Pacific Gateway Constructors

Environmental Annual Report 2021

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Pacific Gateway Constructors		**Highway 91/17 Upgrade Project**	
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EXECUTIVE SUMMARY

The Highway 91/17 Upgrade Project will improve travel safety and efficiency on Highway 91, Highway 17 and the Highway 91 Connector and is located adjacent to the south shore of the Fraser River and the northern boundary of the Burns Bog Ecological Conservancy Area (BBECA) and the Delta Nature Reserve (DNR). The Project is part of the wider Highway 91/17 and Deltaport Way Upgrades. These upgrades will improve travel in the area and will reduce conflicts between local traffic, commercial vehicles and other travelers. The work is designed to complement the 72nd Avenue Interchange Project and the Alex Fraser Bridge Improvements Project.

In 2021 all the preload and surcharge placement were completed, and large portions of the project are currently in the settling phase. Preload and surcharge removals has commenced in certain areas and gravel placement was completed in these areas. All detours have been completed and most permanent stormwater installations have been installed. Preparation work was done for the placement of pavement, electrical services barriers, and line painting of new alignments now accessible to the general public. The S1 bridge was completed, and landscaping has commenced in various areas of the project.

A Construction Environmental Management Plan (CEMP) was prepared to guide Project design and construction based on the Design Build Standard Specification 165 Protection of the Environmental and Industry Best Management Practices to ensure the Project meets all environmental obligations and requirements. In 2021, activities undertaken to support CEMP implementation included: development, revisions and implementation of 14 Environmental Work Plans (EWPs), obtaining required permits, wildlife salvages, environmental monitoring and reporting. Estimated environmental effects of the Project have still been reduced by approximately 40% (for details refer to section 3.4), from the reference design, through design refinements and minor field fits.

Monthly environmental progress reports were prepared and have been forwarded to MoTI, the B.C. Ministry of Forests, Lands, Natural Resources Operations and Development (FLNRORD) and Fisheries and Oceans Canada (DFO). The Environmental Annual Report 2021 summarizes construction works and all related environmental aspects from 01 January 1 to 14 November 2021.

All approvals for work, including those required under the *BC Water Sustainability Act* (WSA) applications and DFO, were obtained prior to the start of the Project works. As a condition of such approvals, the Project is required to identify offsets for Project-related instream, riparian and wetland impacts. To meet offsetting requirements, Pacific Gateway Constructors (PGC) prepared an Environmental Enhancement Mitigation Plan (EEMP), which has been shared with MoTI, Environmental Agencies, and Indigenous Groups for review, comments and has been accepted by FLNRORD. Other required permitting included a renewal of a General Wildlife Permit and Fish Salvage (FLNRORD)/Scientific Collection Permit (DFO) to salvage fish.

Environmental daily and weekly reporting documented spills and issues that occurred during 2021 construction. There were 38 environmental spills recorded. There was a total of 39 environmental issues recorded. There were 4 Nonconformances recorded, reported to FLNRORD and closed out. As of 14 November 2021, there were 0 outstanding issues. All spills have been addressed and, where necessary, remedial action undertaken to refine practices to avoid and respond to spills.

Known contaminated soils are located in areas within the Project footprint, specifically within Sections 1 and 2. Permits and approval applications have been prepared to support appropriate management of

contaminated materials through an Approval in Principle with the Ministry of Environment (September 2020) and they were approved on 30 June 2021 and Notice of Independent Remediation processes for all other areas. Measures to mitigate and handle contaminated material are presented in the CEMP.

[redacted] S. 18

1.0 INTRODUCTION

The Highway 91/17 Upgrade Project (the Project) is a combination of roadway improvements to increase the safety, reliability, and efficiency of the transportation of goods and commercial traffic through Delta, BC. These upgrades are being delivered through the BC Ministry of Transportation and Infrastructure (MoTI). The Project is located adjacent to the south shore of the Fraser River and the northern boundary of the Burns Bog Ecological Conservancy Area (BBECA) and the Delta Nature Reserve (DNR).

To protect important environmental features in the project area, construction of the project is guided by the Construction Environmental Management Plan (CEMP Rev 6) which includes measures to avoid or address potential project-related effects and ensure compliance with Design Build SS 165 Protection of the Environment, project-related permits and approvals.

This document represents PGC's Annual (2021) summary of the implementation of environmental requirements associated with the CEMP Rev 6 and includes: a summary of construction activities completed between 01 January to 14 November 2021 an overview of delivery of key elements of PGCs environmental management approach, environmental issues identified, and mitigation measures, outstanding environmental works and commitments, construction preparation (permitting, nesting surveys, fish and wildlife salvages), contaminated sites management, and archaeology and heritage resources.

2.0 WORKS COMPLETED TO DATE

All construction activities took place from 01 January 2021 to 14 November 2021. Fish and wildlife salvages took place in May, June, July and August prior to any clearing and grubbing in those areas. The Project has been subdivided into Sections 1 - 4 as illustrated in *Figure 1*. Construction works have been summarized below by these Sections.

2.1 SUMMARY OF CONSTRUCTION ACTIVITIES

Section 1 – River Road Interchange

Remaining 3 stages of construction completed. River Road West preload completed early allowing construction of Culvert 105 and preload excavation. All roadworks completed for opening for July 2021 including West roundabout activation and river road/ Frontage Road tie in.

S1 Bridge & tie in roadworks completed September 2021 allowing L100 median drainage construction before full bridge activation and allowing W01 detour removal. W01 detour successfully reclaimed, preload & ponds excavated successfully under Archaeological monitoring procedures. All topsoiling landscaping and ditching completed. Final Asphalt and roadworks completed ahead of full interchange opening in December 2021

Section 2 – Sunbury Interchange

Menard has completed the stone column installations at the S2 Bridge locations. Placement of embankments and bridge construction has commenced. Embankment fill has been placed on Sunbury East mounds. Preparations are currently in place for contaminated site excavations in May 2022. Preload

placement at the L100 has been completed and will be tied into the new overpass during the second half of 2022.

Section 3 – Weigh Scale Access Interchange

Construction of embankment and preload in Section 3 is 90% completed with just the south side of 91C left for sand placement. Preload removal has begun on the south side of Section 3 (adjacent to Burns Bog). Approximately 60% of the lightweight concrete fill has been placed over the Fortis Gas Mains. Detour C03 was activated, with preload currently settling in Detour C04. Preload removal for the construction of bridge piles is currently ongoing with pile construction commencing in December 2021.

Section 4 – Nordel Interchange

All preload has been placed in S4. E04 detour was completed which allowed permanent L2100S and E05 detours to be completed. Stone column activities for the bridge were finished. Lock block walls 406 and 407 were built on either side of HWY 91. L2200 has been completed and is fully built. The storm drainage system around the truck parking lot has been started but is not completed. Overall, excavation work, installation of culverts, placement of preload sand, placement of surcharge layer and permanent drainage installations has been completed in most areas.

Project Overview

Paving, line painting and sign installations are yet to be completed for all Sections. Offsetting for the Project under the approved Environmental Enhancement Management Plan (EEMP) has commenced and will be advanced in areas as construction is completed and practical, and after the new road alignments are in operation.

Areas of habitat disturbance remaining for the project is L500 in Area G scheduled for 2022. Works are completed for Section 1, with upcoming works for the other sections are presented in *Appendix 2.*

