37 m diameter, 18 m height to API 650 standard) giving a total of 45,000 MT working capacity for Crude Super Degummed (CSD) grade canola oil.
  - Elevated tank foundations including required ground improvements, cathodic protection of the bottom of the tank will be incorporated into the design
  - Vessel loading pumps including required piping and controls
  - Containment area including liners, precast walls, and associated foundations
  - Fire water loop with approximately six hydrants.

2.1.1.3 Ancillary Facilities

The Project includes the following ancillary facilities:

- Parking area for 10 vehicles at the storage/containment area, complete with security gate
- Control building, PLC control room, break room, security, and storage facility
- Motor Control Center (MCC) building will house a new 600-volt MCC to power most of the project electrical equipment
- Below grade canola oil transmission and recycle lines connecting the storage tanks to the marine trestle.
- Ten terminal vehicle parking spaces

2.1.1.4 Utilities

The Project includes installation of the following utilities:

- Electrical system consisting of the following major components:
  - Additional feeder breaker to 12.5/25 kilovolt Substation #10 (Sub-10) and associated underground feeder to the canola oil export facility.
  - One 2 MVA, 25/12.5 kilovolt - 600/347 volts alternating current (VAC), 60 hertz, Delta-Wye, ONAN, pad mounted transformer.
  - One prefabricated self-contained portable electrical building.
  - One 600VAC MCC lineup.
  - One low voltage UPS system.
- Fire protection in compliance with the National Fire Code with input by the local City of Surrey fire department
- Nitrogen supply to be used for various purposes, including:
  - Purging of the marine loading arm after use
  - Purging of the pipeline after use, to ensure product does not degrade in the piping
  - Blanketing of the marine vessel
  - Future displacing of liquid and purging of the pig launchers and receivers

2.1.2 Description of the Project Purpose, Use and Rationale

The global canola oil market reached a total production volume of 27.79 million tonnes in 2021 and the market is expected to increase to over 30.60 million tonnes by 2027 (Imarc 2022). The primary drivers for increased demand are domestic use of canola, animal feed production and renewable biofuel applications. Canola production in Canada is set to continue to increase in response to demand (Imarc 2022) and DP World has identified the need for increased terminal capacity to support key Canadian canola oil export markets.

The purpose of the Project is to redevelop Berth 10 and a portion of the existing terminal yard area for a new transload facility supporting annual canola oil throughput capacity of 1,000,000 tonnes per year. Berth 10 has historically been used as a transload facility for bulk products to barges and the loading of log vessels. The Project will utilize existing terminal infrastructure and require the construction of several land based and in-water components, including a storage tank facility and offload area, and expansion of facilities at Berth 10 for mooring and loading vessels.

2.1.3 Project Setting and Sensitive Receptors

The Project site is situated in DP World's existing Fraser Surrey Terminal, located at 11060 Elevator Road, Surrey, BC. The site is approximately 4.5 kilometers (km) west of Surrey and 1.2 km south of New Westminster. Berth 10 is located at the north-eastern end of the terminal within the VFPA leased terminal area (See Dwg 7704-GA-001). The Project site is bound by Paper Excellence to the north, Annieville Channel to the west, DP World Fraser Surrey Berth 9 to the south and the future realigned Timberland Road South to the east. The coordinates of the approximate center of the site are 49 deg. 11' 28.5" N and 122 deg. 54' 37.5" W.

Berth 10 is located on the inside of Annieville Channel behind a constructed breakwater/training berm approximately 15-20 km upstream from the mouth of the south arm of the Fraser River.

The area immediately surrounding the site is designated for port and industrial use with the nearest residential receptor approximately 680 m south of the site on River Road. Tannery Park is the closet park identified in proximity to the site approximately 1 km away to the northeast. The closest school (Al-Hidayah School) is 1.36 km east of the site, across the Fraser River, in New Westminster.

2.1.4 Potential Impacts of the Project

The Project is designed to operate with minimal impacts to land, water, air, adjacent communities, and local businesses. During construction, potential impacts of the Project include impacts to aquatic habitat from the installation of marine components, light and noise impacts, and increased ship and truck traffic for the delivery of construction components. Due to the location of the Project within existing VFPA land which is in port and terminal use, construction impacts from noise, light and air emissions on sensitive receptors (e.g., residential properties, schools, and parks) are expected to be limited.

The Project's design limits the over-water and in-water footprint and construction activities. The permanent in-water footprint includes the installation of 36 new steel pipe piles that will support bridge spans. The in-water work is expected to have limited impact to current fish habitat, including Berth 10 and adjacent shoreline areas. The potential effects to Species at Risk (white sturgeon [*Acipenser transmontanus]*, Streambank Lupin [*Lupinus rivularis*], Barn Owl [Tyto Alba] associated with the Project are anticipated to be limited after the implementation of mitigation measures.

