Appendix A3

CEMP

RICHARDSON LLR RAILYARD EXPANSION PROJECT
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Prepared for:

RICHARDSON INTERNATIONAL LTD.
375 LOW LEVEL ROAD
NORTH VANCOUVER, BC
CANADA, V7L 1A7

Prepared by:

HATFIELD CONSULTANTS LLP
#200 - 850 HARBOURSIDE DRIVE
NORTH VANCOUVER, BC
CANADA V7P 0A3
TEL: 1.604.926.3261 • WWW.HATFIELDGROUP.COM

SEPTEMBER 2021

MOTT10957
VERSION 2

TABLE OF CONTENTS

LIST OF TABLES iii
LIST OF FIGURES iii
DISTRIBUTION LIST iv
AMENDMENT RECORD iv

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 2
2.1 LOCATION AND JURISDICTION 2
2.2 PROJECT DESCRIPTION 2
2.3 PROJECT SCHEDULE 5
2.4 SITE DESCRIPTION 5

3.0 CONTACTS AND RESPONSIBILITIES 6
3.1 TYPICAL RESPONSIBILITIES OF RICHARDSON OR THEIR REPRESENTATIVE 7
3.2 TYPICAL RESPONSIBILITIES OF THE EM 7
3.3 TYPICAL RESPONSIBILITIES OF THE CONTRACTOR 7

4.0 RELEVANT LEGISLATION 9

5.0 MITIGATION MEASURES AND ENVIRONMENTAL SPECIFICATIONS 10
5.1 GENERAL PRACTICES 10
5.2 SITE ACCESS, MOBILIZATION, AND LAYDOWN AREAS 10
5.3 TRAFFIC MANAGEMENT 10
5.4 AIR QUALITY 11
5.5 NOISE AND VIBRATION 12
5.6 MACHINE AND EQUIPMENT 12
5.7 SURFACE WATER PROTECTION AND CONTROL 13
5.8 SOIL AND GROUNDWATER MANAGEMENT PLAN 13
5.9 VEGETATION AND WILDLIFE MANAGEMENT 14
5.9.1 Vegetation 14
5.9.2 Wildlife 15
5.10 CONCRETE WORKS AND GROUTING 15
5.11 ARCHAEOLOGICAL RESOURCES 16

6.0 ENVIRONMENTAL MONITORING AND REPORTING 18
6.1 ENVIRONMENTAL MONITORING 18
6.2 REPORTING 19
6.3 INCIDENT REPORTING 19

DRAFT

7.0 EMERGENCY RESPONSE 21
7.1 EMERGENCY COMMUNICATION 21
7.2 EMERGENCY RESPONSE PLAN 22
7.3 SPILL RESPONSE PLAN 22
7.3.1 For Spills Above Spill Reporting Regulations, Reportable Under EMA 23
7.3.2 For Spills Below Spill Reporting Regulations, that are Non-Reportable under EMA 23
7.4 FUEL MANAGEMENT PLAN 23
7.5 WASTE MANAGEMENT 24
7.5.1 General 25
7.5.2 Non-Hazardous Waste 25
7.5.3 Hazardous Waste 26
8.0 REFERENCES 28

DRAFT

LIST OF TABLES

Table 1 Primary Contact List. 6

Table 2 Relevant Environmental Legislation. 9

Table 3 Emergency response contact numbers. 21

LIST OF FIGURES

Figure 1 Project Location. 3

Figure 2 Project Overview. 4

Figure 3 Project Schedule. 5

DRAFT

DISTRIBUTION LIST

The following individuals/firms have received this document:

Name	Firm	Email	FTP
Andrew Kammerloch	Richardson International Ltd.	✓	✓
Devon Maharaj	Richardson International Ltd.	✓	✓
Carmen Otero	Mott Macdonald Group	✓	✓
Stuart Riddick	Mott Macdonald Group	✓	✓

AMENDMENT RECORD

This report has been issued and amended as follows:

Issue	Description	Date	Approved by	
1	First version of Richardson LLR Railyard Expansion Project – Construction Environmental Management Plan	20220917		
			Stewart Wright Project Director	Lianne Leblond Project Manager

DRAFT

1.0 INTRODUCTION

Richardson International Limited (Richardson) is planning a railyard expansion (the Project) at their North Vancouver Terminal (the Site), located at 300 and 375 Low Level Road in North Vancouver, British Columbia (BC). Site access is via Victory Ship Way.

This Construction Environmental Management Plan (CEMP) supports the application to VFPA under the Project and Environmental Review (PER) process and other permit applications. The CEMP will also be provided to the construction Contractor as the basis for the development of their work plans and associated Environmental Protection Plans (EPPs).

The objective of the CEMP is to support environmental compliance by providing guidance with environmental mitigation protection and monitoring to facilitate the Contractor's implementation of appropriate measures. It has been prepared following the VFPA CEMP Guidelines (VFPA 2018).

DRAFT

2.0 PROJECT DESCRIPTION

2.1 LOCATION AND JURISDICTION

The Site is located on the north shore of the Burrard Inlet's Inner Harbour and is entirely on VFPA managed federal lands. Richardson has an existing lease agreement for both 300 Low Level Road and 375 Low Level Road for grain export operations (Figure 1).

2.2 PROJECT DESCRIPTION

The Project will provide greater resilience by allowing the terminal to store an additional loaded train on-site instead of relying on the CN Lynn Creek Yard, which is external to the Site, to temporarily store the train on the rail network.

Modifications to existing infrastructure and new infrastructure for the expansion will focus on the following pieces of trackwork (Figure 2):

- 15 additional storage tracks constructed on the vacant rail yard at 300 Low Level Road;
- Realignment of tracks within Richardson's existing rail yard to facilitate the efficient receiving and storage of Unit Trains, and incorporate the new rail infrastructure, associated with the Project; and
- Addition of crossovers and turnouts within the existing yard.

In addition, a road access for service vehicles and a truck turnaround at the Site entrance will be constructed.