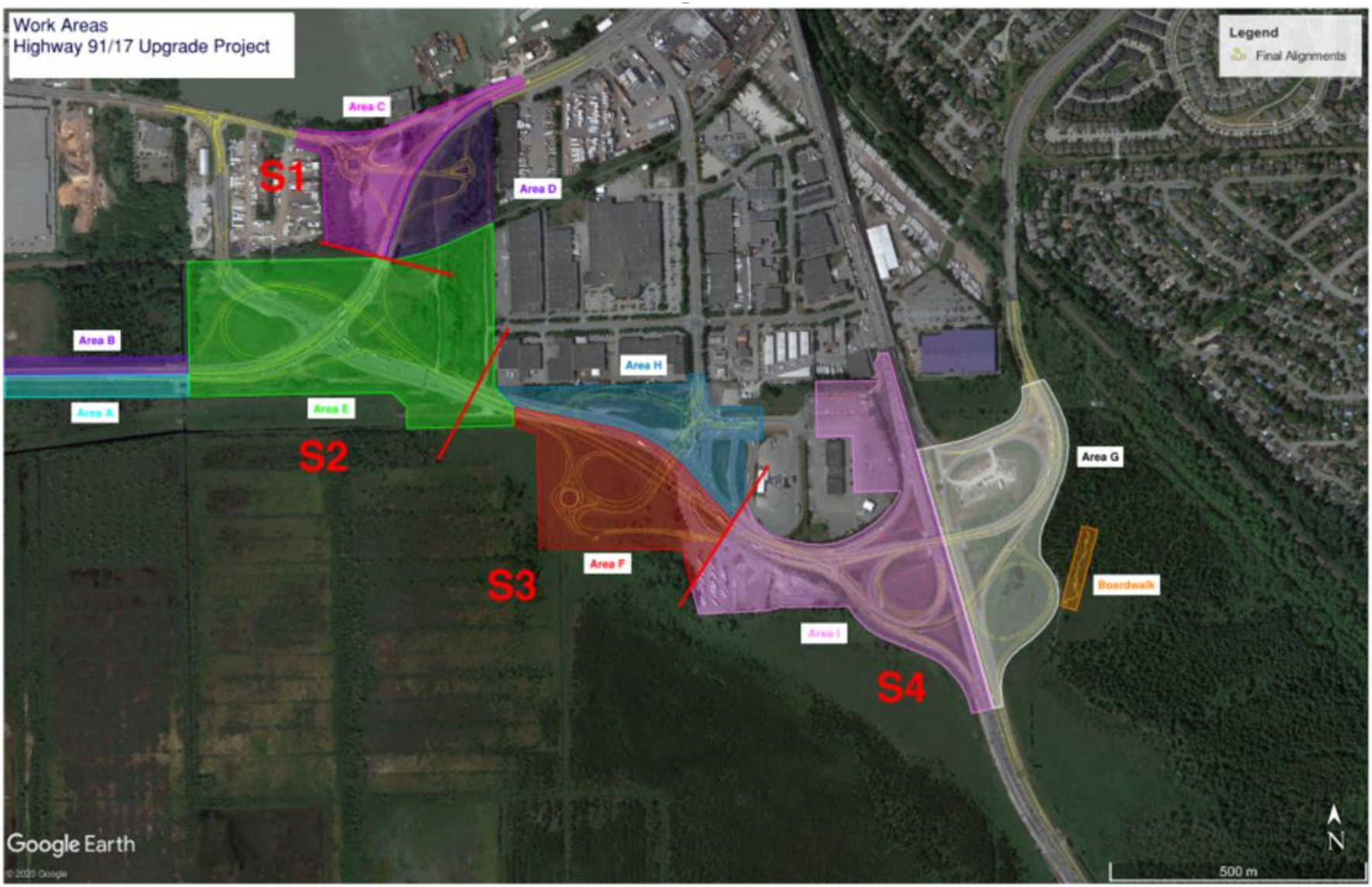

Figure 1: Approximate Work Area Locations

3.0 ENVIRONMENTAL MANAGEMENT APPROACH

Project design and construction was advanced following environmental requirements associated with the Design Build Agreement as well as the terms and conditions of environmental approvals including those associated with the South Fraser Perimeter Road Project Environmental Assessment Certificate (EAC) Table of Commitments and Assurances, as presented in *Appendix 1*. This section provides a summary of the environmental management program that was implemented for the Project in 2021 and focuses on: CEMP development and revisions, outstanding permitting requirements, CEMP monitoring and reporting activities.

3.1 CEMP DEVELOPMENT AND UPDATES

The CEMP prepared by PGC followed the guidance in Schedule 6 of the Overview Environmental Effects Assessment (OEEA [Hatfield 2019]) and the Design-Builder's Environmental Obligations (Schedule 6 of the Design-Build Agreement [DBA]) (*Appendix 1*) for the Project; as well as the requirements of the Environmental Assessment Application (Application), and the EAC for the South Fraser Perimeter Road Project (part of which overlaps with the Project).

The CEMP is a working document that addresses general mitigation measures for construction of the Project and includes 14 Environmental Work Plans (EWP) that were completed by PGC team. The CEMP was finalized 04 May 2020 prior to the start of construction. The CEMP has been reviewed internally and by MoTI with edits incorporated that addressed comments, additions and requests including comments provided through review by Indigenous Groups.

As the CEMP is a working document, changes were required early in the construction phase to address site specific conditions on the ground. These changes for Rev 6 in 2021 included revisions to the *Appendix D* Section 5.3.3 and *Appendix L* Section 5.1

Implementation of the CEMP Rev 6 was supported by the development of 14 EWPs as summarized in the Table below.

Table 1. Summary of CEMP Environmental Work Plans

Sub-Plan	Plan Summary
Appendix A: Agriculture Mitigation Plan (AMP)	The AMP describes the BMPs and mitigation measures that will be implemented to avoid, minimize or reduce impacts on agricultural land and agricultural operations, requirements for monitoring/reporting, and Environmental Management Team (EMT) members responsible for implementation of the AMP. It describes how the PGC will comply with the conditions of the Agricultural Land Commission approval. Mitigation measures are focussed primarily on minimizing disruption to farm activities, minimizing impacts on livestock and lands used during construction, and ensuring that existing topsoil is retained and reused. Monitoring will be undertaken by a Professional Agrologist from the Province.
Appendix B: Air Quality and Dust Control Plan (AQDCP)	The AQDCP describes the BMPs and mitigation measures to be used to control dust and other emissions during construction, monitoring/reporting requirements, and EMT members responsible for its implementation. Special attention is paid to air quality management for Burns Bog. Air quality monitoring will include fugitive dusts, ambient particulate matter, and ambient air quality. Mitigation

Sub-Plan	Plan Summary
	measures associated with the AQDCP focuses on dust control and minimizing potential impacts from gaseous emissions. Dust control for roads and the worksite is to be achieved through speed limits, street sweeping, and non-toxic dust suppressants (i.e., water). Gaseous emissions mitigation involves idle reduction strategies, use of catalyzed diesel particulate filters, and low-sulphur fuels. Monitoring will be achieved through visual observation and physical measurements of particulate matter.
Appendix C: Archaeological Chance Find Management Procedure (CFMP)	The CFMP describes the previous archaeological investigations undertaken in the Project area, the types of archaeological and traditional use sites that could be encountered, procedures to be followed should previously unidentified archaeological or heritage resources be encountered, and who to contact in that event. Chance finds of new archaeological sites or human remains are dealt with by avoidance, salvage, or, in some cases, site protection. Monitoring for this sub-plan primarily entails visual observation.
Appendix D: Construction and Hazardous Waste Management Plan (CHWMP)	The CHWMP ensures that construction-related waste management (i.e., construction and/or hazardous waste) is undertaken in a way that avoids potential effects on human health and the environment and is compliant with environmental regulations. It describes procedures and BMPs to manage construction material, waste materials, sediment and soil, or other hazardous substances, measures to be implemented for managing material that may attract wildlife, appropriate disposal of materials including, and the requirement to reuse materials wherever possible. Elements of the CHWMP are closely linked to the Spill Management and Emergency Response Plan (SMERP) and the Contaminated Sites Management Plan (CSMP). Mitigation measures associated with the CHWMP primarily deal with reducing and recycling of waste generated on site, with special provisions for organic and hazardous waste.
Appendix E: Contaminated Sites Management Plan (CSMP)	The CSMP identifies areas of potential contamination to ensure the health and safety of Project workers, protection of the environment, and that contaminated sites are managed in compliance with the Contaminated Sites Regulation (CSR). The CSMP provides approaches to manage contaminated and/or potentially contaminated material (such as beneficial reusing material through Protocol 13 Screening Level Risk Assessment procedures, containing and capping the material onsite through the Environmental Waste Discharge Authorization process [e.g., permits, approvals, operational certificates, and abandonment permits) and/or disposing contaminated material offsite to a designated licenced facility and/or through soil relocation agreement permitting processes), outlines mitigation measures to avoid potential site contamination issues, provides guidance and procedures for response to accidental releases of contamination, and lists best management and monitoring practices for the movement of fill material. The plan also describes the contractor's approach to characterize soils to be excavated and identifies constraints on re-using or re-locating excavated material. The plan also outlines the requirements for groundwater management (i.e., testing, permitting, dewatering, treatment, and discharging) if groundwater is encountered during construction activities. The EMT will be responsible for the implementation of the CSMP.
Appendix F: Contractor Awareness and Education Plan (CAEP)	The CAEP describes the environmental training, education and awareness programs that will be provided to the Project personnel, including senior design and construction personnel, the construction safety manager, and workers on the Project area. It provides a structured system for the dissemination of information to PGCs, sub-PGCs, and MoTI personnel who may not be familiar with the Project's environmental values/issues, and the contents of this EMP. This includes a training program designed to ensure proper awareness and education in relation to the various CEMP sub-plans. Monitoring the CAEP will involve ongoing assessments of training effectiveness, with a view toward adaptive management.

Sub-Plan	Plan Summary
Appendix G: Environmental Monitoring Plan (EnvMop)	The EnvMop details the Project's environmental monitoring program including general environmental and specialized (water/air quality) monitoring of construction to check the effective implementation of the CEMP sub-plans, including monitoring rational, parameters, sampling approach, issue tracking mechanism, and reporting. Monitoring and reporting are required to ensure compliance with EAC terms and conditions, legislation, and any applicable permits, approvals and/or authorizations. The EnvMop will also be used to identify and provide appropriate follow-up to any instances where suitable BMPs are not being applied or where mitigation measures are not effective. The EnvMop includes a table summarizing monitoring efforts required for each sub-plan.
Appendix H: Fisheries Habitat Mitigation and Compensation Plan (FHMCP)	The FHMCP describes a management approach that promotes impact avoidance, implementation of mitigation measures and BMPs to minimize any unavoidable impacts, application of offsetting and compensatory measures to offset any residual impacts that may apply after mitigation, and a monitoring and reporting program to assess effectiveness of the measures. The FHMCP identifies the EMT positions that will be responsible for implementation of this sub-plan. Mitigation measures focus on avoidance of direct impacts to fish, application of appropriate timing windows, and fish salvage techniques, protection of water quality, and PGC awareness/education. Monitoring will involve regular site visits and water quality sampling by the Environmental Monitor.
Appendix I: Health and Safety Plan (HSP)	The HSP summarizes aspects of environmental management that have implications for human health and safety and describes applicable health and safety strategies and/or measures, cross-referencing as necessary to the Health and Safety Program.
Appendix J: Invasive Species Management Plan (ISMP)	The ISMP addresses potential effects of the introduction and spread of invasive plant and aquatic wildlife species within the Project area. It identifies management practices to limit the spread and control of invasive species for the Project. It includes requirements for reporting during the advanced site preparation activities to demonstrate compliance and/or non-compliance with applicable and relevant standards and determine effectiveness of BMPs. BMPs include measures to minimize disturbance, protect existing native plants, revegetate with native species, minimize invasive seed transfer, and control invasive plants. Monitoring will be achieved through general inspection of roadside areas and annual surveys of specific Red- and Blue-listed plant community polygons.
Appendix K: Noise and Vibration Management Plan (NVMP)	The NVMP describes the Project site-specific schedule, procedures, and BMPs to control construction noise, emissions and vibration, in accordance with Schedule 4 [Design and Construction] and Schedule 6 [Environmental Obligations] of the DBA, including target noise emission levels of equipment, equipment maintenance and management, and describes community communication and noise monitoring requirements. The BMPs are focused on reducing and muffling noise produced by Project machinery, scheduling of noise-related works, and communicating with the local community. Noise and vibration monitoring will include assessment for potential noise impacts on wildlife and the community, along with feedback from the community.
Appendix L: Spill Management and Emergency Response Plan (SMERP)	The SMERP identifies spill prevention measures (e.g., containment, hazardous material storage and handling) and describes measures for addressing Project-related spills and emergencies (both internal and external notification) to minimize potential effects and risks to the public, on-site workers, and the environment. The SMERP lists the spill abatement materials/equipment to be stored in the Project area, educational requirements, and incident procedures regarding communications, containment clean-up, debriefing, follow-up reporting and EMT members responsible for the implementation of the SMERP. In addition, the SMERP identifies relevant external contacts.
Appendix M:	The SWQSCP identifies areas that are prone to sedimentation or erosion and describes general and Project area-specific measures to be applied to mitigate soil erosion and shallow slope movement.

