

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Katzie Reserve No. 1, Pitt Meadows BC

PREPARED FOR: Katzie First Nations and EPTA Development Corp.



PREPARED BY:



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20-2065

Version	Date	Notes
1	April 2022	General CEMP for use as part of the complete development application
2	August 2022	Edits to address VFPA review comments

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List of Acronyms

AIA	Archaeological Impact Assessment
APB	Association of Professional Biology
ASPB	Alberta Society of Professional Biologists
BCAWQG	British Columbia Approved Water Quality Guidelines
BIT	Biologist in Training
BMPs	Best Management Practices
BNS	Bird Nest Survey
CAB	College of Applied Biology
CEAA	Canadian Environmental Assessment Act
CESCL	Certified Erosion Sediment Control Lead
CANUTEC	Canadian Transport Emergency Centre
CB	Catch Basin
CEMP	Construction Environmental Management Plan
CSR	Contaminated Sites Regulations
DFO	Fisheries and Oceans Canada
DP	Development Permit
ECCC	Environmental and Climate Change Canada
EDC	Epta Development Corporation
EIR	Environmental Incident Report
EM	Environmental Monitor
EMA	Environmental Management Act
EMBC	Emergency Management British Columbia
ESC	Erosion and Sediment Control
ESCAC	Erosion Sediment Control Association of Canada
FA	Fisheries Act
GIS	Geographic Information System
IAA	Impact Assessment Act
LUP	Land Use Plan
MBCA	Migratory Birds Convention Act
MFLNRORD	Ministry of Forests, Lands, Natural Resource Operations & Rural Development
MOE	Ministry of Environment
MSDS	Material Safety Data Sheets
NTU	Nephelometric Turbidity Units

OHS	Occupational Health and Safety
PEP	Provincial Emergency Program
PLG	Pacific Land Resource Group Inc.
QEP	Qualified Environmental Professional
RAPR	Riparian Areas Protection Regulation
RCMP	Royal Canadian Mounted Police
RFR	Request for Review
RFP	Registered Professional Forester
RPBio	Registered Professional Biologist
SARA	Species at Risk Act
SHIM	Sensitive Habitat Inventory Mapping
SPEA	Streamside Protection and Enhancement Area
SRE	Significant Rainfall Event
SRP	Spill Response Plan
TDG	Transportation of Dangerous Goods
TSS	Total Suspended Solids
VFPA	Vancouver Fraser Port Authority
WA	Wildlife Act
WHMIS	Workplace Hazardous Materials Information System
WMA	Waste Management Act
WQM	Water Quality Monitoring
WSA	Water Sustainability Act
WSR	Water Sustainability Regulation

1.0 INTRODUCTION

Pacific Land Resource Group Inc., (PLG) on behalf of Epta Development Corporation ("EDC"; "the Developer/Client"), has prepared this Construction Environmental Management Plan ("CEMP") as part of a Development Permit ("DP") application for Eagle Meadows Business Park. The proposed warehouse/distribution facility is comprised of six (6) properties and one (1) unopened road within Katzie Reserve No. 1 ("Subject Property/Site"). The Project proposes two (2) large light industrial warehouses approximately 371,000 square feet (34,467 square metres) in size. Full off-Site upgrades include: new sidewalks; an east west public greenway along Wharf Street, and necessary site servicing (storm, sanitary and water). A new storm outfall is proposed south on Bonson Road to the Fraser River; all information in this CEMP pertaining to the storm outfall on the Fraser River foreshore applies to works within Vancouver Fraser Port Authority (VFPA) jurisdiction.

As part of this CEMP, Best Management Practices (BMPs) are included to ensure that construction does not negatively affect environmentally sensitive areas that have been identified on and adjacent to the Subject Property. Measures, as set forth in this CEMP, will be developed and implemented to reduce risk to areas within and around the Project area.

1.1 Objectives of the CEMP

The objectives of this CEMP are to:

- Describe the work procedures to be undertaken to minimize and mitigate adverse impacts to the environment resulting from this Project;
- Provide Contractors and subcontractors with sound advice for environmental protection planning and recommend BMPs to guide work activities on the Project;
- Identify any elements of the Project that could present a potential risk to the environment;
- Identify acceptable water quality criteria to guide environmental monitoring during Project works (if required); and
- Describe emergency response procedures to be undertaken to contain and limit impacts to the environment in the event of a spill incident resulting from this Project.

1.2 CEMP Revisions

This CEMP will be used as a guide and resource for the Client, Contractors, the designated Environmental Monitor (EM), VFPA (for outfall works only), and government agencies (if applicable) to measure compliance with the environmental protection and mitigation requirements of the Project [specifically, as part of external reviews by the Department of Fisheries and Oceans Canada (DFO) and VFPA (for outfall works only) and review of proposed environmental works by the Ministry of Forests, Lands, Natural Resource Operations and Rural Developments (MFLNRORD)]. Environmental monitoring is a component of the Project and is described in the body of this CEMP.

This CEMP is considered a working report and will be updated as required following local and senior government agency review, and when Project timelines and scope changes occur.

2.0 PROJECT INFORMATION

2.1 Project Works Description and Rationale

EDC is proposing to construct a warehouse/distribution facility ("Eagle Meadows Business Park"), comprised of six (6) properties and one (1) unopened road (Lots 6-2; 6-1-2; 6-1-3; 6-1-4; 6-1-5; 6-1-7 within Katzie Reserve No. 1). The six legal lots and one unopened road right of way total approximately 7.1 hectares (17.52 acres), as shown in Figure 1.

The Subject Site is currently undeveloped and bounded by Wharf Street (also referred to as Fraser Way) to the south, single family residential uses and Bonson Road to the west, a mini storage/outdoor storage uses to the north, and a soil/gravel material storage use to the east. The Subject Site is in close proximity to Golden Ears Way and the Golden Ears Bridge, providing regional connections to Lougheed Highway, Trans-Canada Highway, and South Fraser Perimeter Road.



Figure 1. Location of Subject Site (red star)

Eagle Meadows Business Park consists of two (2) light industrial warehouse buildings totalling 370,390 ft² (34,410 m²) of floor area. The Project intends to provide a development that is:

- Attractive and provides a strong entrance into Katzie Reserve No. 1;
- Sensitive to the current and future surrounding land uses;
- Achieves the goals and objectives of the Katzie First Nation Land Use Plan; and
- Adaptable to market trends.

The Subject Site is designated as a "Katzie Commercial Centre" in the Land Use Plan. It is envisioned to be a central neighbourhood commercial area serving the Katzie community and surrounding Pitt Meadows residents with retail uses. Pedestrian connectivity via a greenway along Bonson Road is envisioned. Employment and revenue generating uses such as warehousing, storage, and other light industrial uses may be permitted in the designation as well. Light industrial uses are limited to those not generating significant amounts of odour, dust, noise,

fumes, or nuisance to the surrounding neighbourhood. The development should also be visually appealing from the street and adjacent properties.

Policies in the Commercial Centre designation encourage connectivity, community enhancement/contribution, amenity dedication, landscaping, and public art.

Eagle Meadows Business Park would like to ensure that there are local and regional community benefits resulting from the development. From a land use perspective, industrial floor space and designated industrial land is in short supply in the Metro Vancouver Region. However, the industrial land base contributes a quarter of the region's total employment with important links to transportation, trade, and tax dollars. The recent Regional Industrial Lands Strategy (2020) along with several research papers demonstrate the continued shortage of industrial land supply in the region and the regional interest to protect and intensify industrial uses in the region.

The vacant industrial land supply in the Region is forecasted to be substantially absorbed by the 2030s (Metro Vancouver Industrial Lands Inventory, 2015). The proposed light-industrial use of the Subject Site will provide additional supply to support the regional economy and employment.

Eagle Meadows Business Park will bring additional employment opportunities to operate and manage the light-industrial warehouse use. The employment use will give Katzie, Pitt Meadows, and Maple Ridge residents an opportunity to work close to where they live.

Amenity contributions are also central to the proposed development. The Katzie First Nation Land Use Plan ("LUP") includes a provision for an amenity dedication of a minimum of 5% of the development land or a cash-in-lieu contribution of up to 5% of the development construction value. The cash-in-lieu is provided to the Katzie First Nation for the development of community facilities and amenities such as parks, recreation areas, playgrounds and public art.