The design of the Project has been reviewed to minimize impacts and mitigation measures will be implemented to reduce impacts, including:

- The design has been completed to limit the number of in-water piles only to what is required to support the proposed dock infrastructure, substantial effort has been made to maximize the precast concrete span lengths and minimize the impacts to the foreshore area and to fish habitat.
- Although construction is anticipated to take place over a one-year period, the impact pile driving, if required, will take place within the least risk window for the tidal estuary of the Lower Fraser River (June 16 to February 28). Works isolated from the aquatic environment (e.g., concrete pours within steel pipe piles, deck construction) may happen at any point during construction.

- A Construction Environmental Management Plan (CEMP) has been developed (Appendix I) to mitigate construction impacts, specific mitigations have been identified to protect air quality, fish and fish habitat, water quality from erosion and sediment discharge, construction noise and vibration, vegetation and terrestrial wildlife, archaeological resources and spill prevention and response.
- Fish and marine mammal monitoring plans, including acoustic and visual monitoring thresholds and exclusions zones, noise mitigation and stop work procedures will be implemented during construction.
- Construction will take place during daytime hours, outside of tidal dependent work to limit noise and light impacts during time sensitive periods.
- DP World is committed to informing neighbors through engagement and will provide stakeholders opportunities to provide feedback on any concerns they may have.
- Where possible, materials and components will be transported by marine vessels to the Project site to reduce the number of truck deliveries.

2.2 OPERATIONS

2.2.1 Terminal Operations

The Project has been designed to support an annual throughput capacity of 1,000,000 tonnes of canola oil per year. Once fully operational, the facility is designed to support the storage, transfer and loading of two specific grades of canola, including:

- Crude Super Degummed grade canola oil
- Refined, Bleached, and Deodorized grade canola oil

Both CSD and RBD grade canola oil will be received in rail tank cars, intermediate storage tanks will only be constructed for CSD grade oil. To facilitate the handling of RBD grade canola oil, the facility will include the ability for direct transfer from rail tank cars to marine vessels via an underground loading pipeline to a marine loading arm. CSD grade canola oil will be unloaded and pumped from rail cars to the new tanks for intermediate storage before being pumped to marine vessels for export, but the CSD grade canola oil can also be loaded directly to ship i.e., bypassing intermediate storage if this option is required.

The railcar unloading system will provide the capacity to unload up to 32 131,000-liter cars per 8 hours shift. Rail cars will be unloaded via unloading piping from the bottom of each car. Discharge from the new unloading pumps will be tied into a piping system to distribute CSD grade oil to the oil storage tanks. RBD oil will be transferred directly on to ships with no intermediate storage required.

The canola oil storage facility will store approximately 45,000 tonnes of CSD grade canola oil prior to the load out to ships. Each of the three 15,000 MT tanks has been designed to include an agitator system which when operated will avoid product settling and gumming during storage.

The Project will be operated during established 24/7 terminal hours and is expected to require up to ten full time employees.

2.2.2 Marine Operations

When a docked vessel is ready to load, marine loading pumps will draw canola oil from the storage tank facility and pump the oil to the marine loading arm located on the loading platform at Berth 10. The desired ship loading flow rate is 1,000 MT per hour. The system will consist of a single marine loading arm with an expected maximum capacity of 1,200 cubic metres per hour. Canola oil will be pumped from the storage tanks to the marine vessel through underground conveyance piping.

Berth 10 is already designed to receive a Handymax size product bulk liquid tanker vessel (between 35,000 and 48,000 DWT, measuring between 150 m to 200 m in length with a draft of 11 to 12 m depth). Berth 10 draft depth is maintained periodically for the proposed vessel type and additional dredging is not required.

2.3 CONSTRUCTION AND DEMOLITION

2.3.1 Construction Hours

Construction activities are expected to be undertaken during VFPA construction hours Monday to Saturday 7 am to 8 pm, excluding Sundays and holidays. Tidal dependent construction may be required to be undertaken during nighttime hours. DP World will apply for additional approvals per VFPA requirements and provide community notification prior to working outside of standard hours.

The construction schedule for in water works will comply with timing restrictions established by DFO. As such, all pile driving will be conducted during the June 16 – February 28 Lower Fraser River least risk timing window.

2.3.2 Demolition

The Project requires removal of one existing mooring dolphin pile that conflicts with the new loading platform configuration. In addition, the existing Track 6 (rail) shall be removed for the installation of the collection pans under the railcar unloading stations to be installed, after which Track 6 and a new Track 7 will be laid down over the collection pans. The new canola oil tanks will be installed in an area which currently contains no major structures and is currently used for the parking of transport trailers.

2.3.3 Construction Activities and Sequence

Construction staging plans have been developed which consider the continued operation of the terminal during construction. Construction laydown areas are indicated on 7704-GA-003 (Parking and Access) in Volume 3 of the drawings.