Sub-Plan	Plan Summary
Surface Water Quality and Sediment Control Plan (SWQSCP)	These mitigation measures will control sediment-laden flows and to prevent sediment-laden water from entering watercourses. It also identifies the EMT members responsible for the monitoring/reporting program. Monitoring of erosion and sediment control structures, general site housekeeping, and water quality will be conducted on a weekly basis at active sites.
Appendix N: Wildlife and Habitat Management Plan (WHMP)	The WHMP identifies and describes Red- and Blue-listed wildlife species that may be in the Project area and provides a reasonable survey and/or salvage of such species prior to construction. It also identifies and describes sensitive wildlife habitat and/or sensitive vegetation areas in the Project area and describes management approaches and BMPs to avoid and/or minimize impacts on key wildlife, wildlife habitat, and vegetation (e.g., potential Pacific water shrew habitat). It provides a monitoring/reporting program and the EMT members responsible for its implementation, and describes wildlife enhancement measures, including restoration planning measures to benefit wildlife.

Implementation of the Project's environmental management program, including CEMP, was supported by PGC personnel identified in *Table 2*. The MoTI (Owner's) Environmental Representative for the Project is Brendan Reddington.

Table 2. Project Environmental Team

Project Contact	Project Role	Duties
Werner Beukes, R.P. Bio., PGC	Environmental Manager	Project Environmental Manager, liaising with MoTI and Agency staff, review of environmental deliverables
Joey Chiasson, PGC	Environmental Field Coordinator	Support Werner Beukes
Andre Felicio, PGC	Environmental Field Coordinator	Support Werner Beukes
Patty Burt, RP Bio, AQP, MESL	Environmental Lead	Manager of the Environmental group for the Design Team, reviewing reports, permits and approvals, Monthly and Annual reporting
Mark Trousdell, RP Bio., AQP, MESL	Environmental Monitor	Weekly Environmental Monitor/auditor
Nuzhat Beig, M.Eng, EIT, MESL	Submission Coordinator	Preparing weekly and monthly EM reports. Complied the Annual report
Dave Hayward, RP Bio., CPESC, Brybil	Environmental Lead	Preparation of the CEMP, EEMP, Obtain Permits and Approvals for all instream work and salvages.,
Allan Morrison PEng, CSAP, MESL	Contaminated Sites Professional	Securing permits, guidance and compliance for Segments 3 and 4
Rob Kupchanko, BSc, PAg, Brybil	Contaminated Sites Professional	Securing permits, guidance and compliance for Segments 1 and 2
Jenny Botica, PhD, RPCA, RPA, CAHP, Kleanza	Archaeology Lead	Securing permits, managing First Nations field monitoring

3.2 PERMITTING

Approvals for all instream and wetland/bog habitat impacts required to support work over 2020-21, have been obtained and are outlined in the Permit Tracking List in *Appendix 3*.

Permits under the *Water Sustainability Act (WSA)* for 9 distinct areas were obtained. Fisheries and Oceans Canada (DFO) were also requested to complete their review of the same 9 areas. In addition, a General

Wildlife Permit for 2021 and Fish Salvage/Scientific Collection Permit (valid for the lifetime of the project) were obtained to allow for salvage activities to occur prior to clearing and grubbing and instream work.

As Project designs progressed, impacts were reduced in response to engagement with permitting agencies which was supported, in some cases, by providing additional design information to address questions from regulators. In addition, as part of the approvals conditions, PGC had to offset for instream, riparian and wetland impacts that resulted from the Project. To meet these regulatory requirements, PGC prepared and submitted an EEMP that identified habitat enhancement elements designed into the project to offset permanent footprint impacts resulting from the Project.

No construction began prior to obtaining applicable permits and approvals, including a General Wildlife Permit and Scientific Collection Permit to salvage wildlife and fish. Rare and invasive plant surveys and breading bird nest surveys inside the window of March 15 to August 15 were also completed prior to the start of construction in 2020 and into 2021. No rare plants were found, and invasive weeds were treated by PGC. Permit amendments, variance requests for salvaging outside to the instream work window for fish, and extensions were also required for work extending beyond approved dates.

The EEMP (April 2021) has been shared with MoTI, Environmental Agencies, and Indigenous Groups for review and comments. An Order for Change Approvals 2007749, 2007755, 2007770, 2007783 and 2007795 was received on 29 September 2021 which amends the original FLNRORD Approvals to include the Conditions under the Order as a result of the acceptance of the EEMP.

As required under conditions of the WSA Approval granted for the Project, the Environmental Manager or Field Coordinator from PGC were to be present during all day and night shifts to monitor construction activities and inspect the work sites according to the environmental requirements outlined in the CEMP Rev 6, EWPs, Provincial (*WSA*) and Federal (*Fisheries Act*) legislation.

3.3 MONITORING AND REPORTING

Environmental monitoring and reporting, that supports CEMP Rev 6 implementation, is critical to ensure compliance with terms and conditions of approvals and identify opportunities to refinement environmental mitigation based on lessons learned and observations in the field. Documentation of all environmental issues, concerns, requirements, sampling and salvage results occurred on a daily, weekly, monthly and annual schedule. Weekly summaries are provided by the Project auditor and the monthly reports are developed based on those summaries. The monthly reports are submitted to MoTI for review and filing. Annual reporting (this document) is provided to MoTI at the end of each year of construction.

Environmental monitoring and reporting did identify some environmental issues during the construction phase for the Project in 2021, though such events did not result in substantial negative environmental impacts and were fully mitigated through follow up undertaken as a result of environmental reporting (e.g., broken hydraulic lines, leaking machines, litter/garbage, minor sediment releases and high pH water release during S1 Bridge curing). Each minor issue was managed appropriately on the ground and

opportunities for improvement were assessed to reduce potential future occurrences. Additional information on specific environmental issues is provided in Section 4.0.

To support continual improvement in refining environmental practices, training and communication between environmental and construction staff supported by senior PGC personnel occurs regularly to address the past and ongoing or potential issues. In 2021 environmental training included the use environmental advisory notices that were distributed on site and signed copies were scanned and filed on the SharePoint. Topics were chosen based on visual observations for possible and current issues on site.

3.4 ENVIRONMENTAL DESIGN REFINEMENTS

During final project design in 2020, several refinements were made to the Project design in order to avoid or further minimize potential effects of the Project. Some of these refinements were identified because of feedback provided from regulators as part of the process of obtaining permits and approvals.

In 2020, a number of substantial changes to Project design were incorporated into final application for permits and approvals in order to reduce the overall environmental impact of the Project (footprint). Specifically, the BC *WSA* applications and DFO Project review request original applications were approved with a commitment to offset habitat based on the finalized design drawings. In the initial application, the footprint of aquatic and wetland/bog habitat was estimated to be around 80,000 m^2. With the design revisions, this footprint was reduced to 48,652 m^2, resulting in a 40% reduction in environmental footprint impact.

Additional improvements have been made throughout construction including, an amendment was requested under the *WSA* to expand the footprint in Section 4, however the request was soon rescinded as PGC was able to utilize excess peat material as part of their design thereby eliminating the need for an expanded footprint. In another case, the design team incorporated a liner into the bog interface to separate bog and non-bog water in Section 4.

There have been no substantial refinements to the design in 2021.

4.0 ENVIRONMENTAL ISSUES

Environmental issues for the 2021 constriction period have been tracked daily, weekly and monthly either by the PGC Environmental Manager, PGC Field Coordinator or MESL Environmental Monitor. Daily reports provided by the PGC supplement the weekly auditing activities which in turn feed into the monthly Environmental Reports (MESL) to capture this information. In total there were 38 environmental issues that were used to improve and modify practices for 2021.

Of the 38 issues, environmental spills, that are defined as a release of a hydrocarbon product (or equivalent) to ground, or water equaled 37. Thirteen of these spills were minor in nature (<1 L), 14 ranged between 1.1 and 5 L, large spills totaled 8 (5.1 L to 99.9 L) and 2 significate spills that were >100 L to water.