Eagle Meadows Business Park proposes to integrate the 5% cash-in-lieu contribution (of the development construction value) with the provision of public art on the Subject Site. The landscape drawings by Prospect & Refuge identify three potential locations for public art installation. A call for Katzie First Nation artist submissions is proposed to feature public art pieces by local artists. The public art pieces will also serve as an entrance/place-making feature that celebrates Katzie First Nation's culture and community.

2.2 Project Location

The Project / Subject Site is located within the Katzie Reserve No. 1 bordering Pitt Meadows, BC and is comprised of six (6) properties and one (1) unopened road (Figure 2 below). A proposed building plan has also been included in Figure 3 below.

The following information summarizes the specific location of the Subject Site:

Civic Address: Lots 6-2; 6-1-2; 6-1-3; 6-1-4; 6-1-5; 6-1-7

Current Registered Owners: Connie Lynn Bailey, Lisa Marie Adams, Peggy Ann Adams, Robert John Adams, Robin Ann Green, Kelly Pierre

Current Land Use Designation: Land Use Plan: Katzie Commercial Centre

Site Latitude: 49°12'10.5"N

Site Longitude: 122°40'40.6"W

The VFPA has jurisdiction over proposed works south of River Road (specifically works occurring along the river bank). See below Figure 2 for the approximate works area.

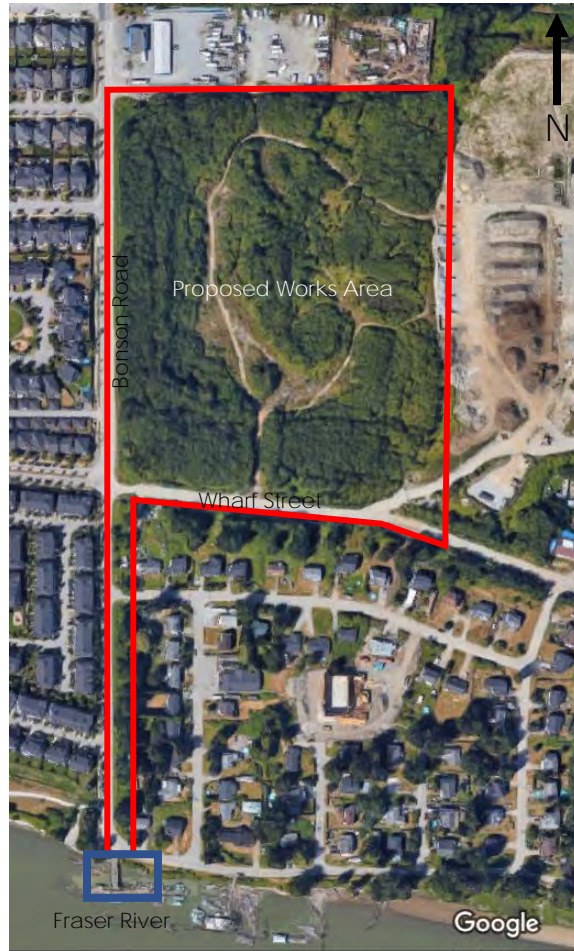


Figure 2. Location and Works Area (red outline), including works occurring in VFPAs jurisdiction (blue outline).

2.3 Project Works

The following sections describe the proposed project works, including a high level summary of on and off-Site infrastructure, general construction plans and post construction operational activities.

Project Facilities and Infrastructure

The Project proposes two (2) large light industrial warehouses approximately 371,000 square feet (34,467 square metres) in size. Full off-Site upgrades include: new sidewalks; an east west public greenway along Wharf Street, and necessary site servicing (Storm, sanitary and water). A new storm outfall is proposed south on Bonsan Road to the Fraser River (works under VFPA jurisdiction).

Construction Activities

The Project includes three (3) main phases:

- Phase 1: Site preparation;
- Phase 2a: Off-Site servicing (works under VFPA jurisdiction); and
- Phase 2b: On-Site construction.

Site preparation will begin once the Soil Authorization is issued. The project lands currently have approximately 140,000 cubic metres of fill that needs to be removed prior to construction. Three (3) potential sites have been identified for potential suitable relocation of the fill: one (1) within the City of Pitt Meadows and the other two (2) within Katzie Reserve No. 1.

Phase 1 site preparation is estimated to take approximately 4 months. Phase 2a for off-Site servicing includes outfall construction down Bonson Road to the Fraser River. Phase 2b consists of building(s) construction. Phase 2a and 2b will run concurrently after the DP is approved.

Operational Activities

The building(s) proposed for the Project are anticipated to function as a warehouse and/or distribution facility. EDC will be working closely with the building design team, include the architect, mechanical engineer, and the electrical engineer to ensure that the building(s) are energy efficient.

Eagle Meadows Business Park will bring additional employment opportunities to operate and manage the light-industrial warehouse use. The employment use will give Katzie First Nation, Pitt Meadows, and Maple Ridge residents an opportunity to work close to where they live.

Bunt & Associates prepared a Transportation Impact Study to assess the proposed access to the site from Bonson Road and Fraser Way/Wharf Street. The Study was requested by the City of Pitt Meadows and the City of Maple Ridge. Seven (7) intersections were included in the weekday peak-hour capacity analyses for the time horizons up to year 2035. The Study concluded that the Eagle Meadows Business Park is expected to generate 63 to 67 trips during the AM and PM peak hours, respectively. Trip generation of 100 vehicle trips or fewer is not expected to have material impact on the adjacent street network. The Study finds that all accesses to the Subject Site and residential intersections along Bonson Road are anticipated to operate within acceptable performance criteria for all time horizons after the development of the light-industrial warehouse buildings.

Capacity issues for the intersection of Bonson Road and Airport Way were previously identified in a 2016 McElhanney "South Bonson Traffic Study" prepared for the City of Pitt Meadows. The Bunt report prepared for the subject development confirms the intersection will reach capacity for certain movements in the 2035 Background and 2030 Total horizons with or without the development of the Subject Site. The Golden Ears Way and Airport Way/113b Avenue interchange was also identified as requiring further modification with or without the development of the Subject Site.

3.0 CONTACTS AND RESPONSIBILITIES

3.1 Key Project Personnel/Project Team

Table 1. Project Team Roles, Qualifications and Contact Information

Name:	Qualification:	Contact Information	Position on the project and company:
Kyla Milne*	RPBio	604-501-1624	QEP for PLG
Melissa Zheng	BIT, BC-CESCL	604-501-1624	Project Biologist for PLG
Laura Jones	MCIP, RPP	604-501-1624	Senior Development Planner for PLG
Rosa Shih	M.A. (Planning)	604-501-1624	Planner for PLG
Mathew Shields	ISA Certified Arborist, Registered Professional Forester ("RPF")	604-733-4886	Arborist for Diamond Head Consulting
Trevor Cox	MCIP, RPP	604-733-4886	Principal Diamond Head Consulting
Wyatt Johnson	B.Eng., EIT	604-439-0922	Project Engineer for GeoPacific Consultants
Matt Kokan	M.A.Sc., P. Eng	604-439-0922	Principal for GeoPacific Consultants
Steve Boyce	BA., LEED G.A	778-737-3488	Associate, Project Manager for Active Earth Engineering
Marek Downarowicz	B.Sc.	778-737-3488	Junior Environmental Professional for Active Earth Engineering
Tony Vigni	Vice President of Development	604-638-1212	Prime Contractor/Field Lead for Construction for Wales McLelland Construction
Ian Cowan	Director of Lands and Civil Services	T. 604-465-8921 Ext. 411 F. 604-465-8934	Director of Lands and Civil Services for Katzie First Nation
Angelo & Alex Tsakumis	EDC Contacts	604-270-1890	Representatives from EDC

*Primary Qualified Environmental Professional (QEP)

**As the Project is in the MFLNRORD/DFO review stages, the Project Manager/Site Supervisor and EM for the proposed works will be determined prior to commencement of proposed construction works (as outlined in this CEMP).