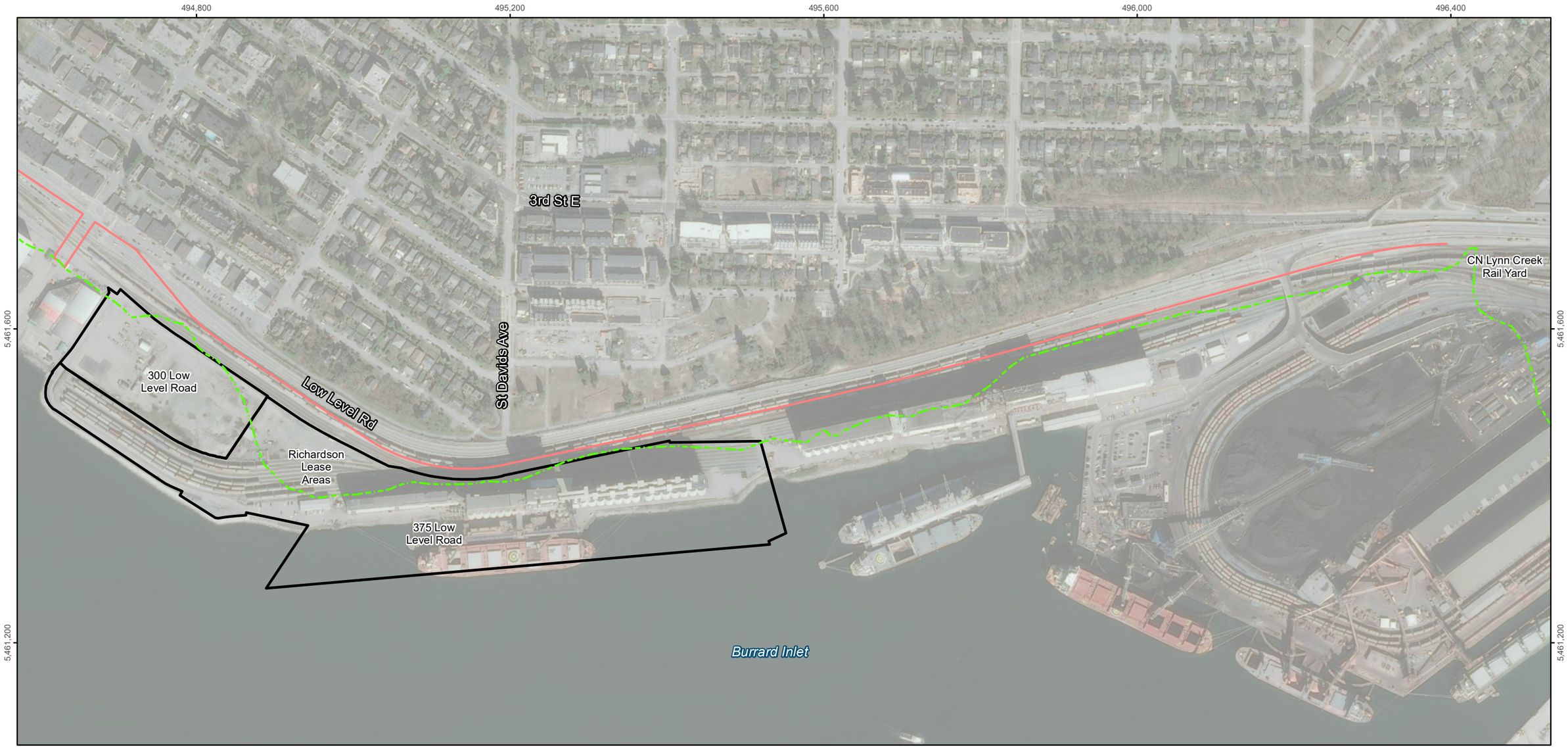
The Project construction will be conducted in three (3) phases, as follows:

- Phase 1, will include protections to hydro and water utilities necessary to service equipment installed for the Project and within the expanded area of the industrial siding.
- Phase 2, will include the stripping of surficial material and preparation of the rail bed. All materials that cannot be repurposed for the Project (i.e., soils), will be disposed of, in an acceptable manner, as approved by the VFPA. Phase 3, will involve the installation of new rail infrastructure at the facility, next to the existing industrial siding, including trackage, switches, crossings, and other essential rail siding equipment.

DRAFT

DRAFT

Figure 1 Location plan.



Legend

- Historic Shoreline
- VFPA Boundary
- Richardson Lease Areas

Data Sources:
a) Access road, AECOM 2021.
b) GeoEye-1 50 cm image, 15 March 2020, Esri Online Service.

0 50 100 150 m N

Scale: 1:5,000

Projection: NAD 1983 UTM Zone 10N

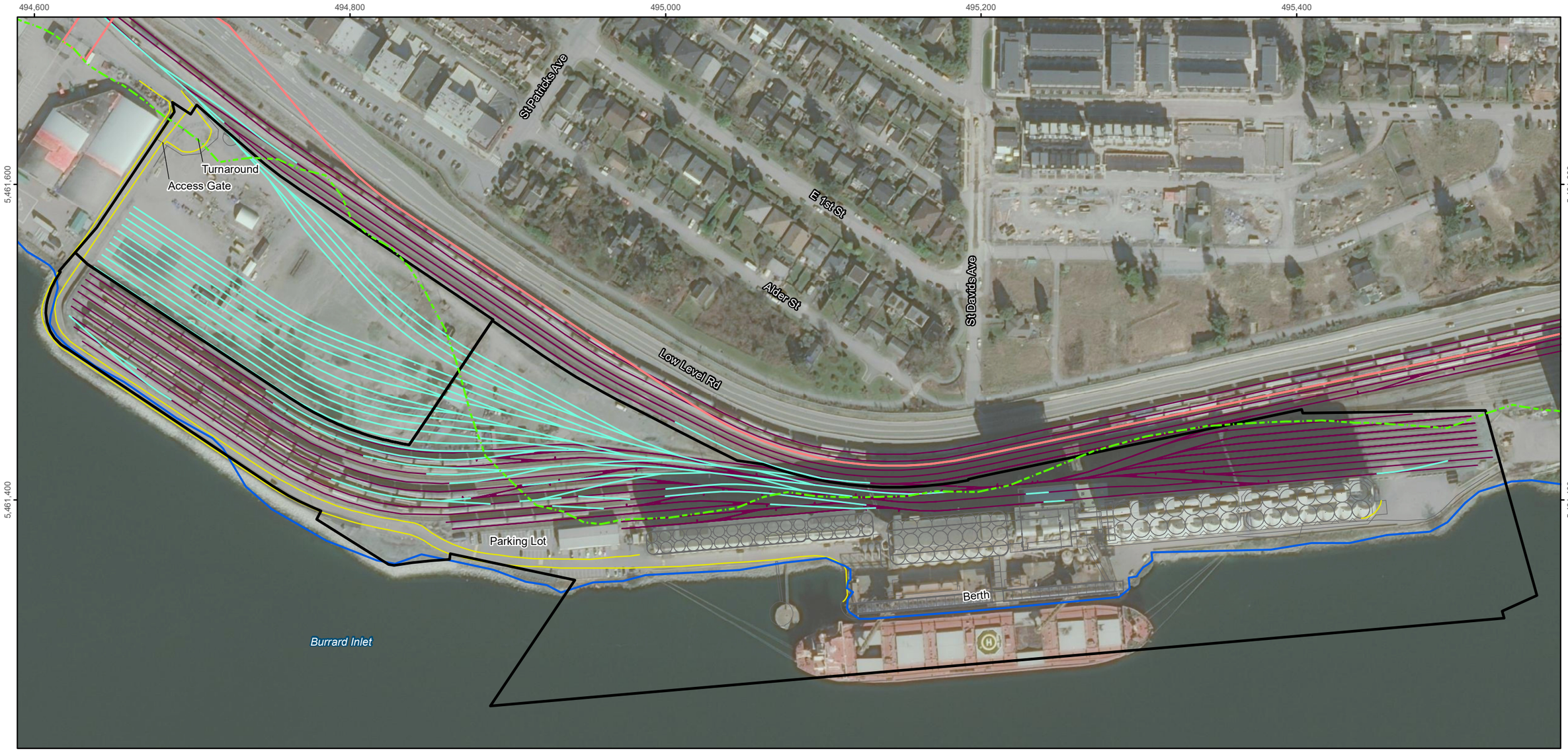
Hatfield

Richardson Terminal Rail Upgrade

K:\Data\Project\MOTT10957-NV\A_MXD\MOTT10957_LocationPlan_20210915_v0_7_AH.mxd

Figure 2 Site plan.

DRAFT



Legend

- Historic Shoreline
- VFPA Boundary
- Richardson Lease Areas
- Site features
- Access Road
- New track
- Existing track
- High water mark

Data Sources:
a) Access road, site features, railways, Richardson lease areas, VFPA boundary, historic shoreline, AECOM 2021.
b) High water mark, Government of BC 2021.
c) GeoEye-1 50 cm image, 15 March 2020, Esri Online Service.