Minor issues that are not uncommon during the construction phase of road infrastructure and easily corrected, include for example: effectiveness of sit fence, keeping existing highway driving surfaces free of

debris, fully stocked spill kits, use of spill trays under ideal equipment, general housekeeping activities across the Project site. These matters were delt with by increased equipment inspections, the installation of drip trays, and increased monitoring efforts to advise the PGC on deficiencies.

Three incidents were reported to externally to FLNRORD (E Elsiger) by email:

1. 15 June 2021: HWY91/17 sand migration from L1400 preload into the Burns Bog. FLNRORD Response: **"*Please ensure you include this incident in your post-construction report and details on how it was address and mitigated. Including photos in the report will be helpful.*"**
2. 17 September 2021: HWY91/17 Cracked light weight fill concrete event at the L1300.
3. 19 October 2021: HWY91/17 release of high NTU water into downstream Silda Ditch.

Two Contractor Nonconformances (NCR 057 and 068) involved works being conducted without the applicable EWPs in place and one (1) for not having a PGC Environmental Representative present while sensitive works were taking place (NCR 071).

Hydrocarbon spills have been reduced by training staff to check all equipment regularly for leaks, drips and excess grease and having extra drip trays for placing under stationary and ideal machines.

As of 14 November 2021, no issues were outstanding (*Table 3 as a placeholder*). All spills have been consistently documented and have been immediately cleaned up. All hazardous waste is stored in marked drums, under cover and on pallets at the office laydown yard. The type of material and quantity is documented for disposal purposes. Spills in environmentally sensitive areas are reinspected after cleanups were completed to make sure there are no further resulting issues. No residual impacts on aquatic life were detected during routine inspections. Changes were made on site to add additional spill kits, complete additional awareness training and removal of faulty equipment from site. All new equipment were pre-inspected prior to their arrival onsite. More pre-site inspections were initiated on equipment arriving on site prior to works.

Based on environmental events that occurred during standard construction work practices encountered in 2020 and 2021, PGC has implemented measures to ensure that environmental impacts are managed correctly. These measures include daily toolbox meetings (commenced in February 2021), increased communication between staff and their managers, increased spill training, education with wildlife encounters and active senior management support. Staff turnover is still an issue but with the increase in day-to-day training and awareness and management support has created a more inclusive work atmosphere when it comes to protection of the environment.

Table 3: Outstanding Environmental Issues Tracking Table

Item No	Date	Environmental Issue or Required Action	Corrective Action	Projected Closure Date	Open/ Closed	Comments

5.0 SUMMARY OF OUTSTANDING ENVIRONMENTAL WORKS AND COMMITMENTS

A summary of remaining environmental works and commitments with a general timeline of when these will occur are presented in *Appendix 2.* As indicated in Section 1.1 of this report, all remaining pavement installations, remainder of culverts, removal of remaining of preload sand and surcharge, completion of the Section 2, Section 3 & Section 4 bridges, guide sign installations, permanent drainage installations, line painting, landscaping and habitat enhancement feature installations are yet to be completed for all Sections of the Project site. Each section still has outstanding work to be completed and various activities are occurring concurrently.

Restoration and offsetting have commenced in Area D and planning for additional activities of this nature will be updated once construction is completed in an area. The schedule for the environmental offset construction is expected to occur after a majority of road construction has been completed (likely 2022 and 2023 based on Schedule 3 of the DBA Substantial and total completion dates). Now that the EEMP has been approved, the schedule for implementation of the EEMP, and development of habitat offsetting, is being incorporated into the construction schedule.

6.0 FISH & WILDLIFE SALVAGE RESULTS

The federal *Species at Risk Act* (*SARA*) provides legal protection of wildlife and their habitats designated under Schedule 1 of *SARA* (SC 2002, c.29). The purpose of *SARA* is to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and to encourage the management of other species to prevent them from becoming 'at risk'.

No Species at Risk were captured and relocated as part of the construction salvage efforts for 2021.

Salvage activities were conducted by PGC, as per the requirements of the Scientific Fish Collection Permit SU20-601411 & Wildlife Permit SU21-622077. All animal handling was consistent with permit conditions, including those described in Live Animal Capture and Handling Guidelines for Wild Mammals, Birds, Amphibians and Reptiles[1], and in relevant publications by the Canadian Council on Animal Care[2]. Decontamination of field gear including traps, buckets, nets, waders, and boots was completed before and after the salvage, and followed the disinfection procedures outlined in the BC Ministry of Environment's Standard Operating Procedures: Hygiene Protocols for Amphibian Fieldwork[3]. Salvage operations for small mammals followed the Best Management Practices for Pacific Water Shrew in Urban and Rural Areas[4] and

[1] BC Ministry of Environment. 1998. Live Animal Capture and Handling Guidelines for Wild Mammals, Birds, Amphibians and Reptiles: Standards for Components of British Columbia's Biodiversity No. 3. Prepared by the Ministry of Environment, Lands and Parks, Resource Inventory Branch for the Terrestrial Ecosystem Task Force Resources Inventory Committee. December 1998. Version 2.0. Available at: https://www.for.gov.bc.ca/hts/risc/pubs/tebiodiv/capt/assets/capt.pdf

[2] Canadian Council on Animal Care. 2003. Guideline on: The Care and Use of Wildlife. Available at: http://www.ccac.ca/Documents/Standards/Guidelines/Wildlife.pdf

[3] BC Ministry of Environment. 2008. Interim Hygiene Protocols for Amphibian Field Staff and Researchers. Prepared for the BC Ministry of Environment Ecosystems Branch. Available at: http://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/wildlife-health/wildlife-health-documents/bc_protocol-amphibian_field_researchers.pdf

[4] Best Management Prac ices for Pacific Water Shrew in Urban and Rural Areas. Craig et al. 2010.

the Best Management Practices for Amphibian and Reptile Salvages in British Columbia[5] for amphibian and reptile salvages.

All wildlife and fish species salvaged were relocated to the closest habitat that was similar to where they were found. Wildlife salvaged in Section 2, Area E4 and E5 were relocated directly northwest of the sites.

Fish and wildlife salvages took place in, May, June, July and August for Sections 2, 3 and 4, prior to construction beginning in those areas. In July 2021, there were 63 wildlife captured and safely relocated (*Table 4*). In May, June and August 2021 there were 624 aquatic individuals salvaged. In total, 687 wildlife and aquatic species were salvaged. 10 of those were American bull frog (*Lithobates catesbeianus*) that were removed from the site. Invasive wildlife was managed following the wildlife permit conditions.

Table 4: Wildlife and aquatic species salvaged in 2021

Wildlife Species - Common Name	**Scientific Name**	**Number of individuals**
common shrews	*Sorex sp.*	46
vagrant shrews	*Sorex vagrans*	5
Townsbridge shrew	*Sorex trowbridgii*	4
north American deer mouse	*Peromyscus maniculatus*	1
Townsend's vole	*Microtus townsendii*	2
common vole	*Microtus* spp	1
western terrestrial garter snake	*Thamnophis elegans*	3
	Neurotrichus gibbsii	1
Total Wildlife	**63**	
Aquatic Species - Common Name	**Scientific Name**	**Number of individuals**
three-spined stickleback	*Gasterosteus aculeatus*	445
coho salmon	*Oncorhynchus kisutch*	1
northwestern salamander	*Ambystoma gracile*	58
green frogs	*Lithobates clamitans*	2
American bull frog	*Lithobates catesbeianus*	10
Unidentified tadpole	--	108
Total aquatic animals*	**624**	
Total individuals salvaged	**687**	
*As bycatch under Condition 3 of a fish salvage permit which is held by a QEP, those non-fish and non-listed (red or blue listed) species were carefully returned to immediately adjacent suitable habitat (i.e. not translocated over kms or hours) outside of the area of construction		

7.0 CONTAMINATED SITES MANAGEMENT

Section 1 and 2: Section 1 and 2 contaminated material is managed via an Approval in Principle (AiP) for specific areas identified and Notice of Independent Remediation (NIR) processes for all other areas. In support of managing CSR "waste levels" otherwise referred to as "IL+" soils, the design/build team is guided by two Remediation Plans for Sections 1 and 2, respectively. The AIP was signed and approved by Ministry of Environment on 30 June 2021.

[5] Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia. 2016. BC Ministry of Forests, Lands, Natural Resources, Operations and Development.
http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=13110

Section 1, construction activity is nearing completion and final inspection is planned for end November 2021. Semi-annual groundwater monitoring and cap inspection is required for minimum two years per the terms of the AIP and Performance Verification Plan (PVP). Section 2 construction continues through end 2021 and into early 2022. The same AIP and PVP monitoring, and cap inspection requirements (as in Section 1) applies to Section 2. During construction in Sections 1 and 2, Brybil presented PGC with technical memorandum (dated 29 March 2021) for managing soils and waste upon chance encounter and applying MOE-approved procedures stockpile sampling and characterization guidelines including but not limited to Technical Guidance #1. Brybil also provided PGC with a technical memorandum on 16 September 2021 approving project specifications for the replacement of an enviro liner product to be used throughout Sections 1 and 2. PGC implemented and followed the recommendations within those memos.

Section 3 and 4: Excavation of a utility trench at the Right-of-Way adjacent 8099 Nordel Way has commenced, and stockpiled soil is presently being characterized to determine whether contamination is present that would necessitate off-site disposal and associated NIR. Disturbance of soil and/or water in other areas of Section 3 and 4 has been minimal during this period. Characterization of soil for potential off-site disposal will continue in areas of suspected chloride contamination, from historic road salting, on an as-needed basis.