3.2 Environmental Monitor Responsibilities

The responsibilities of the EM may consist of, but are not limited to, the following:

- Attendance at a Project kick-off meeting to identify and clearly mark environmentally sensitive areas within the Site, and to discuss potential mitigation measures to be implemented during construction;
- Conducting regular monitoring Site visits during active construction (i.e., weekly or biweekly, as ESC monitoring requirements change seasonally), specifically during concrete pouring, instream works, culvert/headwall installation works, during

construction activities that occur during a Significant Rainfall Event (SRE; >25 mm in 24 hours);

- Conducting Water Quality Monitoring (WQM), as required, and during instream works, for surface water runoff that may be required to be directed towards on- or off-Site watercourses or drainage infrastructure [e.g., catch basins (CBs)];
- Preparation of environmental monitoring reports, including photographic documentation, which describe Site conditions, on-Site construction observations, work progress, recommendations for environmental protection and mitigation, and scheduled upcoming Project activities;
- Collecting background water quality measurements from the receiving environment (e.g., surface water drainages) to be used for monitoring water quality against the British Columbia Approved Water Quality Guidelines (BCAWQG). Background measurements will be collected prior to Project commencement as well as daily, prior to commencing work and throughout the Project's lifespan;
- Walking construction areas and confirming that environmental protection measures outlined in this CEMP are being appropriately implemented (e.g., environmentally sensitive areas have been flagged/delineated with silt fencing and avoided during Project works, spill kits are in place at construction areas and clearly visible and accessible, spill pads are stored with heavy equipment, garbage is being disposed of appropriately, etc.);
- Documenting environmental or wildlife observations reported by others or noted during EM visits;
- Providing a brief summary of environmental issues and mitigation measures during the daily tailgate meeting (if required);
- Notifying the Representative in Charge of the need to stop work to ensure Site safety, environmental integrity and ecologically sensitive areas are maintained (if necessary). Only the EM for the Project will have the authority to immediately stop work on-Site;
- Preparation and submission of weekly environmental monitoring reports, including photographic documentation and field data, which describe Site conditions and construction observations, and provide recommendations for improving environmental protection practices when required; and
- Attend to the preparation of monthly water quality reports and an annual comprehensive WQM report summarizing the water quality results.

3.3 Contractor Responsibilities

The Contractor during construction must adhere to the following responsibilities (to be refined and/or expanded at any time prior to or during the Project, based on the needs of the Project), including:

- The Contractor will review the Project CEMP with their staff and sub-contractors prior to commencing works;
- The Contractor will comply with all agency permits or licenses issued for the Project [e.g., *Water Sustainability Act (WSA) Change Approval*, DFO RFR], as well as all other

applicable federal, provincial and municipal laws, statues, by-laws, regulations, orders and policies;

- The Contractor must cooperate with the EM appointed for the work. They must comply with written or verbal instructions with respect to conducting activities in compliance with the mitigation measures outlined in this CEMP; and
- The Contractor will correct deficiencies and any non-compliance issues upon direction from the EM whether written or verbal. Corrections should be made as soon as reasonably possible, ideally within 24 hours of directions. The Contractor or EM will notify the Client immediately in the event of a non-compliance.

4.0 RELEVANT ENVIRONMENTAL LEGISLATION

4.1 Federal Legislation

The Project team will follow and comply with the following Federal Acts and Guidelines, including, but not limited to:

- *Impact Assessment Act [IAA (previously CEAA)]*
- *Federal Fisheries Act (FA)*
- *Federal Migratory Birds Convention Act (MBCA) – Bird Breeding Window March 1 – August 31 (at a minimum)*
- *Federal Species at Risk Act (SARA), Schedule 1*
- *Ministry of Environment (MOE) and DFO Land Development Guidelines for the Protection of Aquatic Habitat*
- *Navigation Protection Act ("NPA") / Canadian Navigable Waters Act ("CNWA")*

4.2 Provincial Legislation

The Project team will follow and comply with the following Provincial Acts and Regulations, including, but not limited to:

- *BC Environmental Management Act (EMA)*
 - Contaminated Sites and Hazardous Waste Regulations
 - Spill Reporting Regulations
- *BC Riparian Areas Protection Regulation (RAPR)*
- *BC Waste Management Act (WMA)*
- *BC Wildlife Act (WA)*
- *BC WSA*
- *WorkSafeBC Occupational Health and Safety (OHS) Regulations*

It is expected that the Contractor will consider and proactively address any incidents which may result in non-compliance with applicable above legislation (e.g., spills of reportable quantity, workplace accidents, etc.). Such incidents must be appropriately documented and immediately reported to the relevant agency or authority [e.g., Environmental and Climate Change Canada (ECCC), DFO and Emergency Management British Columbia (EMBC)

Program, formerly Provincial Emergency Program (PEP); refer to Section 8.2 "Environmental Spill Response Plan" below].

4.3 Municipal Legislation

The Project team will follow and comply with the following Municipal Bylaws, including, but not limited to:

- Boulevard Maintenance Bylaw No. 2377 (2008)
- Drainage System Protection Bylaw No. 2266 (2007)
- Floodplain Designation and Construction Control Bylaw No. 2384 (2008)
- Noise Control Bylaw No. 2138 (2004)
- Soil Removal and Fill Deposit Regulation Bylaw No. 2593 (2013)
- Waterworks Bylaw No. 2343 (2008)

Numerous BMPs have been developed by industry associations and government agencies for activities near environmentally sensitive areas. In addition, the provincial document, *Develop with Care 2014 – Environmental Guidelines for Urban and Rural Land Development in British Columbia*, provides a comprehensive set of guidelines and BMPs that may be applicable to Project works.

In this CEMP, Project works are addressed with respect to various environmental protection measures that can be applied directly or with modification, as required. These measures aim to promote environmental management by protecting the existing Site conditions and reducing the potential for migration of Project-related materials and products off-Site. As the Project involves instream work (i.e., ditch elimination and culvert/headwall outfall installation), other necessary permits (i.e., WSA Section 11 Change Approval and DFO Authorization/letter of advice), will be secured in advance (where required) of the commencement of Project works.

5.0 ENVIRONMENTAL RESOURCES AND IMPACTS

Please refer to the detailed Environmental Assessment (EA) prepared by PLG for the Subject Property (dated March, 2020), for a detailed description of observations from the PLG Site visits, including summary of evaluated aquatic resources, vegetation, and wildlife (e.g., birds, mammals, fish, aquatic species) within the Site. For the new outfall works under VFPA jurisdiction please refer to the detailed Habitat Assessment (HA) prepared by PLG for the Subject Property (dated August, 2022).

6.0 GENERAL MITIGATION MEASURES

To minimize or avoid potential adverse effects to existing environmental values on and adjacent to the Site, the following general measures will be implemented during construction, operations and post-construction maintenance:

- During the pre-construction meeting, this CEMP and the environmental protection measures will be reviewed by the Lead Contractor and employees, as well as any other applicable parties;

- All Project construction activities must comply with the conditions outlined in the Federal (i.e., DFO Authorization/letter of advice), Provincial (i.e., WSA Change Approval), municipal, and general construction permits (if applicable), and all permits must be readily producible on-Site in the event of an inspection by an overarching agency representative. All Project construction activities related to the outfall works on the Fraser River foreshore fall under VFPA jurisdiction and must also comply with conditions outlined in VFPA permits;
- Prior to commencing work at the Site, appropriate spill prevention, containment, and cleanup contingency plans will be in place for safe management of hydrocarbon products and other deleterious substances that may be used in association with the Project works. Appropriate and up-to-date spill response equipment will be readily available on-Site for use in the event of an accidental spill. Trained Site Representatives will be available for spill response and reporting;
- The limits of disturbance will be clearly delineated in the field, to ensure that no disturbance occurs within the environmentally sensitive areas (e.g., identified on-Site and adjacent off-Site watercourses) as a result of the proposed Project works;
- All equipment will be clean and maintained in good operating condition;
- Equipment refuelling will be undertaken by self-contained, contracted fuel providers, and off-Site prior to arriving, if possible;
- For equipment that is engine-powered or contains oils and greases (e.g., small excavators/bob cats, welding machines, drills, concrete trucks) and require periodic maintenance or servicing, a qualified mechanic will mobilize to the Site with all necessary supplies to undertake such activities and contain any potentially deleterious substances;
- All debris and deleterious substances generated by the construction activities associated with the Project will be appropriately contained in the immediate work area and appropriately disposed of in accordance with applicable legislation, guidelines, and BMPs;
- The protection of adjacent off-Site catch basins (with inserts, where applicable) to prevent the off-Site migration of deleterious substances; and
- Construction areas and temporary stockpiles will be covered or otherwise stabilized on a daily basis, so as to prevent erosion and off-Site sedimentation.