The general activities and sequence for construction of marine components includes:

1. Site preparation comprising establishing laydown areas, installation of erosion and sediment control measures and silt curtains around the in-water work area, establishment of upstream and downstream water quality monitoring sites and demolition of one existing steel dolphin pile
2. Vegetation removal includes will be selective to provide safe clearance of the access trestle from terminal lands
3. Abutment excavation and installation of new steel piles using pile driving equipment
4. Installation of concrete pile caps, precast concrete panels, girders
5. Installation of concrete cast in place deck topping slab and concrete approach slab
6. Installation of fender panels, bollards, and berth accessories
7. Installation of the canola loading arm, loading and recycle lines, sump tank and pressure recovery vessel and ancillary infrastructure

Marine construction equipment will include barges, cranes, pile driving equipment, concrete pump trucks air compressors and welding equipment. The abutment construction will be completed using an excavator and a vibratory compactor.

The general sequence and activities for construction of the storage tank facility and offload area includes:

1. Site preparation including establishing laydown areas, installation of erosion and sediment control measures
2. Pre-construction clearing and grading of construction areas
3. Tank foundations installation, including excavation and required ground improvement
4. Installation of the tanks, including containment areas and associated foundations
5. Installation of ancillary infrastructure, including vessel loading pumps, required piping and controls, fire water loop and below grade canola transmission and recycle lines connecting the storage tanks
6. Construction of a new offices and an operations building

Construction materials will include tubular coated or painted steel piles, temporary falsework, form work, precast concrete, rebar, ready mix concrete, granular fill, riprap, steel pipe and berth accessories. Construction machinery is expected to include excavators, articulated loaders, vibratory compactors, cranes, and haul trucks.

2.3.4 Schedule

The project schedule proposed is provided in Table 1.

Table 1 Proposed Canola Project Schedule

Canola Oil Export Terminal - General Works Schedule										
Year	**2022**		**2023**				**2024**			
Quarter	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Preliminary Works										
Engineering & Tender Preperation										
Project Permitting										
Design Build Contract Award										
Site Mobilisation										
Detailed Design & Procurement										
Marine Loading Area										
Piling and structural works										
Marine platform fit out										
Canola Storage Area										
Ground improvements										
Tank foundations										
Tank construction										
Underground services										
Tank containment walls										
Above ground services and process piping										
Rail Unloading Area										
Remove track 6										
Ground improvements										
Foundation works										
Underground services and process piping										
Canola rail - IY Track 6 and 7										
Top access catwalk										
Above ground services and process piping										
Canola Pumping & Conveyance Corridor										
Trenchless crossing of Timberland Road and intermodal yard										
Cut fill crossing of Yard 10										
Substantial Completion										
Commissioning										

3.0 SUPPORTING STUDIES AND PLANS

The Project is subject to review and approval by VFPA under the PER process before it can proceed. The following studies, plans, and reports have been prepared to identify and characterize the potential environmental effects and other impacts to the local area, environment, and transportation networks associated with the Project, to support the VFPA review under the PER process.

3.1 APPLICATION DRAWINGS

A description of the drawings supporting the Application and concordance with PER requirements is provided in Table 2.

Table 2 Drawings Supporting the PER Application

VFPA PER Submission Drawing	VFPA PER Drawing Requirements	Drawing
Volume 1 Drawings		
Location Plan	• Plan showing the relationship of the proposed Project to surrounding area at a 1:5000 scale.	• 7704-GA-000—Location Plan
Site Plan	• Lease and property boundaries, easements, and rights-of-way. • Legal high-water mark where applicable. • Location and dimensions of all existing and proposed buildings, structures, equipment, and marine structures. • Access points including roadways, driveways, parking areas, walkways, berths, gangways, docks. • Area of demolition or construction staging/laydown area.	• 7704-GA-001—Site Plan • Note: Construction staging and laydown areas are on 7704-GA-003 (Parking and Access) in Volume 3 of the drawings.
Volume 2 Drawings		
Building Structures	• Elevations of front, rear, and two sides with dimensions. • Floor levels and height above and below finished grades. • Building floor plans of all stories including door, window, and skylight locations. • Roof plans with dimensions and elevations of roof parapet, mechanical and elevator/stair housing. • Finishing details and materials. • Excavation depths anticipated (receiving pits, foundations, trenches for utilities, etc.), including depth of excavation required to construct any below-ground infrastructure. • Signage (location, dimensions, and lighting details). • Information on site loading for foundation design criteria and any other anticipated loads.	• 7704-ARCH-SB-001 – Support Building Architectural Floor Plan • 7704-ARCH-SB-002 – Support Building Architectural Reflected Ceiling Plan • 7704-ARCH-SB-003 – Support Building Architectural Roof Plan • 7704-ARCH-SB-004 – Support Building Architectural Building Elevations • 7704-ARCH-SB-005 – Support Building Architectural Building Cross-Sections