0 20 40 60 m

N

Scale: 1:2,500

Projection: NAD 1983 UTM Zone 10N

Hatfield

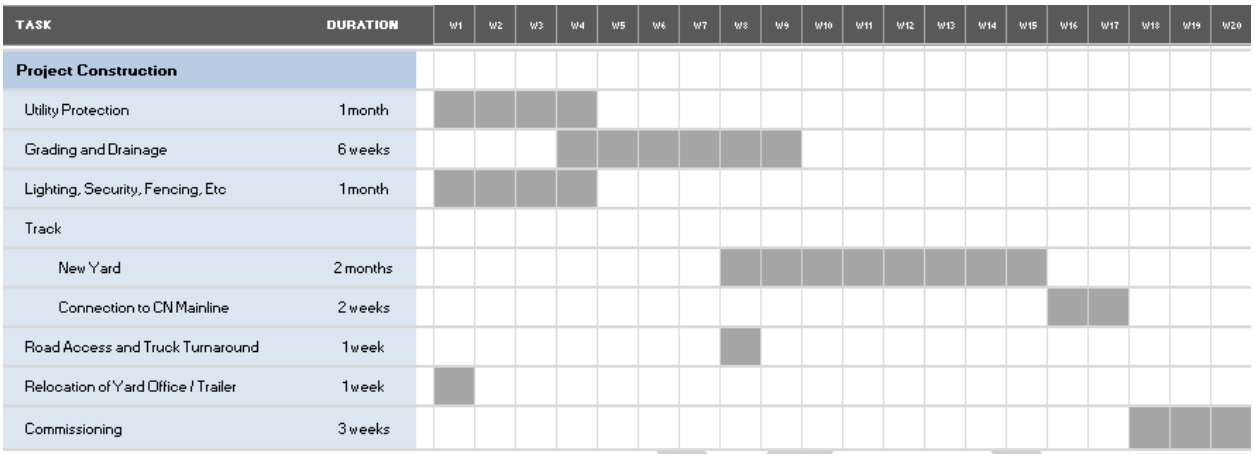
Richardson Terminal Rail Upgrade

K:\Data\Project\MOTT10957-NV\A_MXD\MOTT10957_ExistingVsNew_20210915_v0_5_AH.mxd

2.3 PROJECT SCHEDULE

The duration of Project construction is anticipated to be 20 weeks (Figure 3). The overall construction timeline will be confirmed once permitting is received and materials are procured.

Figure 3 Project Schedule.



2.4 SITE DESCRIPTION

The Site includes an area approximately 2.4 hectares (ha) in size, which is currently free of permanent structures. Currently, the Site has several temporary structures throughout, such as site offices, and work trailers, and is temporarily used for the storage of construction materials. The Site is predominantly flat and paved with asphalt throughout, except for the east third of the Site, which is covered in gravels and includes a stockpile of used sub-ballast rock.

DRAFT

3.0 CONTACTS AND RESPONSIBILITIES

Richardson shall be responsible for verifying that the Project is constructed in compliance with environmental legislation and regulations, permitting requirements, Best Management Practices (BMPs) and other Project environmental documents. Richardson's Project Manager(s) or delegates will oversee construction supported by consultants, as required.

The selected Contractor shall be responsible for conducting works in accordance with conditions provided in permits, contract specifications and this CEMP.

Qualified Environmental Professionals (QEPs) will be responsible for environmental monitoring during Project construction. Contractual arrangements for environmental monitoring are yet to be determined. EMs shall demonstrate a working knowledge of the Site, be knowledgeable of the status of the Project work, and all environmental issues and conditions associated with the Project and the Site works.

Contact details for key Project personnel and a description of the roles and responsibilities of the environmental personnel are provided in Table 1.

Table 1 Primary Contact List.

Name	Company	Role	Phone Number
Project Team			
Andrew Kammerloch	Richardson	Corporate Project Manager	204-232-5457
Devon Maharaj	Richardson	Operations Manager	604-904-4506
Lianne Leblond	Hatfield	Environmental Consultant	604-722-2615
Carmen Otero	Mott MacDonald	Engineering Consultant	778-897-2802
Agencies*			
Environmental Programs	VFPA		environmentalprograms@portvancouver.com
Harbour Master	VFPA Operations Centre		604-665-9086, harbour_master@portvancouver.com
Dave Owens	CNV	Deputy Fire Chief, Prevention and Public Safety	T 604-904-5206 C 604-841-5756 DOwens@cnv.org

* Emergency response contact numbers, including those for Spill Reporting, are presented in Table 4 within Section 7.0: Emergency Communication.

DRAFT

3.1 TYPICAL RESPONSIBILITIES OF RICHARDSON OR THEIR REPRESENTATIVE

- Review the Environmental Protection Plan (EPP) prepared by the Contractor and Environmental Monitoring Reports;
- Provision of Richardson BMPs to the Contractor;
- Engage VFPA, other regulators and Indigenous communities, as required; and
- Oversight to verify the Contractor is conforming to and complying with permit conditions, legislation, regulations, and the requirements of this CEMP.

3.2 TYPICAL RESPONSIBILITIES OF THE EM

- Verify that all works are carried out in compliance with the environmental obligations set out in the environmental legislation and permit conditions and in conformance with this CEMP;
- Oversee preparation and submission to VFPA of all reports required under this CEMP and all other reports required under permits and approvals;
- The EM shall have the authority to halt construction activity and issue a Stop Work Order, if works fail to meet environmental requirements, or are, in their professional judgment, representing a significant or unacceptable risk to the environment. Recommendations to resume work shall be made once the causes leading to the Stop Work Order have been identified, addressed, controlled, and the environmental risks have been acceptably reduced or eliminated. Work will be allowed to resume once conditions detrimental to the environment have been rectified to the satisfaction of the EM and Richardson;
- Liaise with Richardson and the Contractor and provide technical advice to resolve situations that may impact the environment as they arise;
- Oversee the successful implementation of the CEMP and environmental compliance;
- Review the Contractor and sub-Contractor work procedures to verify functionality and compliance with the CEMP and applicable regulations, standards and BMPs;
- Complete monitoring tasks as defined in Section 6.1;
- Facilitate resolution of any identified environmental issues; and
- The permit holder or EM will notify VFPA immediately in the event of non-compliance.

3.3 TYPICAL RESPONSIBILITIES OF THE CONTRACTOR

- The Contractor shall prepare a site-specific EPP based on this CEMP, to be reviewed and approved by Richardson prior to the initiation of works;

DRAFT

- The Contractor shall comply with the VFPA PER permit and any other permit or licence issued for the Project as well as all other applicable federal, provincial, and municipal laws, statutes, by-laws, regulations, orders, and policies;
- The Contractor shall cooperate with the EM appointed for the work. The Contractor shall comply with written or verbal instructions with respect to conducting activities in compliance with mitigation measures outlined in the CEMP;
- The Contractor shall prioritize the correction of deficiencies and any non-compliance issues. Corrections shall be made as soon as reasonably possible, ideally within 24 hours of directions; and
- The Contractor shall provide an environmental orientation to all staff and sub-contractors and provide a copy of this CEMP and/or the associated EPP for review prior to working on the Project.

DRAFT

4.0 RELEVANT LEGISLATION

Table 2 describes relevant environmental legislation for the Project works.

Table 2 Relevant Environmental Legislation.