The EM will be responsible for surveying/monitoring ongoing Project works, including pre-clearing bird nest surveys, providing guidance where required, facilitating environmental protection, and reporting all potential concerns to the Contractor in a timely manner.

The following sections provide an overview of environmental management practices for specific components of work or anticipated environmental concerns associated with the Project. Where applicable, guidance documents have been referenced for more information.

7.0 SITE-SPECIFIC ENVIRONMENTAL PROTECTION MEASURES

The following sections provide Site-specific environmental protection measures for the Project. These sections should be referenced and updated as required throughout the life of the Project.

7.1 Site Access, Mobilization and Laydown Area Management

Prior to construction, a detailed Site access plan will be prepared for the Project (typically by the Contractor) and include planned temporary laydown and stockpiling locations within the Site. The Contractor will ensure that all Site access/mobilization routes and laydown/stockpile locations adhere to the following protection measures:

- Mobilization will be planned to minimize the number of trips to and from the Site, where possible; and
- A temporary laydown area for storage of equipment and materials will be established prior to commencement of works within the Site. It should be located on a flat, stable area, and ideally at least 30 metres from any existing waterbody (e.g., the Fraser River).

7.2 Air Quality and Dust Management

Regardless of the point of origin, dust control will be required to prevent dispersal onto adjacent vegetation, into on- or off-Site watercourses during Site grading (e.g., material stockpiling, storm infrastructure, etc.) and culvert/headwall installations, and to prevent visual disturbances to nearby land owners and highway traffic (i.e., maintain air quality).

To appropriately control dust during Project works, the following measures shall be applied by the Contractor:

- Construction vehicles entering and leaving the construction area must be monitored for excess material on the tires;
- Dust must be controlled for the duration of the work by regular sweeping of access road surfaces and by the conservative application of water (if necessary);
- If water is required, it must be brought to the Site and must not be drawn from the existing on- or off-Site watercourses;
- Chemicals are not to be utilized as a dust suppression mechanism;
- Material loads entering and exiting the Site will be covered; and
- Equipment and vehicles will not be left to idle, whenever possible.

7.3 Noise and Vibration Management

The Project is located in a mixed urban-residential setting, and is not expected to create noise levels greater than existing urban use (i.e., adjacent neighbourhoods, vehicle traffic). Under the City of Pitt Meadows Noise Bylaw No. 2138 (2004), allowable hours for construction are from 07:00 am – 21:00, with restrictions on Saturdays and Sundays. For works falling under VFPA jurisdiction (i.e., outfall construction), allowable hours for construction are 07:00 – 20:00 from Monday to Saturday, with no work permitted on Sundays or holidays. If works within VFPAs jurisdiction is required outside regular hours, the VFPA will consider requests for extended work hours under extenuating circumstances, where offsite noise impacts are not anticipated, or where noise mitigations that will prevent disturbance to neighbouring properties can be put in place¹. Noise and construction related vibrations (e.g., excavation, foundation installation, ditch infill, etc.) are not expected to be an environmental concern as a result of this Project; however, appropriate

¹<https://www.portvancouver.com/wp-content/uploads/2021/02/2021-02-24-Construction-Outside-Regular-Work-Hours-Guideline.pdf>

environmental monitoring (e.g., WQM, pre-clearing bird nest surveys, etc.) will be completed by a QEP to ensure the Project is in compliance with all regulatory requirements.

7.4 Aquatic Resource Management

As work within identified on-Site water features has been included in the scope of this Project (i.e., ditch infill and outfall installation) appropriate BMPs must be followed during Project works for aquatic protection of downstream resources. It should be noted that works in and about a stream must be undertaken at a time of year when the risk of negative impacts to aquatic organisms is low. In general, the lowest risk period for fish streams is when no fish spawning is taking place, there are no egg or alevins within the stream gravels, and no over-wintering juveniles are present ((i.e., during the regional fish window, August 1 – September 15). Further, as most of the proposed environmental work is located within areas currently without a water feature (i.e., non-instream work), this work is proposed to be completed outside of the fish window. Outfall works will target timing within the regional fish window, with low Fraser River flows (i.e., September through April), low daytime tides (i.e., April through September), and without elevated stormwater flows (i.e., February through September), as per Northwest Hydraulic Consultant's report dated September 30, 2021. To comply with these conditions, outfall works are proposed to occur in late September.

To ensure overall protection to the natural environment, the Contractor will:

- Ensure that works in and around a stream (e.g., infill, stream closures, storm infrastructure installation) only occur under the supervision of a qualified EM (e.g., QEP) and are completed within the regional timing window and in the dry (e.g., no rain), in the dry and while diversions are in place, where possible;
- Employ temporary sediment control devices (e.g., catch basin filter socks, silt fencing), where necessary and practical, to prevent the dispersal of sediments outside the construction zone (refer to Section 7.8 “ESC Management” below for details);
- Protect CBs, by fitting them with filter socks to prevent migration of construction silts and fines off-Site;
- Confirm that surface water runoff, or generated sediment-laden water, meets legislated BCAWQG criteria (via WQM) or Project activity must cease until mitigations are applied and water is running clear of sediments (refer to Section 7.4.1 “Water Quality Monitoring” below for details);
- Restore the Site to a finished grade once excavation is completed within an area, to prevent disturbance to downstream watercourses/adjacent drainage infrastructure from sediment migration; and
- Copies of relevant permits and Project design plans must be on-Site and readily available in the event a representative from City, Katzie, MFLNRORD, and/or DFO attend the Site for an inspection.

7.4.1 Water Quality Monitoring

WQM is especially important when works are in proximity to a watercourse or instream work is proposed. The Project EM will conduct routine WQM, as needed during Project works, for run-off that may be generated by construction and/or instream activities, as noted above.

Where needed, water quality will be tested for potential contaminants, general sampling parameters will be measured (e.g., turbidity, pH, water temperature, etc.), and the results compared to the BCAWQG. Based on the BCAWQG, a discharge value of 25 mg/L Total Suspended Solids (TSS) during dry weather and 75 mg/L TSS during storm events, and a pH range of 6.5–9.0, is the maximum allowable discharge water quality measurements associated with the Project works.

Field evaluations of aquatic turbidity [i.e., measured using Nephelometric Turbidity Units (NTU)] will be used as a suitable surrogate for TSS, to provide contractors with real time information on the quality of discharge water. The relationship between turbidity and TSS can vary depending on the conditions of the Site, and confirmatory TSS samples may be collected for laboratory analysis to ensure compliance with the BCAWQG freshwater turbidity criteria for sustained aquatic life. The Project works will be monitored for any of the following NTU measurement/water quality changes:

- Change of 8 NTU from any one background measure for a period of 24 h in all waters during clear flows or in clear waters;
- Change of 2 NTU from any one background measure for a duration of 30 days in all waters during clear flows or in clear waters;
- Change of 5 NTU at any time when background ranges from 8 NTU to 50 NTU during high flows or in turbid waters; and
- Change of 10% when background is >50 NTU at any time during high flows or in turbid waters.

The EM will assist the Contractor in confirming that water with the potential to enter any of the identified on- and off-Site watercourses meets the above criteria by monitoring the quality of the discharge. If evidence of contamination or potential contamination is observed during Project works (e.g., sheening, hydrocarbon odour, etc.), or WQM samples exceed the allowable TSS/NTU and/or pH readings, additional samples may be collected by the EM and submitted to the laboratory for further analysis.

Further information regarding environmental monitoring is provided in Section 9.0 "Environmental Monitoring Program" below for details.

7.4.2 *Instream Works Monitoring*

Instream works monitoring (i.e., during ditch infill, storm infrastructure installation) should be completed by a qualified EM (e.g., QEP) assigned to this Project for Project activities, as described above.

The responsibilities of the EM may consist of, but are not limited to, the following:

- Completing a pre-construction Site visit to establish and confirm baseline conditions, confirming that all ESC and pre-instream work requirements are in place to protect aquatic resources;

- Full-time monitoring during all works pertaining to the proposed Section 11 WSA Change Approval works, including confirmation works are completed in isolation of flow (i.e., dry conditions);
- Conducting regular WQM Site visits during instream works, including laboratory analysis coordination (if necessary);
- Preparation of regular environmental monitoring reports, including photographic documentation, which describe Site conditions, on-Site instream work observations, work progress, recommendations for environmental protection and mitigation, and scheduled upcoming Project activities.