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9.0 SUMMARY

Construction of the improved transportation system is on schedule and is planned to continue through 2021 and 2022 (with a substantial complete date of 30 November 2022) ending on 31 May 2023 (total completion date). PGC has reduced the number of significant environmental issues through increased awareness, senior management support and training protocols for all staff.

Lessons learned from several spills has indicated that additional spill training, through toolbox trainings or meetings and an increase in mitigation supplies (including spill kits and drip trays) need to be available. As well, additional effort has been put in place for garbage pickup, recycling, storage, handling and disposal of contaminated material to reduce future impacts and near misses. Educating staff to anticipate rain, flooding, and changing conditions has also reduced environmental risk, ensuring that they are prepared for potential events.

Fish and Wildlife effort was reduced in 2021 as the PGC maintained existing isolations. Three fish salvages were conducted in Areas H and I, while one wildlife trapping event occurred in Area E (relocation sites identified in *Appendix 2*). Section 3 will require additional fish salvage efforts as construction progresses in that area. As general wildlife permits cannot be extended and are only valid for a year, a new permit will be obtained for any incidental works in 2022.

Approvals for all instream and wetland/bog habitat impacts have been in place and are outlined in the Permit Tracking List in *Appendix 3*. Variances have been prepared for works that have extended beyond typical reduced risk windows in areas where impacts were mitigated (isolated areas, dry channels, etc.). One application amendment under the ESA was rescinded in Section 4 as the designs and methods changed and additional area for stockpiling was no longer required.

Offsetting for unavoidable effects on habitat, as approved by Project-related permitting, in the form of the EEMP was obtained through a FLNRORD Order dated 29 September 2021. Offsetting construction has now been accounted for in the project construction scheduling and will be completed at the appropriate times.

APPENDIX 1: STATUS OF COMMITMENT TABLE

Ref	Objective Commitments & Assurances	Timing	Delivered By	Status Update	
				Ongoing	Complete
1.0 Responsible Environmental Management					
1.1	Develop, implement, and maintain an Environmental Management Plan (EMP) for the Project to demonstrate how the design, construction and operation, including maintenance, of the Project: - Will be carried out to avoid or mitigate negative impacts; - Will be carried out in an environmentally responsible manner, in accordance with DBSS 165 [Protection of the Environment]; - Will employ Best Management Practices (BMPs3); and - Will comply with federal and provincial legislation, permits, approvals and authorizations, including the Environmental Assessment Certificate (EAC).	All phases	Contractor		X
1.2	Prepare and implement a Construction Environmental Management Plan (CEMP), (which is a component of the EMP), including relevant sub-plans, for the Project prior to the start of relevant construction activities.	Pre-construction	Contractor	X	
1.3	Obtain required statutory permits, approvals, and authorizations before proceeding with construction that requires such permits.	All phases	Contractor		X
1.4	Adhere to the terms and conditions of the: EAC; federal screening report; the EMP; DBSS 165 [Protection of the Environment]; and any other applicable permits, licenses and approvals.	Pre-construction, construction	Contractor	X	
1.5	Establish an Inter-Agency Environmental Review Committee (IAERC), in accordance with the Terms of Reference developed during Application review, to provide for agency review and comment on plans and designs prior to construction, including but not limited to: - Detailed design of stormwater management infrastructure; - Detailed vegetation and wildlife mitigation plans and mitigation monitoring plans; and - Environmental management plans.	Pre-construction, construction	MoTI / Contractor	N/A	
1.6	Provide all project related EMPs, including component EMPs, to applicable regulatory agencies in the IAERC for review and comment, at least 30 calendar days prior to the start of construction that requires such plans.	Pre-construction	Contractor	N/A	
1.7	Relevant sub-plans to be included in the CEMP will include those to address environmental issues identified in the Application and supporting documentation submitted to the EAO during the Application review, and described in the Application (Section 11, pg. 523), including but not limited to: - Agriculture Mitigation Plan; - Air Quality and Dust Control Plan; - Archaeological Mitigation / Monitoring Plan; - Construction and Hazardous Waste Management Plan; - Contaminated Sites Management Plan; - Contractor Awareness and Education Plan; - Environmental Monitoring Plan; - Fisheries Habitat Mitigation and Compensation Plan; - Health and Safety Plan;	Pre-construction	Contractor	X	

	- Invasive Species Management Plan; - Noise and Vibration Management Plan; - Spill Management and Emergency Response Plan; - Surface Water Quality and Sediment Control Plan; - Wildlife and Habitat Management Plan.				
1.8	Manage contamination encountered during project development, regardless of the current assessment of potential contamination, in accordance with applicable regulatory requirements.	All phases	Contractor	X	
1.9	Prepare and implement an Operational Environmental Management Plan, prior to operation and maintenance activities. Provide the operational EMP to relevant reviewing and regulatory agencies, for review and comment, at least 30 calendar days prior to the onset of operation and maintenance activities.	Pre-construction	Contractor	TBD	
1.10	At a minimum, review the Wildlife and Habitat Management Plan and modify if required, three years post- construction and make a decision regarding the next review date and/or determine the closure date for the plan(s). The method for review, modification, and decision on closure of the plan(s) will be defined by the applicable regulatory agencies within the IAERC	Operations	Contractor	N/A	
2.0 Monitoring					
2.1	Ensure that environmental monitoring and reporting for the Project will be conducted, with respect to the terms and conditions of the EAC and other regulatory permits, approvals and authorizations as applicable.	Construction	Contractor	X	
2.2	Incorporate a monitoring component into all applicable sub-plans of the construction EMP developed for the construction phase of the Project.	Pre-construction	Contractor		X
2.3	Outline in each of the sub-plans of the construction EMP: - Rationale for monitoring; - Parameters to be monitored; - Monitoring program details; and - Required follow-up actions.	Pre-construction	Contractor		X
2.4	The Owner will engage an Environmental Monitor for the construction phases of the Project to undertake environmental monitoring activities and oversee implementation of each of component plans of the EMP developed for the Project. The Environmental Monitor will monitor, evaluate, and report to the owner on construction activities and the effectiveness of the environmental management strategies and mitigation measures, with respect to the terms and conditions of the Application and other regulatory Permits, Approvals and Authorizations that may apply. The Monitor will be responsible for making onsite decisions and taking on-site action to avoid/respond to potential environmental effects which could include temporary stop work orders if necessary.	Construction	Contractor	X	
2.5	Implement environmental quality management program through monitoring, auditing and reporting activities for the Project with respect to the terms and conditions of the EAC and other regulatory permits, approvals and authorizations.	All phases	Contractor	X	
3.0 Incident Management					
3.1	Respond to environmental incidents, including spill incidents in accordance with the Emergency Response Plan to minimize effects and risks to the general public, on-site workers and the environment.	All phases	Contractor	X	
3.2	Include protocols, consistent with the BC Spill Reporting Regulation, for reporting spills to appropriate emergency response authorities, including;	Pre-construction	Contractor	X	

	- The Provincial Emergency Program, in the case of any spills of reportable deleterious substances into waters frequented by fish, regardless of the amount of the spill; and - To adjacent property owners and occupiers, including local government, where utilities cross the highway and there is a potential for an incident to extend beyond the Project boundaries.				
3.3	Train all field Project personnel regarding implementation of the Construction and Hazardous Waste Management and Spill Management and Emergency Response Plans.	All phases	Contractor	X	
3.4	Incorporate relevant municipal contacts into the emergency contacts for the Construction and Hazardous Waste Management and Spill Management and Emergency Response Plans prepared for construction of the Project.	Pre-construction	Contractor		X
3.5	Follow applicable DBSS 165 and Canadian Council of Ministers of Environment codes and procedures if temporary fuel storage/fueling facilities are required during construction. Where there is a difference in standards, the most stringent measure for environmental protection will take precedence.	Construction	Contractor	X	
4.0 Community Consultation					
4.1	Consult with local governments, stakeholders and the public during all stages of Project development.	Pre-construction; construction	MoTI, Contractor	X	
4.2	Conduct community open houses and information sessions during the design review stage to obtain input on design refinements, during the preliminary and final design review stages.	Pre-construction	MoTI, Contractor	N/A	
4.3	Provide regular public information updates on the progress of construction, the schedule, and upcoming milestones.	Construction	MoTI, Contractor	X	
4.4	Consult with the Corporation of Delta (CoD) and the City of Surrey (CoS) during all stages of project development and construction.	Pre-construction; construction	Contractor	X	
4.5	Provide updated media information materials, as part of the Project commitment to making project information available to the public.	All phases	Contractor	X	
4.6	Track project enquiries and responses.	All phases	Contractor	X	
4.7	Discuss potential economic opportunities generated by the Project with participating First Nations throughout the Post-EA Certification, Design and Construction Phases of the Project.	Pre-construction; construction	MoTI, Contractor	X	
4.8	Obtain input from participating First Nations to identify appropriate measures to mitigate potential project related impacts on their previously identified interests in relation to fisheries and habitat matters.	Pre-construction	Contractor	X	
5.0 Stormwater Management					
5.1	Ensure that the design, construction and maintenance of stormwater management infrastructure for the Project takes an integrated approach to stormwater management and contributes to maintaining, or improving, drainage and water quality conditions directly adjacent to the corridor.	All phases	Contractor		X
5.2	Design, construct and maintain stormwater management infrastructure, such that it to meets the performance objectives outlined in the Stormwater Management Plan Outline (July, 2007) and the Application. Monitoring of the infrastructure will be undertaken to confirm performance objectives are met or, if necessary, additional steps are taken to ensure performance objectives are achieved.	All phases	Contractor		X