Table 2 Drawings Supporting the PER Application

VFPA PER Submission Drawing	VFPA PER Drawing Requirements	Drawing
Building Structures (cont'd)		• 7704-ARCH-SB-006 – Support Building Architectural Building Cross Sections • 7704-ARCH-SB-007 - Support Building Architectural Cabinet, Counter Elevations • 7704-ARCH-SB-008 - Support Building Architectural Door, Window & Room Finish Schedule • 7704-ARCH-MC-001 – MCC Building Architectural Floor Plan • 7704-ARCH-MC-002 – MCC Building Architectural Roof Plan • 7704-ARCH-MC-003 – MCC Building Architectural Building Elevations • 7704-ARCH-MC-004 – MCC Building Architectural Building Cross-Sections and Details • 7704-ARCH-MC-005 – MCC Building Architectural Room Finish and Door Schedule • 7704-M-002 – Piping Section
Volume 3 Drawings		
Marine Structures	• Site plan specific to proposed marine works only. Identify existing marine structures and those intended to be removed or relocated or will be impacted. • 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. • Structures in relation to the tidal Higher High Water and Lower Low Water lines including water depth. • Plan of proposed dock facility, include location and SWL of mooring securing points, fender capacity etc. (existing infrastructure at the berth • that is being relied on shall be included on the drawings). • Confirm the design vessel (maximum size that can be accommodated) at berths on the plans including the deepest draft expected.	• 7704-STR-001 – Loading Deck General Arrangement • 7704-STR-002 – Trestle Sections & Details • 7704-STR-003 – New Trestle • 7704-STR-004 – New Loading Arm Deck and Trestle

Table 2 Drawings Supporting the PER Application

VFPA PER Submission Drawing	VFPA PER Drawing Requirements	Drawing
Lot Grading and Utilities	• Separate plans showing existing and proposed utilities. • Plan showing utilities to be terminated and/or abandoned, including method of termination. • Lot grading plan showing existing/proposed paving and drainage. • Separate the two plans if required for clarity. • Note that oil/grit/water separators are required to be included as part of site storm water collection. • Discrete site plan showing existing/proposed fire hydrants and emergency vehicle access routes. • Proposed service connections to utilities or systems (water, sewer, storm water, power, gas), both above and below ground. • Provide written confirmation of which other authorities or jurisdictions will need to provide consent or conduct works to establish connections to utilities, and confirmation that capacity exists within those 3rd party networks.	• 7704-C-006 – Existing Underground Utilities • 7704-C-105 – Utility Demolition & Relocation • 7704-C-110 – Storm Water Management • 7704-C-111 – Sanitary Sewer • 7704-C-112 –Water Service
Lighting Plan	• Lighting shown on the site plan for all proposed exterior lighting including the location, type of bulbs, orientation, and level of illuminance.	• 7704-E-004 — Lighting Plan
Parking and Access	• Widths of proposed roadways and driveways/access into the facilities. • Dimensions of maneuvering areas including turning radii. • Proposed employee and/truck parking area with dimensioned and numbered parking stalls. • Typical cross sections and proposed grades of roadways and driveways/accesses and details of curbs, gutters, sidewalks, and other improvements.	• 7704-GA-003 — Parking and Access
Rail	• Existing and proposed rail tracks, switches, and other associated rail works. • Description of the rail operations expected, and how rail cars are delivered to the site and managed while on the site.	• 7704-C-117 — Rail Drawing

3.2 SUPPORTING STUDIES

3.2.1 Overview

Supporting studies and plans prepared to supplement the Application are provided in the appendices listed in Table 3. A summary of the supporting studies and rationale for any exclusions is provided in the sections below.

Table 3 Project Studies and Plans to Supplement the Application

Appendix	Study or Plan
Appendix A	Fire Safety Plan
Appendix B	Geotechnical Report
Appendix C	Traffic Impact Assessment Study
Appendix D	Rail Operations Plan
Appendix E	Noise Assessment
Appendix F	Air Assessment
Appendix G	Project Energy Information
Appendix H	Archaeological Overview Assessment
Appendix I	Construction Environmental Assessment Plan – including: • Soil and groundwater management plan • Habitat assessment and request for review • Species- at- risk assessment • Invasive species assessment • Spill prevention and emergency response plan
Appendix J	Stormwater Pollution Prevention Plan
Appendix K	Biophysical Survey Report
Appendix L	Flood Vulnerability Assessment
Appendix M	Engagement Plan
Appendix N	Mooring Analysis

3.2.2 Hazardous Material Report

The Project will not require any major demolition activities as part of development. The existing Track 6 spur connection to the site will be temporarily moved to enable the installation of collection pans under the railcar unloading stations. In addition, one existing mooring dolphin pile that conflicts with the new loading platform configuration will require removal. No other demolition activities are proposed as part of the Project; therefore, a hazardous material report has not been provided as part of this Application.