7.5 Vegetation Management

It is understood that Project works include clearing portions of the Site to accommodate proposed development. To minimize the potential to negatively affect vegetation to be retained within the Site, the following BMPs should be in place for the protection of existing vegetation:

- The work zone should be clearly delineated in the field based on the Project drawings prior to construction works to clearly define the Project boundaries;
- Access routes requiring vegetation removal will be planned to minimize damage to existing vegetated areas, whenever possible, and be limited to the extent that has been authorized by the Project scope;
- Any ground disturbance activities (e.g., tree/vegetation clearing) must be completed outside of the regional breeding nest window (i.e., March 1 to August 31); however, if this cannot be achieved, the Contractor must adhere to the following expectations:
 - Bird nest survey(s) will be completed by a QEP prior to any ground disturbance activities (e.g., clearing); and
 - If a nest is found, bird nest setbacks will be determined based on bird species present and appropriately confirmed by a QEP prior to any construction works. Once a nest survey is conducted, PLG's survey results are valid for up to five (5) days. If clearing works has not been completed within five (5) days, the nest survey must be repeated prior to Project works. Note, report validity duration may vary between different consulting firms, and should be confirmed by the Contractor prior to commencement of work; and
- Machine operators should take extra care when backing up or swinging around during Project works, to avoid damaging existing overhanging limbs and nearby trees to be retained.

To prevent the introduction and/or spread of invasive species on Site the following BMPs should be followed:

- Any seed laid on-Site (if necessary) should be certified weed free and be supplied by a certified supplier (e.g., Premier Pacific Seeds);
- Work boots and gear should be removed of plants, insects, and mud prior to entering and leaving the Site;

- Tires of any vehicles or heavy machinery should be checked for mud and plant parts and cleaned prior to entering and leaving the Site; and
- Any invasive species on Site should be removed from the work area and appropriately disposed of prior to the commencement of works to avoid tracking and spreading invasive species to other areas on- or off-Site.

7.6 Wildlife Management (Protection and Mitigation)

As the Project is located in an urban-residential area, non-local wildlife encounters are unlikely to be a concern for regulatory compliance under the BC *Wildlife Act* or SARA. In the unlikely event of an atypical wildlife encounter (e.g., bears, large ungulates), or any encounter with wildlife or SAR, for the protection of both wildlife and Site personnel, the Contractor will:

- Avoid disturbance or harm to any wildlife, if observed on-Site during Project work. This includes avoiding disturbance or harm to a bird (including raptors), its eggs, or the nest of a bird when occupied by a bird or egg (Section 34 of the BC *Wildlife Act*);
- Allow safe and undisturbed passage through the Site for any wildlife encountered during Project activities;
- Limit the use of machinery/loud noises while wildlife is present within or near the Project work area, and the Project EM/QEP may issue a stop work order if wildlife is present on-Site for an extended period of time;
- Complete amphibian salvage and fish salvage (if necessary) in advance of construction activities;
- Adhere to authorized work timing windows to ensure that there is no excessive disturbance during wildlife breeding seasons (e.g., bird nesting period March 1–August 31);
- Where possible, vegetation clearing should be planned outside of the regional bird nesting window. If this is not possible, pre-clearing bird nesting survey(s) must be completed by a QEP in advance of clearing works, and protection buffers (if necessary) established depending on the result of the survey(s);
- Dispose of garbage in secure bins and ensure that staging areas are clean and free of food items to avoid attracting wildlife on-Site (e.g., coyotes, racoons, crows, etc.);
- Pre-clearing sweeps for species at risk such as amphibians or snails should be conducted prior to the commencement of works; and
- If any species at risk are encountered prior to or during Project works, a stop work order must be issued and Project EM/QEP consulted for next steps.

7.7 Soil and Groundwater Management

It is understood that Project works will require the importation of soil/structural fill to be utilized during grading activities. The following mitigation measures are included to minimize potential impacts to existing soil within the Site and when working with existing and imported soils/fill during Project activities:

- Stockpiles of soil/fill must be covered with poly-sheeting or other similar material that extends to the edges of the piles, and must be weighted down to prevent being blown away by wind. Surface run-off generated from Project activities must be directed away from the stockpile to avoid pile erosion into on- and off-Site watercourses; and
- When required, the Contractor will be responsible for providing documentation that any imported soils/fill meet the applicable provincial and environmental regulations and standards of the BC Contaminated Sites Regulations (CSR), 2014.

7.8 ESC Management

Prior to the commencement of Project works, the limits of construction will be clearly marked, including the installation of temporary protective fencing (e.g., silt fencing) for the existing drainage infrastructure/identified on- and adjacent off-Site watercourses.

ESC measures required for this Project may vary depending on local Site conditions and weather at the time Project work is undertaken and can be confirmed by the Project EM. The ESC measures must be Site-specific and adaptable. Site-specific measures that the Contractor will adhere to are as follows:

- Utilize existing paved areas (e.g., driveways, roads) when accessing the Site, by foot or equipment, to minimize soil/sediment disturbance and erosion, especially on soft soils within the Project work areas;
- Maintain temporary rock access entrance and exit pads to ensure no sediment is tracked into the Site or out onto public roads (e.g., 15 Avenue cul-de-sac, 16 Avenue);
- Sweep on-Site pavement and unnamed access road to the Site daily to keep all paved surfaces free of debris, sediment or other potential pollutants;
- Take reasonable care to avoid damage to freshly disturbed areas and where soils have been recently disturbed, so as not to generate sediments that could potentially migrate or become tracked off-Site;
- Minimize the potential to generate sediment-laden water within the Site (e.g., undertaking a section of work that can reasonably be completed within a work shift, and covering exposed stockpiles to remain on-Site for an extended period of time);
- Where pumping is required, water will be directed to adjacent on-Site vegetation areas, to disperse naturally and will not be pumped directly into a watercourse or drainage infrastructure (e.g., CBs);
- Imported fill and soils to be utilized during grading work shall be protected when stockpiled with tarpaulin or polyethylene sheeting to prevent the dispersal of silts and fines outside of the delineated work zone;
- Soils of any kind shall not be placed on adjacent roads or curbs;
- Temporary silt fencing and catch basin inserts will be installed by qualified personnel along the boundary of the work area and within adjacent off-Site CBs, to act as sediment barriers by preventing the dispersal of silts and fines outside of the delineated work zone for the duration of the Project;
- Re-grading of the Site will be completed as soon as possible in order to ensure that disturbed areas and exposed soils are stabilized; and

- Specific ESC plans must be developed for the instream work (i.e., grading/construction of ditch infill, and infrastructure installation), in addition to the overall ESC plan prepared for the Site.

Silts and fine materials displaced during Project activities (e.g., excavation, grading, Site paving, stream closures, etc.) can have adverse effects on existing aquatic resources and local drainages. Please refer to Section 5.0 “Environmental Resources and Impacts” and Section 9.0 “Environmental Monitoring Program” for more details.

7.9 Waste Management

The Contractor will comply with all applicable laws, regulations, permit conditions and requirements of the contract when disposing of waste including, but not limited to, asphalt, concrete, sewage disposal, non-hazardous wastes, hazardous wastes (e.g., used paint, epoxies or waste batteries), or other materials not authorized for on-Site disposal. In addition, only facilities approved by authorities having jurisdiction may be used for disposal or recycling of waste. At no time will any waste material be allowed to enter a watercourse or drainage (either directly or by introduction from off-Site discharge). The Contractor will be responsible for assuring that all reasonable efforts are made to eliminate or minimize waste production, and adhere to the following BMPs for waste management:

- The Contractor is expected to adhere to all applicable legislation with respect to the handling, transportation, and/or disposal of all materials related to this Project (waste or otherwise). These regulations may include (but not be limited to) the BC Hazardous Waste Regulations, Spill Reporting Regulations, Workers Compensation Board Regulations, etc.;
- Hazardous wastes generated from Site works could include waste petroleum products (e.g., engine oils, lubricants, etc.) from machinery and equipment, spent batteries, solvents and cleaning agents, etc. The Contractor will provide labelled separate container(s) for potentially hazardous waste generated from Site works, such as oily rags and hydrocarbon absorbent pads;
- All hydrocarbon products and other hazardous wastes potentially present during Project activities will be identified and the associated Workplace Hazardous Materials Information System (WHMIS) and Material Safety Data Sheets (MSDS) made available to all Project team members; and
- All recyclable or compostable materials will be collected separately from general waste.