5.3	Consult with municipalities adjacent to the new construction area such that the approach to the management of stormwater and drainage design is complementary to, and can be integrated with, adjacent municipal stormwater infrastructure.	Pre-construction	Contractor	TBD	
5.4	Provide final designs for stormwater management infrastructure to relevant First Nations and reviewing and regulatory agencies for review and comment at least 30 calendar days prior to relevant construction activities in order to verify that the proposed infrastructure achieves agreed upon performance measures identified in the Stormwater Management Plan Outline (July 2007).	Pre-construction	Contractor		X
5.5	Drain stormwater and road runoff away from red and blue listed plant communities and do not construct integrated stormwater management infrastructure in such habitat areas.	Construction; operation	Contractor	X	
5.6	Obtain input from participating First Nations regarding mitigation measures outlined in the stormwater and drainage plan and effective integration of those measures into the design and operation of the Project.	Pre-construction	Contractor		X
6.0 Agriculture					
6.1	Consult with the Agricultural Land Commission (ALC), Ministry of Agriculture and Lands (MAL), Delta Farmers' Institute (DFI), individual farm owners and the CoD, through all future stages of Project development, construction and operation, to ensure impacts to agricultural lands and operations are minimized where possible and appropriately addressed where impacts are unavoidable.	All phases	MoTI, Contractor	X	
6.2	Obtain ALC approvals regarding areas within the Agricultural Land Reserve (ALR) required for the project, prior to construction.	Pre-construction	MoTI, Contractor		X
6.3	Develop and implement an Agricultural Mitigation Plan as outlined in the Application that identifies potential impacts to agriculture as a result of project construction activities and measures for avoiding and addressing such impacts where possible. The scope will include those measures outlined in the Application and the Agricultural Enhancement Strategy (April 2008), including but not limited to mitigation measures focused on: - Road access; - Drainage and irrigation; - Utilities; and - Maintaining the agricultural land base.	Pre-construction	Contractor	X	
6.4	Finalize and implement specific agricultural enhancement initiatives, including but not limited to, compensation mechanisms focused on improving road access and drainage and irrigation, as part of the application process to the ALC and summarily as part of the Agricultural Enhancement Strategy (April 2008).	Pre-construction; construction	MoTI	X	
6.5	Retain the services of a Professional Agrologist to: - Liaise with the owner, Design-Builder and farmer(s); - Oversee a consultation and dispute resolution process for individual farmers affected by the Project; and - Oversee monitoring and effectiveness of measures proposed to address impacts to agriculture during design, construction and operation.	All phases	MoTI	X	
6.6	Avoid, to the extent possible, using agricultural lands outside of the Right-Of-Way (ROW), for staging areas. For all agricultural lands that are required for use as staging areas, implement construction BMPs (as noted in the Agriculture Mitigation Plan in the EMP) to manage potential construction related effects and restore lands to pre-construction condition, or better agricultural capability, upon completion of project works.	Pre-construction; construction	Contractor	X	

6.7	Consult with individual farm owners, as well as MAL, ALC, CoD, DFI and other stakeholders, to identify potential impacts to agricultural operations and infrastructure and ensure that such impacts are avoided, mitigated for, or appropriately addressed during future stages of design and construction of the Project. The scope of potential impacts to farm operations includes, but is not limited to: - Agricultural drainage; - Utilities; - Road Access; and - Pollinators.	Pre-construction; construction	MoTI; Contractor	X	
6.8	Undertake reasonable measures to facilitate the consolidation of parcels of isolated agricultural lands, to promote continued agricultural use of such lands.	All phases	MoTI	X	
6.9	Undertake reasonable measure to minimize potential loss of ALR lands, including existing farm(s) by: - Refining the Project footprint where feasible; & - Optimizing use of existing ROW.	Pre-construction; construction	Contractor	X	
7.0 Air Quality					
7.1	Ensure that the construction works and operations for the Project are conducted in compliance with environmental permits and approvals and that all reasonable measures are taken to address project-related effects on air quality.	Construction, operation	Contractor	X	
7.2	Develop and implement an Air Quality and Dust Control Plan for the construction phase of the project. The plan will: - Include an air quality monitoring program with thresholds, which if exceeded, will trigger the implementation of additional mitigation and corrective measures; - Commit to the best available, known and effective, measures for mitigating construction related air emissions, including diesel particulate matter (PM), as identified by relevant regulatory agencies. This would include, where practical, the use of diesel oxidation catalysts (DOCs) or diesel particulate filters (DPFs) on all on-road and off-road project equipment in combination with use of a B20 biodiesel blend; - Include an anti-idling policy for construction equipment and other vehicles associated with construction related activities; - Commit to fugitive dust minimization strategies (e.g. wheel wash and sweeping), and dust suppression techniques (e.g. watering) on roads; and - Identify site specific considerations, where applicable, such as proximity to sensitive environmental or human receptors.	Pre-construction; construction	Contractor		X
7.3	Provide the Air Quality and Dust Control Plan to Metro Vancouver, Environment Canada (EC), Ministry of Environment (MoE), Transport Canada, Health Canada (HC) and other relevant agencies for review and comment at least 30 calendar days prior to relevant construction activities.	Pre-construction	MoTI, Contractor	X	
7.4	Avoid burning as a means for disposing of land clearing debris.	Construction	Contractor		X
8.0 Traffic Management					
8.1	Ensure that the design of the Project is integrated with local road networks, and that construction of the proposed project includes measures for avoiding or minimizing impacts to local road networks.	Pre-construction; construction	MoTI, Contractor	X	
8.2	Prepare and implement a Traffic Management Plan in coordination with CoS and CoD to address construction related traffic conditions.	Pre-construction; construction	Contractor	X	

8.3	Consult with the CoD, CoS, MoT district office, and other stakeholders to design and construct project infrastructure so that it is effectively integrated with existing and planned local road networks.	Pre-construction; construction	Contractor	X	
9.0 Noise and Vibration					
9.1	Ensure that potential noise impacts associated with the project are considered and mitigation provided for during design, construction and operation of the project.	All phases	Contractor	X	
9.2	Prepare and implement a Noise and Vibration Management Plan for the construction phase of the Project that will include specific mitigation measures, and locations where they will be applied to address construction related noise.	Pre-construction; construction	Contractor	X	
9.3	Prepare a noise complaint protocol as part of the CEMP Noise and Vibration Management Plan to respond in a timely manner to concerns and complaints raised by residents and take reasonable actions to reduce the Project-related construction noise in question.	Pre-construction	Contractor	X	
9.4	Provide the construction Noise and Vibration Management Plan to the CoS, CoD and other stakeholders for review and comment 30 calendar days prior to the onset of relevant construction activities.	Pre-construction	Contractor	X	
9.5	Design and construct mitigation measures to address potential operational noise impacts on residential areas as part of the project according to the MoT Noise Policy (1993) [referenced as the Noise Policy in this Agreement].	Pre-construction; construction	Contractor	TBD	
9.6	Conduct noise monitoring at the baseline sites during the first year after construction is complete to assess the effectiveness of mitigation measures, with a commitment to further mitigation if necessary, technically feasible and practical.	Operation	Contractor	TBD	
9.7	Consult with the CoD and CoS to look for opportunities to use tree planting and landscaping to mitigate potential visual, noise and air quality impacts.	Pre-construction; construction	Contractor	TBD	
9.8	Participate in meetings with affected communities and residents to address site-specific noise issues in the event that late evening or night time construction works prove necessary in the vicinity of residential areas.	Pre-construction; construction	Contractor	TBD	
9.10	Perform pre-condition surveys to document existing state of buildings and facilities in the vicinity of SFPR construction activities as per standard geotechnical BMPs. This will form the baseline conditions, against which post-construction condition surveys will be carried out to assess any vibration impacts to buildings and facilities as a result of Project construction.	Pre-construction	Contractor		X
9.11	Monitor ground vibrations, as per standard geotechnical BMPs, adjacent to buildings to confirm that vibration levels are within ranges expected to avoid construction-related vibration.	Construction	Contractor	X	
10.0 Contaminated Sites and Property Acquisition					
10.1	Ensure that potential site contamination is investigated and managed in compliance with the Contaminated Sites Regulation (Environmental Management Act), during all stages of project development including property acquisition, design and construction.	All phases	Contractor	X	
10.2	Assess all Tier 1 and Tier 2 properties required for the ROW for potential contamination prior to construction and take steps, as required, to investigate and address site contamination that may exist.	Pre-construction; construction	MoTI; Contractor	X	
10.3	Manage any contaminated groundwater encountered in accordance with the requirements of the Environmental Management Act and associated regulations.	Pre-construction; construction	MoTI; Contractor	X	