Legislation	Agency	Description	Approval or Permit in Place/Forthcoming; or Requirements Met
Federal			
Impact Assessment Act (IAA)	VFPA	The IAA governs the environmental assessment of certain activities and the prevention of significant adverse environmental effects. IAA regulations identify the physical activities that may require an Environmental Assessment. The requirements for projects on federal land are also defined in the IAA (Sections 82 to 89).	The VFPA must determine that the Project is not likely to result in significant adverse effects before allowing the Project to proceed. This responsibility is covered by the PER process.
Provincial			
Spill Reporting Regulations of the *Environmental Management Act (EMA)*	Ministry of Environment and Climate Change Strategy	The regulation establishes procedures for reporting the unauthorized release of substances into the environment as well as outlining details of reportable amounts for certain substances for sites having Provincial jurisdiction.	Substances (e.g., hydrocarbons) that may be harmful to the environment may be used during the construction period of the Project. An Environmental Emergency Plan and a Spill Response Plan have been developed for the construction phase of the Project and are provided in Section 7.2 and Section 7.3 of this CEMP, respectively.
Municipal			
Noise Regulation Bylaw No. 5819	City of North Vancouver	The Noise Regulation Bylaw regulates or prohibits the making of certain noises in the City and includes information on objectionable noises or sounds, exclusions, enforcement, penalty, and ticketing (CNV 2011).	The Project falls under VFPA jurisdiction, thus hours of work and noise levels will be determined through VFPA processes. Reasonable efforts to limit noise emissions during Project construction will be taken. Mitigation measures to be implemented to minimize noise emissions resulting from construction activities are provided in Section 5.5 of this CEMP.

DRAFT

5.0 MITIGATION MEASURES AND ENVIRONMENTAL SPECIFICATIONS

5.1 GENERAL PRACTICES

Richardson is a currently operational site that will continue to be operational during Project construction. The Richardson team will continue to implement the Spill Response Plan and Emergency Contingency Program as it relates to operations. The requirements and mitigation measurements below were developed in alignment with Richardson's existing plans and will be implemented by the Contractor as it relates to their scope of work and activities.

The following general mitigation measures are recommended to avoid or minimize impacts to environmental resources or members of the surrounding community resulting from Project works:

- All Project personnel will receive training on how to properly implement protection measures for which they are responsible;
- Environmental awareness talks will be conducted on a regular basis to confirm workers are aware of potential construction-related effects of works, and the mitigation measures to be employed during works, as outlined in the CEMP; and
- The EM will remain in contact with Contractor crews to review environmental constraints and any additional measures that may require implementing, such as in-water environmental mitigations, or ongoing opportunities for corrective and/or preventive actions.

5.2 SITE ACCESS, MOBILIZATION, AND LAYDOWN AREAS

Site access is through the Site entrance on Victory Ship Way. Laydown areas will be located within the railyard area.

Other than the construction of the truck turnaround, the project does not require any modifications to existing roads.

5.3 TRAFFIC MANAGEMENT

Trucks will be used to transport materials to the Site; however, the predominant requirement relates to the removal of material from the Site for regrading during Phase 2 and the import of sub-ballast. The number of trucks required will depend on the quantity of material that can be repurposed as sub-ballast, which will be determined by the level of soil contamination (see Section 5.8). Soil repurposing will reduce both off-site trucking required for disposal and inbound trucking required for sub-ballast and fill.

At the maximum disposal estimate (10,000 m^3), approximately 900 trucks would be required over a 4-week period. Assuming six 10-hour days, this equates to approximately four (4) truck movements per hour. Inbound trucks carrying the maximum estimate of sub-ballast and fill (6,800 m^3) under the same assumptions will require approximately three (3) truck movements per hour.

DRAFT

Disposal of materials will require additional trucking during Phase 2 of construction. All trucks will enter the Site through the entrance on Victory Ship Way. In order to minimize impacts, traffic management mitigations will include:

- As far as possible, material will be reused on-site to minimize disposal requirements;
- Truck movements will be restricted to standard VFPA working hours;
- Truck movements will be planned to avoid busy times of day on Low Level Road;
- Truck movements will be further planned to spread the movements across the day and minimize the number of trips to and from the Site per hour; and
- Track out of vehicles from Site will be managed (i.e., sweeping of roadways and the use of large gravel at the road access points) to reduce dispersion of sediment and material off-site.

5.4 AIR QUALITY

Potential exposure pathways include air pollution from trucks, machinery and equipment. Air quality issues, if apparent, are expected to be limited in duration to working hours.

The following mitigation measures shall be implemented to reduce air emissions resulting from Site activities:

- No burning of any materials shall be permitted at the Site;
- Contractors will ensure that all equipment, vehicles, and stationary emission sources shall be well-maintained and used at optimal loads to minimize emissions. A preventative maintenance program shall be implemented for all diesel and gasoline-powered equipment (e.g., 500 hours or sooner if required by manufacturer). Any parts showing excessive signs of wear or malfunction shall be promptly repaired or replaced. Electric equipment shall be used where practical;
- Contractors will ensure that all equipment shall be fitted with standard emission control devices in compliance with federal, provincial, regional district, and municipal regulations and standards;
- Contractors shall ensure that equipment is in compliance with the VFPA's Non-Road Diesel Emissions program (VFPA 2015);
- Vehicle and equipment idling time shall be restricted and minimized during construction to the greatest practical and safe extent. Employees shall be required to turn off vehicles or heavy equipment when not in use; and
- Stationary emission sources (e.g., portable diesel generators, compressors, etc.) shall be used only as necessary and turned off when not in use.

5.5 NOISE AND VIBRATION

The following mitigation measures and BMPs shall be implemented to minimize noise emissions resulting from Site activities:

- Construction will be restricted to VFPA standard work hours of 07:00 to 20:00 Monday to Saturday. No work is planned for Sundays or holidays;
- Contractors shall ensure that all equipment shall be properly maintained to limit noise emissions to the extent practical and fitted with functioning exhaust and muffler systems. Machinery covers and equipment panels shall be well fitted and remain in place to muffle noise. Bolts and fasteners shall be tight to avoid rattling;
- Contractors shall ensure that engines shall be turned off when not in use. Vehicle and equipment idling time shall be restricted and minimized during construction;
- Contractors shall ensure that machinery and equipment shall only be operated within specification and capacity (e.g., machines shall not be overloaded); and
- Procedures shall be put in place for receiving and responding to noise complaints. Records of any complaints shall be kept for a minimum of six months.

5.6 MACHINE AND EQUIPMENT

Prior to the start of Project works, the Contractor is required to provide a list of all equipment and machinery to be used on-site during construction, identifying equipment type, fuel type, year of manufacture, and engine power rating.

The following mitigation measures will be implemented to avoid or minimize impacts resulting from operation and storage of equipment during construction activities:

- Off-site maintenance of construction-related equipment should be prioritized before field repairs. No on-site equipment maintenance will occur without Richardson's prior approval;
- Mobile equipment (e.g., vehicles, concrete trucks, haul trucks) will be refueled, lubricated, and serviced at designated locations, equipped with secondary containment;
- Equipment and machinery should be in good operating condition and maintained free of leaks, excess oil and grease, invasive species, and noxious weeds;
- Stationary equipment shall be operated on top of a drip tray, and drip trays shall have the capacity to contain any spills or leakage during set-up, operation, and dismantling. Rainfall and hose connections/disconnections shall be taken into consideration when determining the required capacity of drip trays. Total capacity of drip trays shall be a minimum of 110% of potential spill volume;
- Light spill shall be reduced by pointing lights downward, where the direction does not impact safety, and placing task lighting as close to the work area as possible;
- Site refueling procedures will be posted in a visible place where they can be viewed by all operators;

- All operators and designated site personnel shall receive training on proper fuel handling and refueling procedures; and
- A spill containment kit shall be readily accessible both on-site and on each piece of equipment in the event of a release of a deleterious substance to the environment. All members of the construction team should be trained in the use of spill containment equipment/items. Any spill of a substance that is toxic, polluting, or deleterious to aquatic life should be reported as per the reporting procedures described in Section 6.3.