7.9.1 Concrete/Asphalt

The two (2) main environmental concerns associated with concrete/asphalt work are:

- 1) Toxicity from the high alkaline pH of concrete/asphalt, and
- 2) Physical effects of smothering through the release of solids.

The pH level of concrete/asphalt and wash-off water from concrete/asphalt is 12 (very alkaline) and must be kept out of surface waters. The BCAWQG have specified an acceptable pH range of 6.5 to 9.0, understanding that deviations will likely be small, short-term in nature and not be

harmful. If a large concrete/asphalt spill occurs, applicable treatment should be initiated by the EM in order to reduce the impact of pH and reduce the pH to an acceptable level.

The following mitigative measures shall be applied by the Contractor during concrete/asphalt work:

- Concrete/asphalt work (e.g., foundation and road construction, sidewalk installation, etc.) must be conducted so that wash water and excess concrete/asphalt slurry from concrete/asphalt works and equipment do not contaminate on-Site/off-Site aquatic features or enter drainage infrastructure (e.g., off-Site CBs);
- Excess concrete/asphalt, grout, drilling wastes and other liquid waste products must be directed to secure containment facilities for subsequent removal and disposal at an appropriate facility. If concrete/asphalt material (solid form) has entered the water and it can be recovered, the material must be removed from the water, as it will continue to provide alkaline material into the surrounding water;
- Fresh concrete/asphalt pours will follow BMPs, be scheduled during periods of dry weather, and be protected from rainfall with an impermeable cover (i.e., polyethylene sheeting or tarpaulin) until the concrete/asphalt cures;
- No washing of concrete/asphalt trucks or equipment shall be permitted on-Site;
- No discharge of concrete/asphalt wash water will occur on-Site; and
- Any water that has come in contact with concrete/asphalt will be tested by the EM to ensure that it meets the BCAWQG for acceptable pH between 6.5 and 9.0.

7.9.2 *Solid Waste*

It is anticipated that solid waste will primarily be comprised of general construction debris, garbage, recyclables, and non-hazardous equipment waste materials. The Contractor, with assistance from the EM, will determine the appropriate measures to dispose of general solid wastes throughout Project works as follows:

- Non-hazardous paper, paper products, wood, plastic, glass, and discarded food items, will be stored in closed, leak-proof storage bins that are secure against nuisance wildlife (e.g., coyotes, racoons, crows, etc.). The Contractor is responsible for the proper collection and transportation of garbage and recyclable waste to disposal facilities (e.g., sanitary landfill or appropriate recycling facilities where available);
- Used oil filters and antifreeze must be drained into a waste oil container and drained filters placed in an appropriate trash container before disposal at a recycling or other approved facility; and
- Used acid-lead batteries must be stored on an impervious surface, under cover, and disposed of at an approved recycling facility.

7.9.3 *Hazardous Waste*

Project works may require the use of hazardous materials (e.g., petroleum products, solvents, etc.), which will be brought in and out by the Contractor during each phase of the Project. It is the Contractor's responsibility to determine whether any waste generated by the Project has

hazardous or toxic characteristics or is considered "Hazardous Waste" by MFLNRORD, or any other authority having jurisdiction, and to manage it accordingly. The proper handling of hazardous wastes will also be included in the Contractor's own OHS Program.

If an item cannot be located in published Hazardous Waste guidelines, the Contractor will determine if a particular characteristic of the waste makes it hazardous. Subsequently, the Contractor will comply with the *Standards Applicable to Transporters of Hazardous Waste* as defined by MFLNRORD.

7.10 Machinery and Equipment Fuelling and Servicing

Project activities (e.g., excavation/grading, Site paving, stream closures, etc.) will require that some large machines, as well as small engine-powered equipment and tools (e.g., generators), be located and stored for periods of time on-Site. The off-Site migration of fuel, lubricating oils and hydraulic fluids can have an adverse effect on surrounding terrestrial and aquatic environments.

The Contractor will ensure that the accidental release of contaminants is mitigated immediately if introduction occurs. The following measures are to be adhered to during Project activities:

- All machinery operating within the Site will be free of excess oil and grease, and will be in good mechanical order so that no leaks occur, preventing release of fluids into the on-Site aquatic environment;
- All grease and oil required for maintenance will be carefully applied. Any excess must be cleaned up and disposed of in a prompt and environmentally appropriate manner;
- It is anticipated that equipment re-fuelling will occur off-Site, however, if refuelling occurs on-Site, vehicles utilized for refueling will be equipped with automatic back-pressure shut-off valves, and nozzles will be kept locked at all times, except during refueling;
- Refuelling of any machinery and equipment must occur greater than 30 metres away from identified on- and off-Site watercourses and adjacent drainage infrastructure (e.g., CBs);
- While re-fuelling is undertaken, equipment should be contained within a suitable drip pan;
- Refuelling procedures and handling of flammable liquids must also be covered within the Contractor's own OHS Program; and
- Spill response kits including spill pads, sorbent booms, and spill trays must be readily available within the work Site and on mobile equipment. Provisions of spill kits will be the responsibility of the Contractor.

7.11 Fire Management (Prevention and Mitigation)

The following measures and procedures will be implemented on-Site to avoid potential fire, and to fight any fire that may occur:

- No open fires or burning will be permitted within the Project zone; and
- Fire extinguishers and other emergency response equipment and supplies must be kept in known, visible and accessible locations. Gas- or diesel-powered equipment must have

a fire extinguisher attached or inside the cab. Fire extinguishers are to be routinely inspected and certified, as are other fire-suppressant equipment and materials.

7.12 Archaeology Resources Protection and Management

The Contractor must ensure that archaeological resources are not impacted during Project-related activities; however, archaeological resources have not been previously identified within the Site. The following procedures should be established to mitigate impact in the event that evidence of what is suspected to be an archaeological resource is encountered:

- Immediately stop any activity that might disturb the archaeological resource or the location in which it is contained;
- Do not move or otherwise disturb the artifacts or other remains present at the Site;
- Clearly identify/mark (i.e., with stakes or flagging) the area the archeological resource is found to prevent additional disturbances; and
- Immediately notify the Katzie First Nation representative, the City of Pitt Meadows, the Client, and the Provincial Archaeological Branch.

8.0 SPILL PREVENTION AND EMERGENCY RESPONSE

Under Section 1 of the BC *EMA Spill Reporting Regulation*, a "spill" is defined as a release or discharge of a listed substance in an amount equal or greater than that specified in Column 1 of the Schedule of this Regulation. The reportable quantities (included in Column 2 of the Schedule) vary according to class of substance, ranging from any amount to 200 kg or 200 L, depending on the nature of the material that has been spilled. Contractors will be responsible for complying with the sections below, and ensuring emergency procedures and spill cleanup steps are followed as described in this CEMP.

8.1 Spill Prevention

To prevent potential adverse environmental impacts to the Site, the Contractor will implement the following mitigation measures to minimize potential impacts to the Site and surrounding area and ensure adequate emergency response in the event of a spill:

- Vehicles and equipment will be inspected prior to the start of work each day;
- Vehicles and equipment that are not in good working order will not be permitted on the Site;
- Used oil, filter and grease cartridges, lubrication containers, and other equipment maintenance products will be collected in appropriately labelled waste containers, stored in a secure on-Site location, and protected from weather until removal from Site and disposal at the nearest registered hazardous waste facility can be arranged;
- The storage of fuel, lubricants, and oils on-Site should be avoided whenever practical; however, where fuel, lubricants, and oils are brought to the field/Site, designated storage areas should be identified and secondary containment should be employed;
- Fuel storage enclosures are to be sufficient to contain total stored volume plus precipitation products (minimum 120%), with additional seepage protection measures (e.g., impermeable membranes);

- If encountered items to be disposed of cannot be readily identified, they will be assessed by the EM who will assist in determining the appropriate containment/storage and disposal methods;
- Storage areas should be located at least 100 m from any watercourse or drainage infrastructure (e.g., CBs);
- A catch tray/drip pan of sufficient size and depth should be used during on-Site re-fuelling and equipment repairs (if necessary) to reduce the risk of environmental impact from spills and/or leaks;
- Spill response kits containing necessary materials and equipment (e.g., absorbent pads, booms, leak-proof containers) must be kept on-Site and be readily available in order to respond to a spill, should one occur. Spill kits should be adequately sized, given the equipment and products that are on-Site, and trained personnel will be available to ensure proper deployment, if needed;
- Used spill response materials will be bagged in heavy-duty polyethylene bags and any waste oil or other spill materials will be removed from Site, as soon as possible, in accordance with Transportation of Dangerous Goods (TDG) requirements and the BC Hazardous Waste Regulation;
- Fire extinguishers and other emergency response equipment and supplies must be kept in known and visible locations. Access shall not be blocked to this equipment;
- A list of spill response emergency contacts must be posted or kept at a predetermined known location and will be updated prior to construction (refer to Table 3 "Emergency Contact List", below for details); and
- Equipment operators and spill responders will review the Spill Response Plan (SRP; refer to Section 8.2 "Environmental Spill Response Plan" below) regularly to ensure it is up to date and all required materials are accessible on-Site.