10.4	Undertake risk assessment and remediation activities, as required, and manage potential contamination in compliance with the provincial Environmental Management Act and Contaminated Sites Regulation.	Pre-construction; construction	MoTI; Contractor	X	
10.5	Should contaminated groundwater be identified along the route, include measures to control/mitigate the potential for impacts to surface water in future stormwater design.	All phases	MoTI; Contractor	X	
10.6	Notify MoE of potential migration of contaminants from known or identified Tier 1 off-corridor properties of concern discovered during supplementary investigations or Project-related activities and use information to manage and mitigate contaminated sites issues prior to construction.	Pre-construction	Contractor	X	
10.7	As part of the CEMP, the Contaminated Sites Management, Construction and Hazardous Waste Management and Spill Management and Emergency Response Plans, develop and implement a protocol for identifying and managing contaminated and potentially contaminated materials during the construction phase of the Project.	Pre-construction; construction	Contractor		X
11.0 Fisheries					
11.1	Ensure that all works and activities associated with the construction, operation and maintenance of the project are conducted in compliance with the *Fisheries Act*. This includes implementing mitigation measures and best management practices to ensure that the project does not cause any unauthorized harmful alteration, disruption or destruction of fish habitat, that the project does not cause any harm or mortality to fish, and that the project does not cause or result in the deposit of a deleterious substance of any type, including sediment, into a watercourse that is frequented by fish.	All phases	Contractor		X
11.2	Obtain an authorization under subsection 35(2) of the *Fisheries Act* for any unavoidable harmful alteration, disruption or destruction of fish habitat prior to relevant construction works or activities.	All phases	Contractor	NA	NA
11.3	Develop and construct fish habitat compensation measures that offset all project impacts to fish habitat. These fish habitat compensation measures will be constructed by the proponent as directed by Fisheries and Oceans Canada and in accordance with any s. 35(2) *Fisheries Act* authorizations.	Pre-construction; construction	Contractor	X	
11.4	Implement appropriate measures to adequately mitigate the effects of the creation of impervious surfaces on volume of surface runoff, rate of runoff, and water quality. These will meet performance targets established in the Stormwater Management Plan Outline (July, 2007) for the project.	Pre-construction; construction; operation	Contractor	TBD	
11.5	Establish and maintain riparian setback areas from drainage channels and watercourses in accordance with regulatory requirements.	Pre-construction; construction; operation	Contractor		X
11.6	Take all reasonable measures to prevent substances that may be harmful to fish from entering the aquatic environment at the construction sites in the proximity to fish and aquatic habitat, paying particular attention to discharges of suspended sediments, construction waste, handling of uncured concrete and other deleterious substances.	Construction	Contractor	X	
11.7	Construct bridges for watercourse crosses in the vicinity of Delta Ravines (i.e. Norum, McAdam, Collings, Nelson View and Gunderson Creeks), as shown in plans attached to the Application (Technical Volume 1) and over a minimum 450 m portion of the Fraser Heights Wetlands, using the design and the construction methods outlined in the draft Fraser Heights Wetlands Bridge Preliminary Design Report.	Pre-construction; construction	Contractor	N/A	

11.8	Obtain input from the Musqueam Indian Band and other participating First Nations to identify appropriate measures to mitigate potential project related impacts on the identified interests of the Musqueam Band in relation to fisheries and habitat matters. Identify potential opportunities for mutually agreeable opportunities to assist in advancing the fisheries interests of the Musqueam Indian Band or other participating First Nations.	All phases	MoTI, Contractor	X	
11.9	Review with the applicable regulatory agencies, including but not limited to DFO and MOE, proposals for compensation habitat, including opportunities for habitat to be constructed in advance of other Project construction (i.e. "habitat banking"), to determine the ratio of habitat types and to which drainage compensation will apply.	Pre-construction	Contractor		X
11.10	Follow BMPs in the construction of all new ditches and stormwater watercourses.	Construction	Contractor	X	
11.11	Retain maintenance responsibility for compensation sites within the Project limits. For sites constructed in areas outside of the Project limits, establish site-specific agreements for access and maintenance with the relevant stakeholder/landowner.	Operations	Contractor	TBD	
12.0 Water Quality					
12.1	Ensure that the construction works and operations for the Project are conducted in compliance with environmental requirements and BMPs in order to avoid impacts to water quality.	All phases	Contractor	X	
12.2	Develop and implement a Surface Water Quality and Sediment Control Plan and provide the plan for review and comment by relevant environmental agencies at least 30 calendar days prior to the start of relevant construction activities.	Pre-construction	Contractor		X
12.3	Sample water from potentially impacted drinking water wells to assess potential adverse effects to water quality associated with during construction and operation phases of the project. Provide sampling water quality data to the local health authority for review and comment.	Construction; operation	Contractor	NA	
12.4	The Surface Water Quality and Sediment Control Plan will at a minimum: - Identify requirements for additional water quality monitoring prior to and during construction to ensure preventative and mitigation measures can be taken as appropriate, to avoid impacts to water quality; - Identify potential water quality contaminants of concern generated by construction activities and associated preventative and mitigative measures; - Include a BMP maintenance plan to ensure BMPs implemented are functioning as designed and corrective actions are taken when required; and - Be submitted to the applicable regulatory agencies at least 30 calendar days prior to start of construction activities for review.	Pre-construction; construction	Contractor		X
13.0 Wildlife and Vegetation					
13.1	Ensure that the design, construction, and operation of the project, avoids where practical and technically feasible, impacts to vegetation and wildlife.	All phases	Contractor	X	
13.2	Prepare and implement a Wildlife and Habitat Management Plan to avoid and, where necessary, mitigate potential impacts to vegetation, wildlife and wildlife habitat. Provide the Plan to relevant regulatory and reviewing agencies for review and comment at least 30 calendar days prior to relevant construction activities beginning. The Wildlife and Habitat Management Plan will include best practices including but not limited to those identified in the Application (Table 7.717, draft Wildlife Mitigation Crossing Plan (April 2007) [replaced by the Wildlife and Wildlife Habitat Mitigation Plan (September 2008)], and Zones of Influence memo (July 2007) [replaced by the Wildlife and Wildlife Habitat Mitigation Plan (September 2008)] in order to avoid, and where necessary, mitigate potential effects on	Pre-construction; construction	Contractor		X

	vegetation and wildlife. This plan will also identify protocols for the survey and salvage of vegetation and wildlife as appropriate and required.				
13.3	Develop and implement mitigation measures to avoid and minimize impacts to wildlife during construction and operation of the project including, but not limited to those measures identified in the Application (September, 2006), draft Wildlife Mitigation Crossing Plan (April 2007) [replaced by the Wildlife and Wildlife Habitat Mitigation Plan (September 2008)] and Zones of Influence Assessment memo (July 2007) [replaced by the Wildlife and Wildlife Habitat Mitigation Plan (September 2008)].	Pre-construction; construction	Contractor		X
13.4	During the design phase, MoTI will finalize its determination of the type and location of sound barriers to be constructed along the perimeter of Burns Bog. For the south-western alignment (adjacent to Crescent Slough), this design will include the construction of a solid sound barrier or a barrier that will provide equivalent mitigation. MoTI will ensure on-going consultation with TC, EC, MoE and other IAERC members as appropriate, during design regarding the proposed type and location of sound barriers to be installed around Burns Bog.	Pre-construction	MoTI, Contractor	TBD	
13.5	Consult with the MoE and the Canadian Wildlife Service (CWS) of Environment Canada, to identify suitable compensation, including but not limited to that identified in the Wildlife and Habitat Management Plan and Habitat Compensation Plan (February, 2007) [replaced by Habitat Compensation Plan (May 2007)], to address residual effects on vegetation and wildlife as a result of the Project.	Pre-construction	Contractor	X	
13.6	Work with reviewing and regulatory agencies to develop and implement a comprehensive and long term Mitigation Monitoring Plan (MMP) [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan], based on the Vegetation and Wildlife Mitigation Monitoring Strategy (April 2007) [replaced by the SFPR Vegetation and Wildlife Mitigation Monitoring Plan], to monitor the effectiveness of proposed mitigation measures in addressing Project-related effects on vegetation and wildlife, including species at risk. Data collection and monitoring in support of the implementation of the MMP will begin prior to construction and continue for a period of time, to be determined with relevant regulatory agencies, during operation. Information collected in relation to the MMP will be used to guide detailed planning of mitigation, assess the effectiveness of such mitigation, and determine where additional measures may be required. The MMP will include scientifically defensible thresholds or performance measures to facilitate the evaluation of the effectiveness of mitigation.	All phases	Contractor	X	
13.7	Undertake site-specific vegetation surveys in accordance with the regionally supported Protocols for Rare Plants Surveys, to identify the presence and distribution of red- and blue-listed plants species prior to final design and construction. Provide information on the presence and distribution of such plant species to MoE for review and use the information to guide final design and construction to avoid or mitigate impacts to these species.	Pre-construction	Contractor		X
13.8	Avoid direct impacts to sensitive red and blue listed plant communities where possible and adhere to construction exclusion windows determined by regulators.	Construction	Contractor	X	
13.9	Develop a plan for salvaging plants and seeds, for review by MoE, where impacts to red and blue listed plant species cannot be avoided, for replanting off-alignment.	Pre-construction	Contractor	X	
13.10	Make all reasonable efforts to avoid impacts to confirmed streambank lupine habitat and confirmed stream bank lupine seed banks in the project corridor, as identified in consultation with the Streambank lupine recovery team, during design construction and operation of the Project. Where impacts to such areas cannot be avoided, work with the Ministry of Environment and the Streambank Lupine Recovery team to identify and carry	Construction	Contractor	X	