5.7 SURFACE WATER PROTECTION AND CONTROL

Collected stormwater on-site during construction will be directed to the existing stormwater system. As the stormwater system discharges into Burrard Inlet, the potential release of sediment and other deleterious substances could lead to water quality, and fish and fish habitat concerns.

Activities that have the potential to cause adverse environmental impacts through surface water runoff and erosion include:

- Site preparation;
- Excavation and grading; and
- Handling, transfer, and storage of excavated materials.

The following mitigation measures to prevent erosion and surface runoff will be applied:

- Surface water shall be diverted around disturbed construction areas, stockpiles and lay down areas (e.g., by installing temporary curbs along road access points). Diversion shall avoid significant alteration of pre-existing down slope drainage;
- Any erodible construction spoils/materials stockpiled on-site shall be placed so that erosion into the stormwater system is prevented. Methods to prevent erosion may include coverings or shields as necessary;
- Silt fences shall be properly installed on the lower perimeter of slopes to contain waterborne movement of any stockpiled material;
- The stormwater system includes an oil grit separator (OGS) prior to discharge through the existing storm outfall; and
- Stormwater discharge will not result in exceedance of the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life within Burrard Inlet. This will be monitored as described in Section 6.1.

5.8 SOIL AND GROUNDWATER MANAGEMENT PLAN

Contaminated soil has been identified on-site during previous investigations of the Site (Golder Associates Ltd. 2010; SLR 2011), and as such, excavation works on-site may encounter contaminated soil. All excavated material will be retained temporarily on-site to be sampled and managed accordingly for re-use on-site or off-site re-use or disposal.

DRAFT

The average depth of the excavation is <1 m and it is not expected to reach depths to encounter groundwater (inferred depth >1.7 m). Therefore, no dewatering or discharge will occur during excavation.

The Soil Management Plan will be further developed once design for excavation and re-use has been finalized. At a minimum, in all areas where soil will be excavated, the Contractor shall use the following measures to manage contamination:

- Excavated soils will be segregated and stockpiled according to anticipated soil contaminant classifications
- Soil stockpiles will be covered with plastic in an appropriate temporary soil storage area, which has a continuous impermeable surface and appropriate grading to assist in managing run-off during periods of rainfall. The Project will not include any permanent stockpiles;
- The temporary soil storage area will be bermed to control any run-off, and have appropriate water control needed as necessary (i.e., pumps and tanks available if needed);
- Stockpiles will be tested to verify soil quality and determine management options (e.g., potential for re-use); and
- Once soil is classified, it will be either disposed off-site at an appropriate disposal location, i.e., a permitted site for soils exceeding Canadian Council of Ministers of the Environment (CCME) and/or Contaminated Sites Regulation (CSR) standards, or reused as appropriate based on analytical results, and under the direction of an appropriately trained Qualified Environmental Professional (QEP).

5.9 VEGETATION AND WILDLIFE MANAGEMENT

Vegetation and wildlife management issues on the Site could potentially occur during machinery and equipment operations, transport of materials, and other Site activities. A site survey determined that approximately 8% of the Site is covered with vegetation, predominantly invasive species, and killdeer (*Charadrius vociferus*) were recorded. No flora or fauna species at risk were recorded. Potential effects on vegetation and wildlife include the following:

- Wildlife sensory disturbance; and
- The unintended introduction or spreading of invasive plant species.

5.9.1 Vegetation

Vegetation removal will occur where necessary for works to proceed. The following general mitigation measures will be followed in an effort to mitigate disturbance to wildlife and risk of invasive plant spread during construction:

- Machinery will be inspected and be clean of mud/debris, invasive seeds, and plant material prior to arriving on the Project area; and
- Vehicles will be washed at an approved location outside of the Project area, as required.

5.9.2 Wildlife

Project works could potentially result in human-wildlife contacts through the improper management of wildlife attractants, such as food scraps and garbage. Given the relative absence of wildlife habitat within the Project area, impacts are expected to be minimal provided the mitigation measures described herein are followed:

- Clearing will be planned to occur outside the general songbird nesting season (March 15 – August 31). If clearing during that period is unavoidable, nesting bird activity surveys will be conducted. Should an active nest be discovered, a buffer will be established around the nest to protect the nest and allow construction activities to proceed outside the buffer. As determined by a wildlife biologist QEP, the appropriate buffer will be established and maintained until the nest is no longer active.
- Food and food wastes will be stored in a manner that is not readily accessible to wildlife;
- All food and other wildlife attractants, which may contain any substance with a strong smell, will be stored appropriately in a wildlife-proof container or building and removed from the Site at the end of each day;
- Feeding of wildlife will be prohibited on-site;
- Should a rare or sensitive species be identified at the Site at any time during the Project, the EM should be notified immediately for further direction; and
- Environmental incident reporting will be carried out for incidents that pose or may pose a threat to disruption or destruction of wildlife.

5.10 CONCRETE WORKS AND GROUTING

During project Concrete works are limited to minor works for fixing fencing and lighting posts.

Accidental release of concrete to the marine environment through the stormwater system will be avoided.

The following mitigation measures shall be implemented to prevent and minimize the potential for adverse effects to the environment during concrete pouring and grouting:

- Concrete shall be carefully poured using a tremie pipe to minimize spillage;
- Proper housekeeping practices and appropriate isolation techniques shall be employed to minimize the potential for spills;
- Appropriate spill cleanup materials shall be readily available and easily accessible. Contractors shall be aware of the materials required to clean up a concrete spill;
- Concrete washout shall occur in designated areas only, as determined in consultation with the EM;
- All works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing Construction materials shall not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into the stormwater system;

- Before pouring concrete, all concrete forms shall be thoroughly inspected to verify that form work is fully secured and sealed to prevent the release of concrete or concrete contaminated water into the stormwater collection system;
- Any water contacting uncured or partly cured concrete or Portland cement or lime-containing Construction materials, such as the water that may be used for wet curing, equipment washing, etc., shall be prevented from entering, directly or indirectly, the marine environment unless this water has been tested and found to have a pH between 6.5 and 9.0 units and a turbidity of less than 25 NTU;
- Containment facilities shall be provided that allow for wash-down water produced from concrete delivery trucks, concrete pumping equipment, and other tools and equipment, to be trapped on-site and reused (i.e., flat ground, a minimum of 30 m from the inlet or any surface water feature); and
- Discharge of concrete contact water directly to ground shall be prohibited.

5.11 ARCHAEOLOGICAL RESOURCES

To mitigate against any possible impacts to archaeological resources that may be present on-site a professional Archaeologist and Indigenous monitors may be required during excavation activities. The extent of excavation activities is still being determined and monitoring requirements will be defined through consultation with VFPA and involved Indigenous Nations.