3.2.3 Fire Safety

DP World maintains an Emergency Response Plan to provide an organizational and procedural framework for responding to land-based emergencies at DP World's Fraser Surrey Terminal. The response plan includes consideration of fires and explosions at a building in the terminal, on mobile equipment, and on a ship berthed at the site. The most recent version of the Emergency Response Plan is provided in Appendix A.

There are no changes proposed in terms of access points on-site circulation, or the functionality of hydrants on site as part of the construction phase of the Project; therefore, a Construction Fire Safety Plan has not been provided as part of this Application.

3.2.4 Geotechnical Report

A Geotechnical Report is included as part of the Application in Appendix B. This report describes the seismic and geological hazards on site and outlines Project design criteria in accordance with applicable codes. The intended performance of all new infrastructure and a description of construction measures, precautions and corrective actions recommended for preventing structural damage is also provided.

3.2.5 Traffic Impact Assessment

A Traffic Impact Assessment is included as part of the Application in Appendix C.

3.2.6 Rail Operations Plan

A Rail Operations Plan is included as part of the Application in Appendix D.

3.2.7 Marine Traffic Study

Berth 10 currently receives 4 Handymax vessels per year, based on the records for the last two years of operations at Berth 10 and is underutilized. The vessel calls from the Project will add 33 ship calls, for a total of 37 ships per year, assuming existing berth 10 operations continue. The Project is designed to accommodate the marine vessels used for berthing and mooring structures described in Table 4. With an anticipated vessel frequency of one per month, the Project is expected to reach roughly one vessel per week at maximum design throughput. The operation of this Project will result in a decrease of lower-value vessel calls at Berth 10. There will be no bunkering of fuel to vessels as part of the Project.

Table 4 Project Design Vessel Specifications

Dimensions	Handymax Vessel Size	Handy Vessel Size
Deadweight Tonnage (DWT)	48,000	10,000
Length Loa (m)	190	140
Beam (m)	31	18.5
Molded Depth (m)	17	14
Draft Max. (m)	12	8.5
Wind Area; Ballast Beam (m^2)	2,700	1,500
Wind Area; Ballast Bow (m^2)	900	500

3.2.8 Noise Assessment

The potential for the Project to create noise impacts within surrounding areas is under assessment following the VFPA Guidelines – Environmental Noise Assessment and as per the terms of reference shared with the VFPA and is provided as Appendix E. Following meetings with the VFPA, the screening for the Project operations was determined to require this level of assessment. Factors in the assessment of noise included:

- 24/7 operations, intermittently storing canola oil received by rail and loading vessels periodically
- Assumption of train cars arriving regularly to the PARY railyard each week. From the PARY, 2 sets of 16 cars will be moved into the canola oil unloading area at a time
- Operations equipment is electric (low-noise variable rate pumps and agitators)
- The 18-m high canola storage tanks and containment walls will provide substantial noise shielding from residential receptors
- Baseline conditions are very noisy (industrial terminal) with moderate community concerns about noise (BKL, 2018)

3.2.9 Air Quality Assessment

There are no long-term point source air emissions proposed as part of the Project but emissions from mobile equipment are anticipated temporarily during construction. Specific air quality mitigation measures for vehicular and equipment during construction are provided in and Air Assessment (Appendix F) and Section 5.2 of the CEMP (Appendix I).

Emissions during operations are expected periodically from intermittent service-vehicle use and the movement of canola oil by rail and ship. Changes in ambient air quality are predicted to be negligible; therefore, a detailed air quality assessment has not been provided as part of the Application.

3.2.10 Project Energy Assessment

A Project Energy Assessment is included as part of the Application in Appendix G with the predicted equipment to be used for the operation of the proposed Project. The Project will utilize modern electric equipment (e.g., variable rate motors for pumps), LED lighting, and an approach including best available technology not entailing excessive cost (BATNEEC).

3.2.11 Archaeology

An AOA was undertaken to assess potential Project impacts to archaeological and heritage resources in support of the Application and is provided as Appendix H.

There are no archaeological sites recorded in the Project area. There are many sites that have been recorded along the southside of the Fraser River both to the northeast and southwest of the project. These sites included extensive village sites, inter-tidal sites with perishable materials (wet-sites), and subsurface lithic sites likely representing various cultural activities.

A previous archaeological study in the Project area identified a buried organic layer above fluvial clay and sand in numerous boreholes below the fill. The study assessed the native sediments as having potential to contain archaeological resources.

In evaluating the archaeological potential, the following characteristics were identified to support an assessment of there being archaeological potential in the proposed Project area:

- The existing shoreline has not significantly changed since with the historical development. The south shoreline of the Fraser River has been documented as an important zone for Indigenous resource gathering, semi-permanent settlement, and temporary campsites. Numerous archaeological sites have been identified along shoreline in the surrounding area, including the tidal zones along the river.
- Typical for the floodplain areas along the Fraser River, the terrain of the Project area is/was relatively level and thus would have been suitable for habitation and/or fishing camps.
- The historical fill that covers the Project area is above native soil. A buried organic layer above fluvial clay and sand was identified in numerous boreholes across the Fraser Surrey Terminal. These native sediments have the potential to contain archaeological resources. It is recommended that any excavation of native sediments during construction be monitored by an archaeologist and representatives from affected Indigenous communities as an archaeological impact assessment (AIA).

