

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



Prepared for:

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APPENDIX L – Flood Assessment

Fraser Surrey Canola Oil Transload Facility - Flood Assessment

Vancouver Fraser Port Authority (VFPA) has requested DP World Fraser Surrey conduct a flood protection and 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 of DP World's Fraser Surrey Canola Oil Transload Facility (Facility).

The stated objective of this assessment is to ensure the resiliency of the facility's development and design to a range of potential future climate patterns.

To support this objective DP World Fraser Surrey has:

1. Provided flood inundation mapping of the project site; and
2. Provided a matrix of the project components, the anticipated consequences of flooding and the related structural and environmental impacts.

While certain areas of the project site may be subject to short term flooding in a design flood event, the Facility is not vulnerable to consequences that would result in adverse environmental or structural impacts. The canola oil being transloaded is contained within a closed loop system and is not vulnerable to contamination or environmental release. It is anticipated that day to day operations would be temporarily halted well in advance of a design flood event but would be able to resume with only minor impacts once flood waters receded.

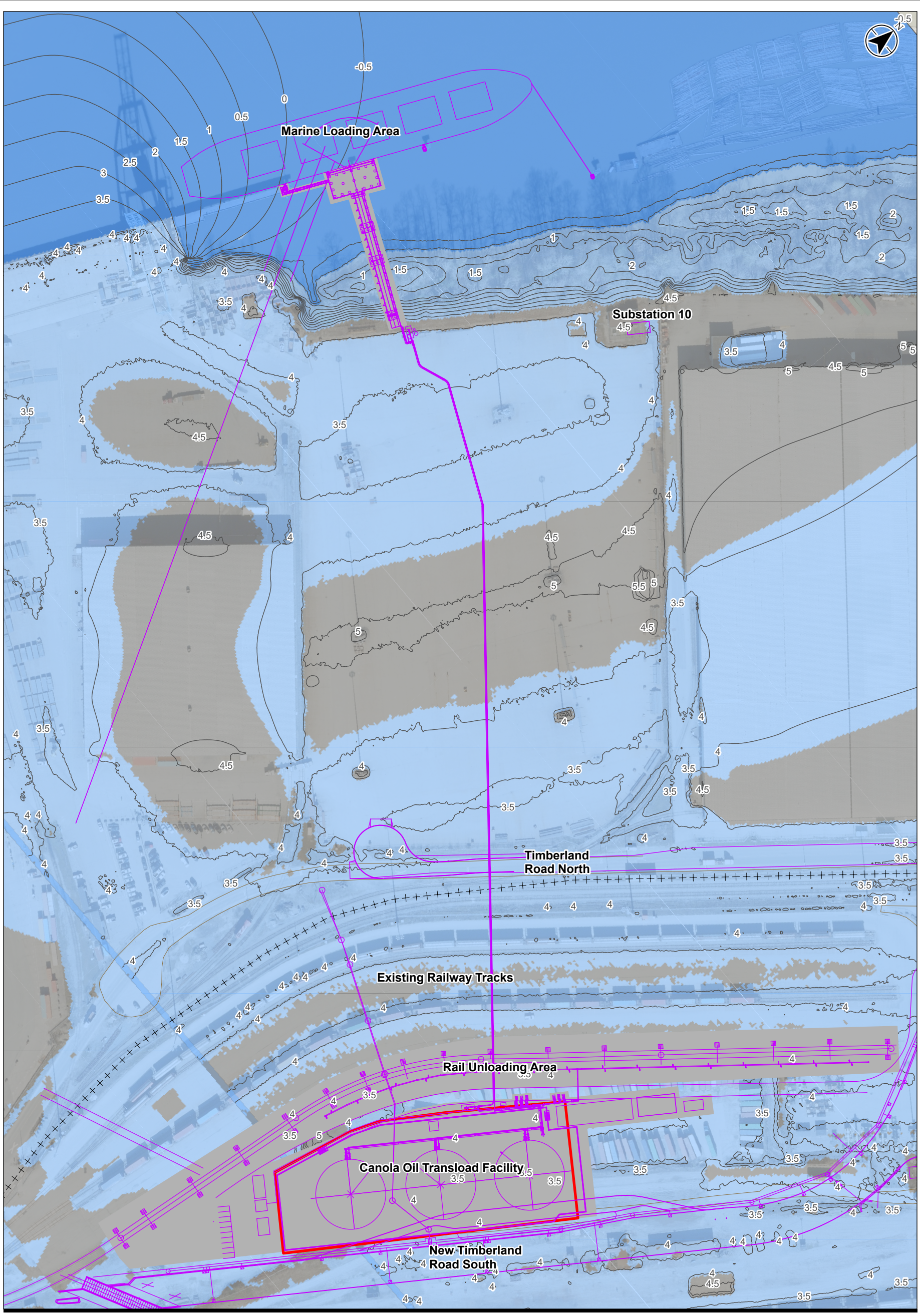
Design Flood Event

Northwest Hydraulic Consultants (NHC) has conducted two flood mapping assessments to evaluate the effects of flooding at DP World Fraser Surrey including for:

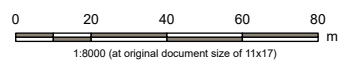
- the proposed BHP Billiton Canada (BHP) Potash Export Facility at (NHC 2016 and 2017) and
- the permitted, constructed, and operating Fraser Grain Terminal (PER 15-041) (NHC 2016 and 2018)

DP World Fraser Surrey has adopted the results presented in the [July 2018 – Project Permit Application Flood Protection Review: Fraser Grain Terminal Grain Export Facility Project](#) which established a 4.10 m Canadian Geodetic Vertical Datum 1928 (CGVD28) flood elevation based on the 0.5% (1 in 200 year) Annual Exceedance Probability (AEP), with moderate climate change allowance and 0.5 meters of Sea Level Rise (SLR) as presented in “Simulating the Effects of Sea Level Rise and Climate Change Scenarios on Fraser River Flood Scenarios” (FLNRO, 2014).