It is anticipated that equipment will be utilized on-Site to complete Project works. For this reason, fuelling of equipment shall occur off-Site at an approved facility whenever possible, to prevent a fuel spill on-Site; however, due to the large size and location of the Site, it is recognized that on-Site fuelling may be required. In addition to the above mitigation measures (where applicable), the following must also be adhered to during on-Site fuelling:

- Where equipment must be re-fuelled on-Site, it should be carried out in a designated area, preferably on a concrete or paved surface or in a contained area, with the use of sorbent pads, and at least 30 metres from any watercourse;
- On-Site staging areas will be appropriately equipped with spill kits, fire extinguishers, etc. in the event a spill occurs; and
- Staff will be appropriately trained in spill prevention prior to any on-Site fuelling activities.

8.2 Environmental Spill Response Plan

The Contractor will develop and implement a Site-specific Environmental SRP based on the type and amount of equipment, and the activities using potentially deleterious substances. The purpose of the SRP is to identify potential risks at, or in proximity to the Site, provide procedures to facilitate rapid deployment of resources in the event of a spill, and to minimize the impact and risk to the environment, the public and personnel on-Site. The Contractor will be familiar with

regulatory requirements and be adequately prepared to respond within the shortest possible time. A Spill Response Team will be assembled from suitably qualified members of the workforce. Emergency preparedness must also be covered under the Contractor's own OHS Program.

All spills, regardless of size or location will be reported to the EM and Contractor. In the event of a spill, the EM will follow the "6 Steps to Spill Response" Guide (Appendix A, attached) and will ensure that all appropriate representatives, adjacent landowners, and authorities have been notified. The 6 Steps are presented as general guidelines for responding to spills of oil-based materials (e.g., fuels, insulating oil, lube oil). Circumstances or the specific material spilled may dictate another sequence of action.

All personnel are to be made aware of the contents of the SRP, "6 Steps to Spill Response" Guide, location of response materials, emergency contact names and numbers (refer to Table 3 "Emergency Contact List", below for details). The "6 Steps to Spill Response" Guide should be printed and posted in an easily visible area (e.g., Site trailer/entrance) for reference in the event of a spill. Emergency spill response equipment and supplies must be kept in accessible and visible locations. The locations of such equipment are to be made known during Site safety orientations, as locations may vary or change as the Project progresses.

8.3 Spill Notification & Contact Information

In the event of a spill exceeding regulatory thresholds (Table 2, below), the incident must immediately be reported to the EMBC at 1-800-663-3456 (24-hour emergency line) and the local Fire Department. Spill response advice can also be obtained from EMBC.

Table 2. Reportable Spill Quantities

Category	Substances	Threshold Amount
Fuels and Oils	Diesel, gasoline, hydraulic fluid, solvents, waste oil	100 L
Dangerous Goods	MIBC, nitric acid, sulphuric acid, ethylene glycol, litharge lead oxide, sodium hydroxide	5 L
Flammable Gases	Propane and acetylene	10 kg
Miscellaneous	Borax, propylene glycol, paint	200 L

Any spills within 24 hours of occurrence, regardless of its location within the construction area, will also be reported to:

- Project Manager(s)
- Construction Manager / Contractor
- EM

A list of Project-relevant contact numbers has been provided (Table 3, below) and should be referenced for use in the event of a spill. In the event of a spill exceeding regulatory thresholds, the District of Hope and its Fire Department will also be notified when it is safe to do so.

Table 3. Emergency Contact List

Agency/Program	Contact Number
BC One Call	6886 or 1-800-474-6886
BC Emergency Spill Reporting Line (i.e., EMBC)	24-hour toll free: 1-800-663-3456
BC Forest Fire Reporting	5555 or 1-800-663-5555
Canadian Transport Emergency Centre (CANUTEC)	*666 or 1-888-226-8832 (1-888-CAN-UTEC)
Emergency Services (24/7)	911
PLG Environmental Division	Kyla: 604-996-7666 Melissa: 778-242-3505

8.4 Spill Cleanup Supplies

All Project staff will be made familiar with available spill supplies and will be appropriately trained on how to use and dispose of supplies in the event of a spill.

Spill kits will be located at various locations on-Site and on mobile equipment (e.g., pickup trucks, etc.). Each kit should contain but is not limited to the following general list of spill response supplies which is consistent with *A Field Guide to Fuel Handling, Transportation and Storage*. At a minimum, the following items should always be available and restocked when necessary:

- Box of rags
- Caution tape
- Chemical goggles
- Disposal bags (40)
- Drum for materials disposal (with lid)
- Hand cleaner
- High visibility vest
- Poly tarps
- Rubber gloves
- Small shovel
- Sorbent booms
- Sorbent pads (minimum 100)
- Wire cutters and knives
- Wooden stakes

8.5 Environmental Incident Reporting

An environmental incident is defined as one that has caused, or has the potential to cause, one or more of the following:

- Environmental damage;
- An adverse effect on fish, wildlife or other environmental resources;
- Heightened publicity associated with a negative effect on the environment; and
- Legal action with respect to environmental noncompliance and/or damage.

If an environmental incident occurs during the Project, a written Environmental Incident Report (EIR) must be prepared by the Contractor within 24 hours of the incident regardless of whether it is a working day or not, to describe the occurrence, summarizing events, actions and

recommendations for future avoidance. Immediate action must be taken to minimize environmental consequences and manage resolution of the incident. The EM will assist the Contractor in preparing the EIR, and document the following information to prevent future incidents:

- The contact information for the individual making the report, the responsible person in relation to the spill, and the owner of the substance spilled;
- The date, reporting time and location of spill site, including the time the incident occurred or was first noticed;
- The location of the spill site, including a description of the spill site, surrounding area and weather at the time of the incident;
- A description of the spill source, the type and quantity of the substance spilled, and details of the circumstances, known or possible cause(s) and adverse effects of the spill to facilitate prevention of future incidents;
- A summary of response actions, including an approximate timeline; and
- The names of the applicable personnel, stakeholders, regulatory authorities and government agencies at the spill site and those advised about the spill.

The EIR must be submitted to the Environmental Representative for the Project, the EM, the District of Hope, and any other applicable stakeholders or regulatory authorities. The EIR should be updated as necessary (e.g., if new information arises), and resubmitted to the applicable parties.

9.0 ENVIRONMENTAL MONITORING PROGRAM / ADAPTIVE MANAGEMENT PLAN

Environmental Monitoring services will be provided by a qualified individual (e.g., QEP, EM) assigned to the Project for Project activities, as described in the sections above. The qualified EM will meet the objectives of this CEMP and provide recommendations, as guided by Project works. The EM will document conditions and provide guidance to the Contractor to maintaining compliance with this CEMP and applicable environmental legislation.

The overall objectives of the monitoring program are to protect existing aquatic resources and wildlife habitat, provide general oversight of Project works conducted in and around water and downstream valuable aquatic resources, confirming that mitigation measures are being appropriately applied and are effective, documenting and responding to environmental emergencies and concerns (including follow-up reporting, as applicable), and providing guidance and adaptive measures where required, providing records and reports to the appropriate stake holders.