3.2.12 Construction Environmental Management Plan

A CEMP is included as part of the Application in Appendix I. The CEMP provides best management practices to maintain regulatory compliance and to avoid or limit potential adverse environmental effects. Project mitigation measures and environmental specifications related to the following topics are provided:

- Air Quality
- Fish Protection
- Pile Installation
- Site Access, Mobilization and Laydown Areas
- Erosion and Sediment Control Plan
- Concrete Work
- Construction Noise
- Invasive Plants and Terrestrial Resource Management
- Archaeological Chance Find Protocols
- Spill Prevention and Response
- Emergency Response
- Fuel Management
- Spill Response
- Waste Management

The CEMP also includes specific sections related to the following requirements:

- Soil Management
- Invasive Species
- Spill Prevention and Emergency Response

3.2.13 Stormwater Pollution and Prevention Plan

The Stormwater Pollution and Prevention Plan (SPPP) is included as part of the Application in Appendix J. This report provides guidance on best management practices (BMPs) to maintain regulatory compliance and to limit potential adverse environmental effects. The SPPP informs the planning and design of the canola facilities to limit the discharge of potential contaminants of concern (PCOC's) mobilized by stormwater runoff during construction and operation of the Project. The PCOC's identified include hydrocarbons from construction or maintenance (operations) vehicles and unit trains and soil of unknown quality exposed by construction excavation.

3.2.14 Biophysical Survey Report

The Biophysical Survey Report is included as part of the Application in Appendix K. The report describes the existing aquatic, terrestrial environments and documents the potential for species at risk on the site. Potential effects of the Project on both the aquatic and terrestrial environments are described and appropriate mitigation measures to address effects are provided.

3.2.15 Flooding and Assessment of Potential Consequences

A memo about the flood scenario considered for the project design specifications and an assessment of the potential consequences of flooding on the proposed infrastructure, stored canola oil, and export operations is included as Appendix L. The flood scenarios are based on a detailed flood model completed for the DP World Fraser Surrey Terminal by Northwest Hydraulic Consultants in 2018. The findings of the 2018 model are assumed to be relevant and used for the specifications for the design.

3.2.16 PER Application Concordance Table

A concordance table describing how the Application meets Section 4 Application Submission Requirements as outlined in the April 19, 2022 checklist is provided as Table 5.

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
Hazardous Materials Report for Demolitions	• Inventory of any hazardous materials including asbestos, drywall, the contents in aboveground or underground storage tanks, PCBs, abandoned chemicals and others, material safety data sheets (MSDS). • Description of hazardous materials storage and handling methods. • Table of applicable regulations. • Hazardous materials reuse, removal, recycling, and disposal plan, prior to demolition of structures in accordance with all relevant regulations.	**There are no demolition activities proposed as part of the Project; therefore, a hazardous material report has not been provided as part of the Application.**
Fire Safety	• Fire Safety Plan (or update to existing Plan): – Site entrance point(s). – Access routes within terminal/site. – Hydrant locations. – Site layout including names of each building. • Plan to include other points in keeping with industry best practice and scaled to the site and project scope.	**Included as part of the Application in Appendix A.**

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
	• Construction Fire Safety Plan: – Description of project scope, activities, construction – schedule, and any hazards specific to construction. – Interim site access points; and, – Any temporary modification to site annunciator panel functionality. – Plan to include other points in keeping with industry best practice and scaled to the site and project scope.	**There are no changes proposed to access points on-site circulation, or the functionality of hydrants on site as part of the construction phase of the Project; therefore, this has not been provided as part of this Application.**
Geotechnical Report	• Description of site seismic and geologic hazards. – Outline design criteria in accordance with all applicable r codes (ASCE 61, NBCC etc.) to address seismic safety and resilience for all new infrastructure to be implemented. – Identify and document for VFPA review the intended performance of all the new infrastructure during a seismic event – Description of construction measures, precautions and corrective actions recommended for preventing structural damage and reducing the risk of terrestrial, marine and riparian geotechnical hazards to acceptable levels.	**Included as part of this Application in Appendix B.**
Stormwater Pollution Prevention Plan	• Description of daily terminal operations as they relate to storm water management, given the local climate and water capture and treatment systems. • For further information, please review the port authority's Stormwater Pollution Prevention Plan guideline.	**Included as part of this Application in Appendix J.**
Traffic Impact Assessment	• An assessment of current site traffic as well as truck and/ rail traffic volumes anticipated, on site circulation, traffic distribution throughout the day and impacts to adjacent and nearby roads, access/egress and storage analysis for vehicles and/rail cars accessing site as well as parking requirements. • Include proposed hours of operation and staffing number and dimensioned site plan, showing circulation, buildings, new line painting, proposed rail tracks and any other proposed features. • For further information, please review the port authority's Transportation guideline.	**Included as part of the Application in Appendix C.**