A Chance Find Protocol, consistent with VFPA Chance Find Procedures (VFPA 2021), will be implemented. Implementation of the protocol involves halting work activities in the event a suspected archaeological or historical object is encountered until a professional archaeologist and Indigenous monitor(s) can assess the find(s) site.

In addition, if a suspected archaeological or historical object is encountered during construction activities, the Contractor will:

- Notify the EM and Richardson of the find;
- Stop work within 20 m of the suspected find. Further work that could disturb the immediate vicinity of the suspected find site will also be halted, including the transport of soil or rock to or from the immediate vicinity of the find site;
- Put up a flag or cone buffer 20 m around the find to protect the area until it can be assessed by an archaeologist or a port authority PER representative.
- Immediately notify VFPA;
- The find will not be moved or otherwise disturbed;
- Any found artifact must not be removed from the Site until proper procedures have been implemented by a professional archaeologist;
- An Archaeology Chance Find Recovery Form shall be completed by the person who identified the potential heritage resources, or by the EM or Project Manager. The completed form will be

maintained on file in the Project's administrative office, and will contain the following basic information:

  - Date (when the find was encountered);
  - Observer (name of the person recording the information about the find);
  - Find location (detailed enough so that it can be located again; Global Positioning System (GPS) coordinates if possible);
  - Type of find (e.g., type of archaeological discovery: stone, bone, wood, etc.);
  - Description of the obvious disturbance to the find (by equipment, etc.); and
  - Photographs, (only to be taken with consent from the involved Indigenous Nations).

- The EM shall provide details and photographs (only to be taken with consent from the involved Indigenous Nations) of the suspected find to the professional Archaeologist;
- If the find is deemed significant, the professional Archaeologist, in consultation with the involved Indigenous Nations shall conduct a site survey to further document the find. The professional Archaeologist shall assess the significance of the find including the location and determine recommend options for mitigation.
- In consultation with the Indigenous monitors, the professional Archaeologist shall submit recommended options to the appropriate government agency (Archaeology Branch), Richardson, and affected Indigenous Nations for review.
- The professional Archaeologist shall determine agreement for mitigation in consultation with the appropriate government agency, Richardson, and affected Indigenous communities;
- Should suspected human remains be discovered, procedures shall follow the VFPA *Chance find procedure: suspected human remains* (VFPA 2021). Local law enforcement shall also be informed in the event of found human remains; and
- Once the find is evaluated and mitigated to the satisfaction of the regulatory authorities and the involved Indigenous Nations, and the Site has been cleared, construction activities may recommence.

Unauthorized alteration of, or damage to, heritage or archaeological resources is defined as a breach of the heritage management requirements and will be considered an Environmental Incident. If an Environmental Incident of this nature were to occur on the Project, the incident reporting procedure must be followed.

DRAFT

6.0 ENVIRONMENTAL MONITORING AND REPORTING

6.1 ENVIRONMENTAL MONITORING

Environmental monitoring is essential for effective implementation of the CEMP. Environmental monitoring will be carried out on a regular basis by the EM, at a frequency suited to the level of environmental risk of the work being completed. Environmental risk will be assessed by considering such factors as: type of construction (e.g., type of equipment, scale, intensity), and weather. The EM will check, evaluate, and report on the on-site implementation of environmental mitigation measures, throughout environmentally sensitive Project construction

Examples of activities or facilities to be monitored by the EM during construction include but are not limited to:

- Erosion and Sediment Control – Check mitigation measures used to remove, handle and store soil and other construction-related aggregates;
- Stormwater system monitoring – Check water quality as per discharge permit requirements;
- Materials Storage and Handling – Check activities relating to the handling, storage, transportation and disposal of waste, Hazardous Waste, fuels, and chemicals. Check that all on-site personnel are aware of the potential environmental impacts associated with spills of hazardous or harmful substances and of regulatory requirements under the Environmental Management Act's Spill Reporting Regulation, Hazardous Waste Regulation, and other applicable regulations. Periodically check on-site spill response materials and equipment and evaluate the Subcontractors' spill response readiness;
- Air Quality and Noise and Vibration Levels – Conduct qualitative monitoring of dust, exhaust systems and noise and vibration levels associated with the operation of construction machinery and equipment; and
- Construction Vehicles and Equipment – Conduct visual checks to ensure that all machinery used on-site is maintained in good repair, free of external oil and grease and that any spills or leaks from machinery are immediately cleaned up and the clean-up materials removed off-site to an approved disposal facility. Periodically inspected construction vehicles and equipment to ensure that they are equipped with spill kits and that the operators know how to respond in the event of a spill.

At a minimum, the EM will make at least weekly site visits to check measures and sediment detention facilities in all work areas. Monitoring intensity will increase following a rainfall event, or if there is a suspected non-compliance. Site checks will verify proper functioning of the mitigation measures and compliance with applicable legislation and regulation, the CEMP, and other requirements. Additional monitoring and testing of soils will be determined in an updated Soil Management Plan once the plan for excavation is finalized. At this time, requirements for archaeological monitoring can also be determined through engagement with Indigenous nations and VFPA.

Monitoring of the efficacy of erosion and sediment control (ESC) measures will occur immediately following a heavy and/or prolonged rainfall such as a severe rainfall event (defined as ≥25 mm precipitation within

DRAFT

any 24-hour period). If ESC measures are undermined by such events, construction personnel will prioritize their maintenance and repair.

Key responsibilities of the EM, as relating to water quality monitoring are:

- Monitor water quality through in situ sampling for turbidity and pH of the construction areas including site run-off or other construction affected discharge into the stormwater system;
- Sample for and analyze Total Suspended Solids (TSS), as may be mandated by visual observation or high turbidity readings in storm flows from construction areas; and
- Sample for and analyze Oil and Grease as may be mandated from observations of hydrocarbon sheen(s) in discharges.

6.2 REPORTING

Environmental monitoring reports will be completed and submitted, as required by permit and contractual requirements. Routine environmental monitoring reports, completed by the EM, will include, at a minimum, the following information:

- Name(s) of Environmental Monitor(s);
- Period covered by the report;
- Contractor(s) undertaking work during the reporting period;
- Overall weather conditions during the reporting period;
- Description, photos, and status of Project work activities;
- List of meetings and any other material communications (both those that occurred during the reporting period and any that are scheduled or anticipated in future reporting periods) and a summary of key issues discussed or expected to be discussed;
- A summary of environmental incidents that occurred during the reporting period;
- A description of environmental issues and/or non-compliance with environmental laws, permits, or other environmental obligations and corrective actions taken or planned;
- A summary of any environmental monitoring data collected, and all results received during the reporting period, including water and sediment sampling; and
- An organized checklist or table of key mitigation requirements of the CEMP – including those of VFPA and other agencies – to verify implementation and effectiveness at the relevant stages of the Project.

6.3 INCIDENT REPORTING

Environmental incident reporting shall be carried out for incidents that pose or may pose a threat to the environment, such as spills, death of fish, or disruption or destruction of fish habitat. Spills may be reportable to EMBC under the Spill Reporting Regulation and/or the Transportation of Dangerous Goods Act. In

DRAFT

addition, spills of any volume to fish-bearing waters must be reported to DFO. Spills must be reported verbally to a Richardson Onsite Project Manager or designate.

An Environmental Incident Report shall be generated for any of the following occurrences:

- Spills reportable to EMBC;
- Spills of any amount that has the potential to reach Burrard Inlet through the stormwater system;
- Any incident that poses a safety or health risk, including but not limited to vehicle collisions and fire;
- Any repetitive occurrence of an environmental non-conformance;
- Adverse publicity with respect to the environment; and
- Alteration or damage to archaeological resources.