9.1 Environmental Monitoring and Reporting

The EM will work with the Contractor in matters related to the protection of the environment, and be on-Site during identified sensitive Project work including, but not limited to, the following:

- Installation of ESC devices (e.g., CB inserts, silt fencing)
- Asphalt/cement pours
- On-Site vegetation removal

- On-Site instream works, including ditch closures, and new outfall installation
- Water management/surface water discharge
- Following SREs (> 25 mm in 24 hours)

In addition, the EM will keep a dedicated field notebook, including a photographic record as Project work progresses, and will document compliance by preparing a weekly monitoring report. During Site visits, the EM will:

- **Meet with the Contractor's on-Site supervisor** to discuss Project work, as well as potential environmental issues and appropriate mitigation measures to be considered;
- Confirm that the Contractor/Site personnel are aware of the relevant environmental policies and BMPs, and will advise on environmentally sound approaches and practices;
- Provide technical assistance on environmental matters to on-Site staff and regulatory personnel;
- Ensure the ESC permit sign is secure and displayed correctly at the Site entrance (e.g., on Site trailer);
- Inspect the Site, taking notes of Project activities and the potential for adverse environmental effects;
- Record any environmental protection measures implemented (e.g., silt fencing, temporary access pads), including their condition, as well as any other notable features or incidents;
- Inspect any ESC measures that have been implemented for effectiveness, and recommend additional measures on an as-needed basis (e.g., repair broken silt fencing, addition of more gravel for access pad);
- If applicable, collect WQM samples and report water quality data obtained during Site visits (e.g., pH, turbidity, etc.), as well as laboratory analyses as they become available (if necessary); and
- Stop Project work if it appears that permit or approval conditions, or municipal bylaws are not being followed.

Monitoring reports will be submitted by the EM to the Project Team, following each Site visit, for submission to other designated representatives (if required). Reports will include a list of Project activities, WQM results, and any environmental protection measures implemented during each visit. The monitoring report will document, and bring to the attention of the Site Supervisor/Contractor, any deficiencies that occurred during Project works and the subsequent correction measures to be implemented ahead of the next scheduled monitoring visit, for compliance with this CEMP. Any events of non-compliance will be tracked with the measures taken to correct those deficiencies. The EM has the authority to issue a stop work order in the event of non-compliance with any part of this CEMP.

Environmental Monitoring Reports will include, at a minimum, the following information:

- Name(s) of EM(s)
- Period covered by the report
- Date the report was submitted

- Report recipient(s)
- Contractor(s) undertaking work during the reporting period
- Overall weather conditions during the reporting period
- Amount of rainfall recorded during the 24 hours prior to the visit (i.e., for SRE only)
- Description and photos of key Project/construction activities
- Water quality monitoring results (i.e., taken in the field and obtained from the lab, if applicable)
- Summary of Site observations made by the EM, including a description of environmental issues or concerns raised by the EM and the measures taken to address those issues or concerns
- A summary of environmental incidents that occurred during the reporting period (if applicable)

Additional content which may be applicable to the Project includes:

- A summary of environmental monitoring data collected and all results received during the reporting period, such as water sampling;
- A map showing the location of the monitoring activities and the area of active construction;
- An organized checklist or table of key mitigation requirements of this CEMP and/or applicable permit conditions verifying implementation and effectiveness at the relevant stages of the Project;
- A list of Project related meetings and other communications and a summary of key issues discussed; and
- An overview of fish and/or wildlife observations, and potential negative interactions with Project activities.

9.1.1 *Instream Works (Ditch Infill), Outfall Works Monitoring and Reporting*

As instream works are proposed as part of the Project instream works monitoring must also be completed by the Project EM/QEP. Pending approval from MFLNROD and DFO, all instream works must adhere to conditions set forth in the pending approval document including, but not limited to, the following:

- Instream works to be completed in the dry and under the full-time supervision of an EM/QEP;
- Daily monitoring, including WQM at pre-determined, designated upstream and downstream sampling locations, during infill works to be completed by an EM/QEP;
- Ensure there is sufficient rip rap material around the new culvert areas for increased erosion protection; and
- Formal reporting to external agencies databases by an EM/QEP following completion of instream works.

9.1.2 *Outfall Function Monitoring*

An inspection conducted by the project engineer and/EM will occur on an annual basis to confirm the proper functioning of the outfall. Inspections will be scheduled during high rain events to properly evaluate the functionality of the outfall, which may include quarterly water quality sampling.

The OEP will prepare information and reports (where necessary) on the following parameters:

- Slope and bank stability;
- Erosion/scouring of the banks adjacent to the river; and
- Any comments or recommendations from the project designer, hydrogeologist and EM.

10.0 STATEMENT OF LIMITATIONS

This CEMP is meant to be a living and flexible document that can be used to provide guidance in environmental protection measures that can be implemented during routine Project activities, as well as unanticipated events or requirements that may arise during the course of Project works.

This report has been prepared solely for the internal use of PLG, the City of Pitt Meadows, the Client, and their Contractor pursuant to the agreement with PLG. Any use which other parties make of this report, or any reliance on or decisions made based on it, are the responsibility of such parties. PLG accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

11.0 PROFESSIONAL STATEMENT

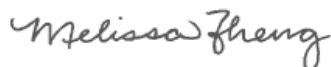
This report entitled *Construction Environmental Management Plan*, has been prepared by Ms. Melissa Zheng (Project Biologist) and Ms. Kyla Milne (Lead Biologist/ESC Supervisor).

I, Kyla Milne, certify that the work described herein fulfills standards acceptable of a Professional Biologist.

Please contact the undersigned should you have comments or questions regarding this correspondence.

Sincerely,

PACIFIC LAND RESOURCE GROUP INC.



Melissa Zheng, BIT, BC-CESCL
Project Biologist



Kyla Milne, RPBio, OEP
Lead Biologist / ESC Supervisor

Appendix A – 6 Steps to Spill Response

6 STEPS TO SPILL RESPONSE

1) Ensure Your Safety

- Immediately notify the Site Supervisor and Environmental Monitor, if on-Site;
- Do not try to clean the spill unless trained to do so and contact trained personnel, if necessary;
- Review spill response procedures; and
- Identify spill material(s), consult MSDS sheets, if necessary, and wear the appropriate Personal Protective Equipment (PPE).

2) Stop the Source

- Assess the source of the flow/spill; and
- Shut off machinery, if needed, close all valves and pumps, plug or trap leaks, set containers upright and carry out emergency repairs.

3) Evacuate & Secure the Area

- Evacuate non-essential emergency spill personnel;
- Remove or secure all ignition sources;
- Consider wind directions and stay upwind or uphill of the spill, if possible; and
- Inform the Site Contractor or the owners of the property of the spill as soon as reasonably possible.

4) Contain the Spill

- Evaluate the direction of flow and intercept by diking, absorbents, or absorbent booms, if possible;
- If a spill kit is not available, or contents are inadequate to contain the spill, use available earth/sod;
- Do not flush products down sewers or drains;
- Protect stormwater drains/catch basins, sensitive habitats, and wildlife; and
- Continue to monitor potential source(s) of spill material and mark off contaminated areas.

5) Notify / Report

- Notify the Site Supervisor or Environmental Monitor of all spills as soon as possible;
- The Site Supervisor must **INTERNALLY REPORT**:
 - a) All spills, regardless of quantity, to the Client within 24 hours and submit a completed Investigation Report Form to the Client and EM
- The Site Supervisor must **EXTERNALLY REPORT**:
 - a) Any spills to land above reportable quantities to **Emergency Management BC (EMBC) 1-800-663-3456**;
 - b) All spills to water and any spills to land that may reach water to the **Fisheries and Oceans Canada (DFO) Regional Office**;
 - c) All spills that enter a storm or sanitary drain, or drinking water source to **local municipalities or Regional District**; and
 - d) A spill of any substance in a Transportation of Dangerous Goods (TDG) class released while in transport or above reportable quantities to **local police and CANUTEC 613-996-6666**.

6) Clean-Up

- Wearing proper PPE, collect all used sorbent materials and contaminated soils and store in a water tight container with polyethylene liner, appropriate for temporary storage and disposal;
- Label containers with ID number, description of contents, shipping name, origin and date;
- If large quantities of contaminated soils are generated, place soils on a liner and cover with a tarp, away from any storm drains, until it can be transferred to containers; and
- Store all wastes in a secure location until transport and disposal, in accordance with applicable Acts & Regulations, can be achieved.