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
Rail Operations Plan	• An assessment of the rail operations expected, including length and number of cars, average number and peak number of trains per day anticipated at the site, how rail cars are delivered to the site and managed while on the site, and total site capacity – length of tracks and total number of trains that can be accommodated on site. • Overview of how shunting or car switching is conducted or managed, and design speed for arriving and departing trains. • Provide a copy of the rail agreement with the participating carrier. • Description of the design capacity and specifications for the rail components that are specified for all on-site rails. • Account for operations traffic up to the 10-year horizon.	**Included as part of the Application in Appendix D.**
Marine Traffic Study	• Confirmation of the design vessel range (maximum and minimum size of vessels that can be berthed and loaded) and anticipated traffic • levels, anticipated utilization periods, bunkering program (whether this is permitted at the terminal), and any other operational criteria. • Mooring plan for design vessels at maximum and minimum size.	**A description of design vessels for the Project is provided in Section 2.2.2.** **Mooring Analysis included as part of the Application in Appendix N**
Noise Study	• An assessment of how the proposed development will affect the noise levels experienced by the adjacent community. • For further information, please review the port authority's Environmental Noise Assessment guideline.	**Included as part of the Application in Appendix E.**
Air Assessment	• Conduct an assessment of contributions to air quality and climate change associated with the facility and related off-site operations. For further information, please review the port authority's • Environmental Air Assessment and Air Emission Management Plan guideline.	**Included as part of the Application in Appendix F**
Project Energy Assessment	• An assessment of how the proposed development (buildings, motorized equipment, lights, and battery electric mobile equipment/infrastructure) will affect electrical energy consumption levels. Include technical information and demonstrate selection of BATNEC (Best Availability Technology Not Entailing Excessive Cost) energy efficient and low-carbon energy equipment. • Highlight energy efficiencies included in the design, for example: variable frequency drives (VFDs) for pumps, design aspects that promote easy flow of oil (limited number of elbows in pipes, large pipe diameter) to ensure pumps don't have to use too much energy to move the product, etc. • For further information, please review the port authority's Project Energy Information guideline.	**Included as part of the Application in Appendix G.**

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
Archaeological Potential – Preliminary Assessment	• Footprint and depth of ground alteration works, if proposed. • Identify if the proposed project is situated on fill or native soil, and what the anticipated impacts to native soil may be. • Identify if the proposed project is within 100 m of potable water (historically present or currently present). • Location of proposed project in relation to the original shoreline or river/stream bank. • Determine if the proposed project is situated on relatively level ground.	**Not included in the Application, Archaeological Overview Assessment is provided (See below).**
Archaeological Overview Assessment	• Identify and assess archaeological resource potential or sensitivity within a proposed Project area. • Provide recommendations concerning the appropriate methodology and scope of work for subsequent inventory and/or archaeological impact assessment studies.	**Included as part of the Application in Appendix J.**
Archaeological Impact Assessment	• Identify archaeological sites, evaluate their significance, assess potential impacts by the project on archaeological sites, and provide recommendations concerning the appropriate impact management measures that may be required.	**Not required to support the Application.**
Construction Environmental Management Plan	• Description of how the site will be managed during construction such that the work does not result in adverse impacts to the environment, heritage resources, public (municipal, stakeholders, community), Indigenous groups, and including potential effects from noise, vibration, light, dust emissions, or other deleterious discharges. • For further information, please review the port authority's Construction Environmental Management Plan guideline.	**Included as part of the Application in Appendix I.**
Soil and Groundwater Management Plan	• Outlines how the proponent will test for, appropriately handle, limit migration/run-off and dispose of contaminated soils. • Describe how excavation and run-off water will be contained, tested, treated, and discharged. Discharge criteria should be included. • Required when dealing with properties with known or suspected contamination in soil or groundwater.	**Included in the CEMP in Appendix I.**