DRAFT

7.0 EMERGENCY RESPONSE

7.1 EMERGENCY COMMUNICATION

Clear and rapid communication is essential during emergency situations. Table 3 contains contact information for all parties who are responsible for the project or are critical to the response or reporting of accidents or environmental emergencies.

Table 3 Emergency response contact numbers.

Nature of Incident/Emergency	Authority/Company Name	Contact
Emergency Services	Emergency Services	911
	RCMP	911 / 604-946-4411
	Lions Gate Hospital	604-988-3131
	Local Fire Department-North Vancouver City Fire Department	911/ 604-980-5021
	Ambulance	911
	North Shore Emergency Management Office	778-338-6300
Richardson's Emergency Contacts	Security	Devon Maharaj 604-904-4506
	First Aid	Devon Maharaj 604-904-4506
	Operations	Devon Maharaj 604-904-4506
	Maintenance	Devon Maharaj 604-904-4506
	Environment	Devon Maharaj 604-904-4506
Reportable Spills under EMA and Spills to Water	EMBC	1-800-663-3456
Spills to Water Having Potential to cause Death of Fish or HADD	DFO	1-866-845-6776
Spills to Marine Environment	Canadian Coast Guard (Marine Pollution)	1-800-889-8852
Spills of Dangerous Goods in Transport	EMBC	1-800-663-3456
	Emergency Services	911
	Canadian Transport Emergency Centre (CANUTEC)	613-996-6666 or *666 on a cell phone
	Employer/Person in Control of the Dangerous Goods	Devon Maharaj 604-904-4506
Chance Find of Archaeological Materials	VFPA PER Hotline	604-665-9047 PER@portvancouver.com
First Nation Emergency Contacts	Tsleil-Waututh Nation	604-263-3261
	Squamish Nation	604-980-4553
	Musqueam Indian Band	604-263-3261

DRAFT

7.2 EMERGENCY RESPONSE PLAN

Emergency response equipment shall be stored in clearly signed, easily accessible and identified locations. Existing spill containment and clean-up supplies shall always be made available on Site including during non-operating hours. Details of reportable volumes of substances and agency reporting procedures, along with a list of emergency contacts, are outlined in the Spill Response Plan (Section 7.3).

The EM must be notified of all environmental emergencies, including spills, releases, or compliance incidents. The EM will assess and record all incidents and determine appropriate action. All significant spills will be reported to EMBC and the VFPA Operations Centre. All environmental incidents must be immediately reported to Richardson.

Emergency response equipment will be stored on-site in clearly signed, easily accessible and identified locations. Spill containment and clean-up supplies must always be made available on-site, including during non-operating hours.

Emergency response equipment shall be appropriate to the situation and could include, but is not limited to:

- Emergency kits (e.g., spill kits, earthquake kits, first-aid, etc.) and hazard-specific personal protection equipment (e.g., flame resistant clothing, rubber gloves for electrical work, fall arrest harness, respirators, etc.);
- Fire alarm systems, gas detectors, and firefighting equipment;
- Emergency backup generators, as required, located at critical facilities that require power to prevent injury to workers and impact to property and the environment (e.g., pumps, communications systems etc.);
- First aid equipment, attendants, and supplies. Minimum levels of first aid equipment, first-aid attendants, supplies, services, and facilities in accordance with WorkSafe BC guidelines; and
- Clean-up materials and equipment.

Procedures and schedules for the maintenance and replacement of emergency equipment (e.g., fire extinguishers, ladders, emergency earthquake kit, etc.) shall also be provided.

7.3 SPILL RESPONSE PLAN

The following spill response procedures have been developed in general alignment with Richardson's existing Spill Response Plan for the type of work and activities to be undertaken for the construction of the Project. All spills, regardless of type or volume, are to be reported to the EM and Richardson immediately.

Spill response procedures are defined in the following sections.

DRAFT

7.3.1 For Spills Above Spill Reporting Regulations, Reportable Under EMA

1. Make the area safe;
2. Call for assistance from co-workers / Supervisor / Safety Department or Seaspan Dispatch;
3. Stop the flow (where possible and safe to do so);
4. Contain the spill; and
5. Clean-Up:
    - The details of the spill are to be reported to the EM, Seaspan Project and Environmental Manager;
    - The EM, Seaspan Project and Environmental Managers, and the Contractor shall coordinate spill clean-up;
    - Additional assistance on clean-up procedures and residue sampling shall be available from the EM as required;
    - Clean the affected area(s), including confirmatory testing of the cleaned area(s);
    - Remove impact/debris and decontaminate any equipment or tools used during clean-up;
    - Dispose of waste materials at an approved disposal facility in compliance with the BC EMA and Hazardous Waste Regulations;
    - Dispose of all materials used in the clean-up (e.g., used sorbents, oil containment materials, etc.) in accordance with the above regulatory requirements; and
    - Treat and dispose of contaminated material in compliance with the BC EMA, Contaminated Sites Regulations and Hazardous Waste Regulations.

7.3.2 For Spills Below Spill Reporting Regulations, that are Non-Reportable under EMA

All spills, regardless of type or volume are to be reported to the EM and the Richardson Onsite Project Manager. The EM shall provide recommendations on appropriate clean-up and disposal of potentially contaminated materials.

7.4 FUEL MANAGEMENT PLAN

The Contractor will be responsible for fuel and fuel management in regard to their scope and activities for the Project. There will not be access to Richardson's existing on-site fuel facilities. The following mitigation measures are recommended to reduce the risk and potential environmental effects from the handling, transportation, and storage of fuels.

- All fuel dispensers shall be designed to meet the statutory regulations and recommended practices described in *A Field Guide to Fuel Handling, Transportation and Storage* (BC MOWLAP, 2002);
- Specific locations for equipment re-fueling shall be identified before the start of construction and should be located as far as possible from the water edge (i.e., edge of the Site) and communicated to employees in the pre-work environmental orientation training session;

- All operators shall stay with the fuel nozzle while refueling. Ignition shall be turned off while the vehicle, equipment, or machinery is being refueled. The operator shall immediately shut off the source if a spill occurs;
- Fuel storage tanks shall include secondary containment capable of containing 110% of the volume of the largest tank. Containment areas shall be designed so that containment shall remain effective in all weather conditions. Precipitation shall be prevented from accumulating within fuel containment areas. Tanks shall be physically protected from collision;
- All fuel storage tanks shall be CSA approved and shall comply with the statutory regulations and recommended practices described in *A Field Guide to Fuel Handling, Transportation and Storage* (BC MOWLAP 2002);
- Container materials and the hazardous materials shall be made of compatible materials. The container material must not react with the hazardous substance. Only containers that are in good condition shall be used;
- All necessary equipment to clean and mitigate spills, including fire prevention equipment, shall be stored in or near the storage area;
- Fuel and chemical storage locations shall be inspected daily for leaks, spills, and obvious abnormal conditions. Any leakage shall be repaired immediately;
- Smoking shall be prohibited in and around explosive, oxidizing, reactive, or flammable hazardous materials handling areas;
- Fire-fighting equipment shall be kept at oxidizing, reactive, or flammable hazardous substance handling areas;
- All servicing and refueling areas shall be kept tidy, with materials stored appropriately in accordance with all environmental laws and guidelines;
- Containers for the transportation of fuel shall be labeled to communicate the hazard the material represents, made of a material that is compatible with the transported fuel, and in good condition;
- Vehicles for the transportation of fuels shall be labeled to communicate the hazard the material represents. Hazardous materials shall be transported by appropriately licensed transporters;
- Fuels shall be transported separately from other hazardous or non-compatible materials; and
- Transport containers shall be properly secured and sufficiently spaced to allow safe access and handling of containers.