The potential for flood inundation to elevation 4.10 m is shown on of the project site in the design flood event is shown in Figure 1 with the proposed canola oil transloading infrastructure.



- Buildings - LiDAR Points
- Contour (0.5m)
- LiDAR Elevation Surface and Inundation Status**
- Permeant Water
- 0.778 - 4.1m (At Risk of Inundation)
- 4.101 - 7.1m (Not at Risk)
- ++ Railways
- Road Edges
- Site Features



Stantec DP WORLD
Canada

Project Location: Surrey, BC
Project Number: 12322054
Prepared by: EHERTZMAN on 20220520
Requested by: MDAWSON on 20220520
Checked by: GROUSSEAU on 20221004

Client/Project/Report: DP World Canada, Fraser Surrey Canola Oil Transload Facility

Figure No.: 1
Title: LiDAR Based Elevation and Flooding Impact

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Table 1 summarizes the potential impacts and consequences of the design flood event on the Facility's components. As summarized in the table, the Facility components will not be impacted by the design flood event and therefore, no consequences were expected.

Table 1 Matrix of the project components, consequences, and impacts of a design flood event

Project Component	Consequence of Flooding	Structural Impact	Environmental Impact
Canola storage tanks and retaining wall	No consequence. The retaining wall will be watertight and will not be impacted by flood waters.	No impact.	No impact.
Electrical substation	No consequence. Existing Substation 10 is located above the design flood level.	No impact.	No impact.
Closed-loop underground canola oil lines	No consequence. This is a buried closed loop system and will not be impacted by flood waters.	No impact.	No impact.
Berth 10 wharf and loading arm	No consequence. Berth 10 and the marine piping will be designed to withstand the design flood levels. All canola piping is part of a closed loop system.	No impact.	No impact.
Railway tracks and unloading stations	No Consequence. The canola offloading tracks will be sited above the design flood level.	No impact.	No impact.
Motor Control and Support Building	No Consequence. The Motor Control and Support Buildings will be sited above the design flood level.	No impact.	No impact.
Pumps, pigging and skim oil tank facilities.	No Consequence. Each of these areas will have spill containment walls normally meant to contain any spill. The containment walls will be act in reverse during a design flood event protecting each of these facilities.	No impact.	No impact.