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
Habitat Assessment/ Request for Review	• An assessment of species and habitats that will be affected by project activities such as infilling, vegetation removal, or shoreline modification. • If a Request for Review is submitted to DFO, provide the information package submitted to DFO, any supplemental reports requested by DFO, and correspondence from DFO about the project. • For further information, please review the port authority's Habitat Assessment guideline.	**Included as part of the Application in Appendix K.**
Species-at-Risk Assessment	• Identification of all federal and provincial listed species-at-risk associated with the proposed Project. • Include a description of potential impacts and proposed mitigation strategies. • The project is in an area that has been proposed as critical habitat for barn owl. If critical habitat is finalized prior to completing construction, activities that result in destruction of critical habitat may require a permit under the *Species at Risk Act* (SARA). Such activities could include loss of foraging habitat (e.g., grassy ditches/margins along roads and railway tracks that could support small mammal prey) or nesting/roosting sites (e.g., physically protected cavity sites in buildings). Nest surveys must be undertaken prior to demolition of structures with potential barn owl nests/residences.	**Included in the Biophysical Assessment Report (Appendix K) and the CEMP (Appendix I).**
Invasive Species Assessment	• Existing invasive species types. • Mitigation plan to prevent spread of invasive species during construction. • Invasive species monitoring and management plan.	**Included in the Biophysical Assessment Report (Appendix K) and the CEMP (Appendix I).**

Table 5 Supporting Studies and Reports PER Requirements Concordance

Topic	PER Requirement	Report Location or Comment
Spill Prevention and Emergency Response Plan	• Emergency Response plan as it relates to reportable spills. • Inventory of hazardous materials anticipated to be handled or stored on site during normal operations. • A description of spill prevention, containment, and clean-up plan for hydrocarbon products (including fuel, oil and hydraulic fluid), canola products and any other deleterious substances using standards, practices, methods and procedures to a good commercial standard, conforming to applicable laws. • Description of proposed employee training, emergency response communication plan, emergency procedures, spill tracking and reporting, records of facilities inspections. • Reference to appropriate spill containment and clean-up supplies available on site at all times and those all personnel working on the Project are familiar with the spill prevention, containment and clean-up plan. • Some references to this topic can be found in the port authority's Stormwater Pollution Prevention Plan guideline.	**Included as part of the CEMP in Appendix I for construction.** **Included as part of the SPPP (Appendix J) and the Emergency Response Plan (Appendix A) for operations.**
Flood Protection	• Conduct a vulnerability assessment of any areas of the site which may be at risk of flooding considering the value and vulnerability of the commodities, contamination risk, as well as day-to-day operations.	**Included as part of the Application in Appendix L.**

4.0 CONSULTATION REQUIREMENTS

A summary of the Indigenous nation and community engagement activities undertaken to date, and future engagement activities planned is provided below. A Public Engagement Plan is included in Appendix M.

4.1 INDIGENOUS GROUPS

No early engagement with Indigenous Groups was conducted prior to the submission of this application. DP World looking forward to engaging with First Nations with VFPA following PER submission.

4.2 STAKEHOLDERS

No early engagement with Stakeholders was conducted prior to the submission of this application. DP World acknowledges that stakeholder notification and/or consultation will be led by the port authority during application review phase with the involvement of DP World at the request of the port authority

4.3 PUBLIC AND PUBLIC ENGAGEMENT MATERIALS

DP World acknowledges that the project will be posted to the Canadian Impact Assessment Registry for a public comment period of 30 calendar days. The posting will be managed by the Port Authority and will be coordinated to coincide with the Applicant-led public engagement period.

The type of public engagement activities that are required to be led by DP World will engage in the following public engagement activities:

- Project webpage
- Public notification of public engagement period and opportunities
- Public engagement for an up to 25 business day period and which may include in-person meetings and/or online information sessions, small group meetings, online questionnaire, public notices, website content, and/or online outreach

Drafts of the following engagement materials will be made available upon submission of a complete application:

- Public engagement plan
- Notification materials:
  - Email text to existing Applicant distribution lists (if any)
  - Newspaper advertisement copy
  - Newsletter text (if any)
  - Public engagement notification letters

- Engagement materials:
  - Project website text and any online information
  - Project Overview Document
  - Feedback form and/or online questionnaire (as applicable)
  - Display boards and/or presentations
  - Coloured renderings, schematics, or other visual representations of the Project
  - Other materials to be used, e.g., videos, brochures

4.4 CONSTRUCTION COMMUNICATIONS PLAN

DP World will meet construction communications requirements as detailed by the PER requirements.

- The proposed Project may have an impact on the adjacent community during the construction period, and therefore the applicant may be required to notify area residents and the municipality prior to construction and/or demolition – in keeping with an approved Construction Communications Plan. Submission of a plan may be required if determined by staff (not at the time of application).
- The Plan should include a brief description of the proposed Project, background, construction timelines, considerations and challenges, engagement objectives, key audiences and stakeholders, key messages, contact information and public and stakeholder notification activities prior to construction and/or demolition. Also include a map of the notification area and mechanism to receive feedback and respond to/resolve issues that may be raised during construction.

5.0 REFERENCES

IMARC 2022. Canola Oil Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2022-2027. Available at https://www.imarcgroup.com/canola-oil-market. Accessed May 2022.

SNC 2012. Port Metro Vancouver Vegetable Oil Maine Terminal Operational Practices Study. Best Practices Manual. Prepared by SNC Lavalin on behalf of Port Metro Vancouver (VFPA)