7.5 WASTE MANAGEMENT

Hazardous and non-hazardous wastes potentially generated by the Project include:

- Garbage (e.g., waste food, paper and other garbage produced by Site workers);
- Other non-hazardous solid waste;
- Waste petroleum products (engine oils, lubricants, filters, etc.) from machinery and equipment;
- Batteries and battery fluid; and
- Oily rags or sorbents containing flammable liquids.

DRAFT

7.5.1 General

The following mitigation measures will be implemented to reduce the effects of waste materials generated on-site unless alternative measures are identified by the EM:

- Applicable legislation with respect to the handling, transportation, and/or disposal of materials related to the Project works shall be adhered to. These regulations may include (but not be limited to) the BC Hazardous Waste Regulations, Spill Reporting Regulations, Workers Compensation Board Regulations, Transportation of Dangerous Goods Regulations, etc.;
- Properly labeled separate containers for hazardous wastes shall be provided, such as for oily rags and hydrocarbon absorbing pads;
- Hydrocarbon products and other hazardous wastes potentially present during project activities should be identified, and the associated Workplace Hazardous Materials Information System (WHMIS) and Safety Data Sheets (SDS) made available to all construction team members;
- Recyclable or compostable materials shall be collected separately from general waste as per Metro Vancouver Regional District requirements;
- Debris and waste materials resulting from the Project will be contained in the immediate working area and will be removed in a timely manner;
- Specific locations for waste collection and sorting will be identified by the Contractor before the start of construction and communicated to employees;
- Waste material will be stored in a manner that is secure and protected from the elements;
- Any refuse containers that are damaged or leaking will be repaired or replaced;
- No burning of wastes will be conducted on-site;
- All temporary sanitary facilities will be self-contained with no septic fields. Portable sanitary facilities will be located away from the marine environment, on flat ground, in an area that is protected from damage resulting from construction activities, vandalism, or environmental factors. Sanitary facilities will be regularly maintained by an approved operator for disposal (i.e., vac truck) off-site; and
- Records of off-site waste disposal shall be maintained. Records shall indicate volumes and dates of waste materials removed from the Site and will be kept on-site.

7.5.2 Non-Hazardous Waste

Project works may generate non-hazardous waste. The following mitigation measures are recommended to reduce the potential for the release of non-hazardous waste materials to the environment:

- Littering shall be prohibited on Site. Measures shall be implemented to prevent and control litter;
- All recyclable or compostable materials shall be collected separately from general waste as per CNV requirements;

- Designated areas and repositories shall be labeled for all recyclable and non-recyclable wastes. Construction personnel shall be trained in determining whether wastes can be recycled on-site, off-site or must be disposed of as wastes. Labeling of waste containers shall include a description of what materials are and are not accepted in each container;
- Cigarettes shall be discarded in an appropriate receptacle in designated smoking areas and not be left or buried on the Site, as per existing Richardson requirements;
- Food and food wastes shall be stored in a manner that is not readily accessible to wildlife. All food and other wildlife attractants, which may contain any substance with a strong smell, shall be stored appropriately in a wildlife-proof container or building and removed from the Site at the end of each day. Feeding of wildlife shall be prohibited on Site;
- Regular disposal or recycling shall be carried out at a frequency sufficient to prevent accumulating large quantities of waste. All solid waste shall be handled in accordance with applicable municipal, provincial, and federal regulations and disposed of at an authorized receiving facility. All materials shall be transported in accordance with the Transportation of Dangerous Goods Act and regulations and the BC Hazardous Waste Regulations; and
- Records indicating volumes and dates of non-hazardous waste materials removed from Site and sent to off-site disposal facilities shall be kept on Site. Waste materials generated that do not pose a risk to contamination of the Site shall be reused where possible. Non-hazardous waste materials generated on Site that cannot be reused shall be recycled at an approved facility, where practicable.

7.5.3 Hazardous Waste

Project works may generate hazardous waste including concrete and concrete-laden water, waste oils, chemical wastes, and used absorbent materials and filters.

The following mitigation measures are recommended to reduce the potential for the release of hazardous waste materials to the environment.

- Workers handling hazardous wastes shall be appropriately trained in handling, storage, and disposal methods;
- Hazardous wastes shall be managed, transported, labeled, stored, and disposed of according to the BC Hazardous Waste Regulations via licensed transportation and disposal facilities;
- Hazardous wastes shall be segregated from non-hazardous wastes and stored and transported in a manner that prevents incompatible materials from being mixed. Wastes contaminated with flammable liquid shall not be mixed with wastes contaminated with oil;
- Each container or area used to store hazardous waste shall be clearly labeled as containing hazardous waste and shall be equipped with adequate secondary containment that holds 110% of the volume of the largest tank or container, or 10% of the total volume of all containers, whichever is greater. Hazardous waste containers shall be kept closed except when being filled or emptied;

DRAFT

- Hydrocarbon products and other hazardous wastes potentially present during Site activities shall be identified and the associated WHMIS and Safety Data Sheets (SDS) made available to the construction crew;
- Hazardous waste containers shall be labeled and stored in accordance with all requirements of the Transportation of Dangerous Goods Act and Workers Compensation Act (WHMIS SDS labeling requirements);
- Waste rags and sorbents shall be stored in containers with self-closing lids, with the bottom of the container raised and vented;
- Used oil and antifreeze shall be collected by the BC Used Oil Management Association;
- If necessary, hazardous waste shall be temporarily stored in designated, secure areas with secondary containment and protected from the weather. The storage areas shall be located at least 30 m away from Burrard Inlet;
- Hazardous wastes shall be managed in compliance with applicable fire codes; and
- Spills of hazardous materials shall be cleaned up and immediately reported to the EM and appropriate regulatory agencies.

DRAFT

8.0 REFERENCES

CNV. 2011. Noise Regulation Bylaw 1987, No. 7188. The City of North Vancouver. Effective Date – January 24, 2011.

ECCC. 2019. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf.

Golder Associates Ltd. 2010. Human Health and Ecological Risk Assessment: 300 Block Low Level Road, North Vancouver, BC. Vancouver, BC: Prepared for Vancouver Fraser Port Authority.

SLR. 2011. Soil and groundwater investigation Low Level Road Improvement Project Definition Report. Low Level Road, North Vancouver, BC. Vancouver, BC: Prepared for Vancouver Fraser Port Authority.

VFPA. 2015. Non-Road Diesel Engine Emission Program. https://www.portvancouver.com/environmental-protection-at-the-port-of-vancouver/climate-action-at-the-port-of-vancouver/non-road-diesel-emissions-program/

VFPA. 2018. Project & Environmental Review Guidelines – Construction Environmental Management Plan (CEMP). Vancouver Fraser Port Authority. April 2018.

VFPA. 2021. Archaeological Chance Find Procedure. Vancouver, BC: Vancouver Fraser Port Authority. [accessed 2021 Sep 17]. https://www.portvancouver.com/wp-content/uploads/2021/09/2021-07-19-Vancouver-Fraser-Port-Authority-Archaeological-Chance-Find-Procedure-1.pdf.

DRAFT