	out appropriate mitigation measures including, but not limited to, the stockpiling of soil containing streambank lupine seeds.				
13.11	Undertake pre-construction bird nest surveys and restrict clearing during the breeding season. Pre- construction bird nest surveys will include, but not necessarily be limited to the following: - Conduct pre-construction raptor, heron or any listed species nest and roost tree surveys, consistent with applicable BMPs, to determine presence of active/inactive raptor and heron nests in the corridor and work scheduling with respect to the nest locations and applicable timing restrictions; - Prepare pre-construction bird nest survey protocols should works include clearing of vegetation during the general bird breeding time period as determined by MOE; - Conduct pre-construction bird nest surveys to the satisfaction of the MOE should the Design-Builder intend to seek approval from the MOE for vegetation clearing within the bird breeding time period (defined by MOE) in any year during the Term.	Pre-construction	Contractor		X
13.12	Consult with MoE on the development and implementation of an Invasive Species Management Plan to address potential effects of the project related to the spread of invasive plant and aquatic wildlife species within the project corridor.	Pre-construction; construction	Contractor		X
13.13	Include large mammal crossings adjacent to the perimeter of Burns Bog. The final number and location of wildlife crossings will be identified in the Wildlife Mitigation Crossing Plan [replaced by the Wildlife and Wildlife Habitat Mitigation Plan (September 2008)] which will be finalized in consultation with MoE and EC.	Pre-construction	Contractor		X
13.14	Follow the design criteria outlined in the MOT Manual of Aesthetic Design Practice and the MOT Landscape Policy and Design Standards that form the landscape and site restoration design criteria for the Project.	Pre-construction; construction	Contractor	X	
13.15	Use data collected through the MoTI administered Wildlife Accident Reporting System to identify areas of increased wildlife collisions and to monitor direct effects on wildlife.	Operations	Contractor	TBD	X
13.16	Identify the location of sensitive wildlife habitats, including but not limited to habitat for species at risk, red and blue listed plant communities and high biodiversity habitats, on detailed design drawings in order to avoid or minimize potential effects to these areas.	Pre-construction	Contractor		X
14.0 Species at Risk					
14.1	Ensure that all reasonable measures are taken to avoid or lessen effects of the Project on listed wildlife species and their critical habitat and that potential effects that could occur are monitored. All mitigation and monitoring measures will be undertaken in a manner that is consistent with applicable recovery strategy and actions plans.	Pre-construction; construction	MoTI, Contractor		X
14.2	Undertake a salvage program for Pacific water shrew from, at a minimum, high and moderate-rated habitat adjacent to the SFPR. Other areas potentially requiring salvage will include lower-rated habitat, connected to higher-rated habitat, and will be determined in consultation with MoE and the PWS Recovery Team.	Pre-construction; construction	Contractor		X
14.3	Consult with MoE regarding the mitigation of potential effects on Pacific water shrew and take all practical steps to apply the most recent Pacific water shrew best management practices to address potential effects, including identifying additional opportunities to avoid direct effects to areas, designated as critical habitat by the PWS Recovery Team, during design, construction and operation.	Pre-construction; construction	Contractor		X
14.4	Consult with MOE to develop a mitigation and compensation strategy for Pacific water shrew, where opportunities are available, based on habitat quality and connectivity to	Pre-construction; construction	MoTI, Contractor		X

	surrounding habitat. Undertake sampling program, where required, to determine the presence and distribution of Pacific water shrew to support detailed design of mitigation.				
14.5	Detailed design of wildlife crossing mitigation for southern red-backed vole (RBV) will be conducted assuming the presence of RBV in high and moderate rated habitat identified in the EA. Monitoring of the use of wildlife crossing structures will include provisions for assessing the use of such structures by RBV.	Pre-construction	Contractor	TBD	
14.6	Undertake a review of local museum specimens to confirm the distribution of *Sorex rowheri* within the Lower Fraser Valley. Where possible, use findings to support detailed design of mitigation.	Pre-construction	Contractor		X
14.7	Use information obtained through the Mitigation Monitoring Plan [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan (February 2008)] to support detailed planning of mitigation to address potential noise, visual and collision effects of the project on barn owl. Undertake long term monitoring of the effectiveness of such mitigation as part of the implementation of the Mitigation Monitoring Plan [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan (February 2008)].	All phases	Contractor	TBD	
14.8	Use information obtained through the Mitigation Monitoring Plan [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan (February 2008)] to support detailed planning of mitigation, including pre-construction salvage where appropriate, to address potential effects of the project, including those related to collision and changes in hydrology, on red-legged frog and western toad. Undertake long term monitoring of the effectiveness of such mitigation as part of the implementation of the Mitigation Monitoring Plan [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan (February 2008)].	All phases	Contractor	X	
14.9	Consult with MOE to plan and undertake at least one preconstruction, one construction and two operational inventories of at-risk aquatic insects in habitat known to or suspected of supporting such species and potentially affected by the project, including but not necessarily limited to the Fraser Heights Wetland, to confirm the findings of the environmental assessment and to monitor potential impacts of the project on aquatic insects.	All phases	Contractor	TBD	
14.10	Consult with the Canadian Wildlife Service to develop and implement a Mitigation Monitoring Plan [currently known as the SFPR Vegetation and Wildlife Mitigation Monitoring Plan] to monitor and assess the effectiveness of measures proposed to avoid or mitigate potential effects on Sandhill Crane. The Plan will identify: - species habitat requirements; - existing conditions in the project area; - potential project related effects and mitigation; - core indicators for assessing the effectiveness of mitigation; and - proposed study methodology and data interpretation and reporting protocols.	Pre-construction; construction	MoTI	TBD	
15.0 Burns Bog					
15.1	Avoid potentially significant impacts to hydrological and ecological values associated with Burns Bog (i.e. alignment refinements to avoid ecological and hydrological values, development of hydrological mitigation that meet the hydrologic objectives identified).	All phases	MoTI, Contractor		X
15.2	Consult with the MV, CoD, MoE, EC, and the Burns Bog Management Planning Committee (BBMPC) and Scientific Advisory Panel (SAP) to ensure design, construction and operation of the Project complements long term management objectives established for the Burns Bog Ecological Conservation Area.	All phases	Contractor	TBD	

15.3	Consult with the reviewing agencies to finalize construction and post construction monitoring requirements related to Burns Bog including, but not limited to, those identified in the Vegetation and Wildlife Mitigation Monitoring Strategy (April 2007) [replaced by the SFPR Vegetation and Wildlife Mitigation Monitoring Plan]. Monitoring requirements with respect to Burns Bog will include but not be limited to those relating to: air quality, water quality, water levels, red-listed plant communities, and wildlife	Construction, operation	Contractor	X	
15.4	Share environmental data from Burns Bog collected as part of the development of the SFPR project, with agencies responsible for the management of the Burns Bog Ecological Conservancy Area in order to support the implementation of the long-term management plan for the Bog.	All phases	Contractor	TBD	
15.5	Design, construct and operate hydrology mitigation infrastructure, to mitigate potential effects of the project on the hydrology of Burns Bog, in a way that meets the following performance objectives: - Site specific solutions – the design, construction and operation of hydrology mitigation will be based on, and take into account, site specific conditions. - Compatibility between highway water management and bog water management – Providing for active water level controls in the Bog that are independent of SFPR-related water management. - Prevention of mineral migration into the Bog. – Where indicated, providing a low permeability barrier between the SFPR highway ditch and the lagg ponds/ditches by: using material to construct the berm that supports appropriate vegetation on the berm and prevents the introduction of mineral material into the Bog; and maintaining hydraulic gradients so that Type 1 bog waters flow toward the highway at all times. - Resilience – Providing a design that is sufficiently robust to maintain and actively manage water levels under average and extreme conditions and if Bog conditions change. - Highway and mitigation construction does not preclude future restoration of Burns Bog – Providing flexibility of design that allows, for example, for future water control structures that allow for raising of water level as part of future bog restoration. - Holistic design – Hydrology mitigation concepts are designed in way that ensure they will be compatible with, and help achieve multiple, mitigation requirements. As the design of hydrology mitigation is advanced, it will be documented in a Hydrology Work Plan [currently known as Hydrology Workplan (Burns Bog)]. This document will be finalized prior to commencement of pre-load activities around Burns Bog.	All phases	MoTI	X	
15.6	Pre-load activities around Burns Bog, including areas north of the Highway 99 interchange and west of Nordel Way, will not commence until TC (and other decision-making authorities as required) has reviewed and is satisfied with the final Hydrology Work Plan and the status of the hydrology mitigation design.	Pre-construction	MoTI		X
15.7	Provide opportunities for the active involvement of agencies responsible for the management of the Burns Bog Ecological Conservancy Area, and the Scientific Advisory Panel (SAP), in the design, construction and operation of project related works adjacent to Burns Bog including but not limited to those proposed as mitigation for potential project related effects.	All phases	MoTI, Contractor	TBD	
15.8	Consult with MV, CoD, EC and MoE on the development of a water balance model and a drainage model to support the design, construction and operation of hydrology mitigation infrastructure adjacent to Burns Bog and support implementation of the Burns Bog Ecological Conservancy Area Management Plan.	Pre-construction	Contractor	TBD	

15.9	Finalize an Air Quality Management Plan [currently known as SFPR Air Quality Management Plan (Burns Bog Segment)], in consultation with TC, EC and other IAERC members as appropriate, prior to commencing pre-loading activities around Burns Bog. This document will identify all technically and economically feasible mitigation measures to be implemented to prevent generation and transmission of dust during the pre-load and construction phases of the project.	Pre-construction	MoTI, Contractor		X
15.10	Collect a minimum of 4 months of baseline dust fall monitoring between June and September 2008. Following the collection of this information, the MoT will meet with TC and EC to discuss the baseline monitoring information collected and the approach for continued data collection, prior to the commencement of pre- loading activities around Burns Bog (i.e., north of the Highway 99 interchange and west of Nordel Way).	Pre-construction	MoTI		X
15.11	Work co-operatively with the Tsawwassen First Nation to maintain appropriate access for TFN members to Burns Bog to facilitate TFN's harvesting rights pursuant to the Tsawwassen Final Agreement.	All phases	MoTI, Contractor		X
15.12	Ensure that the development and operation of Stormwater management infrastructure does not compromise the ability to achieve hydrology mitigation objectives adjacent to Burns Bog.	All phases	MoTI, Contractor	TBD	
15.13	Implement the monitoring and follow-up activities identified in the Screening document, for a period of five years after the project has commenced operation, to ensure the effectiveness of mitigation measures related to aerial deposition, hydrology, and Sandhill crane in the vicinity of Burns Bog.	All phases	MoTI, Contractor	TBD	
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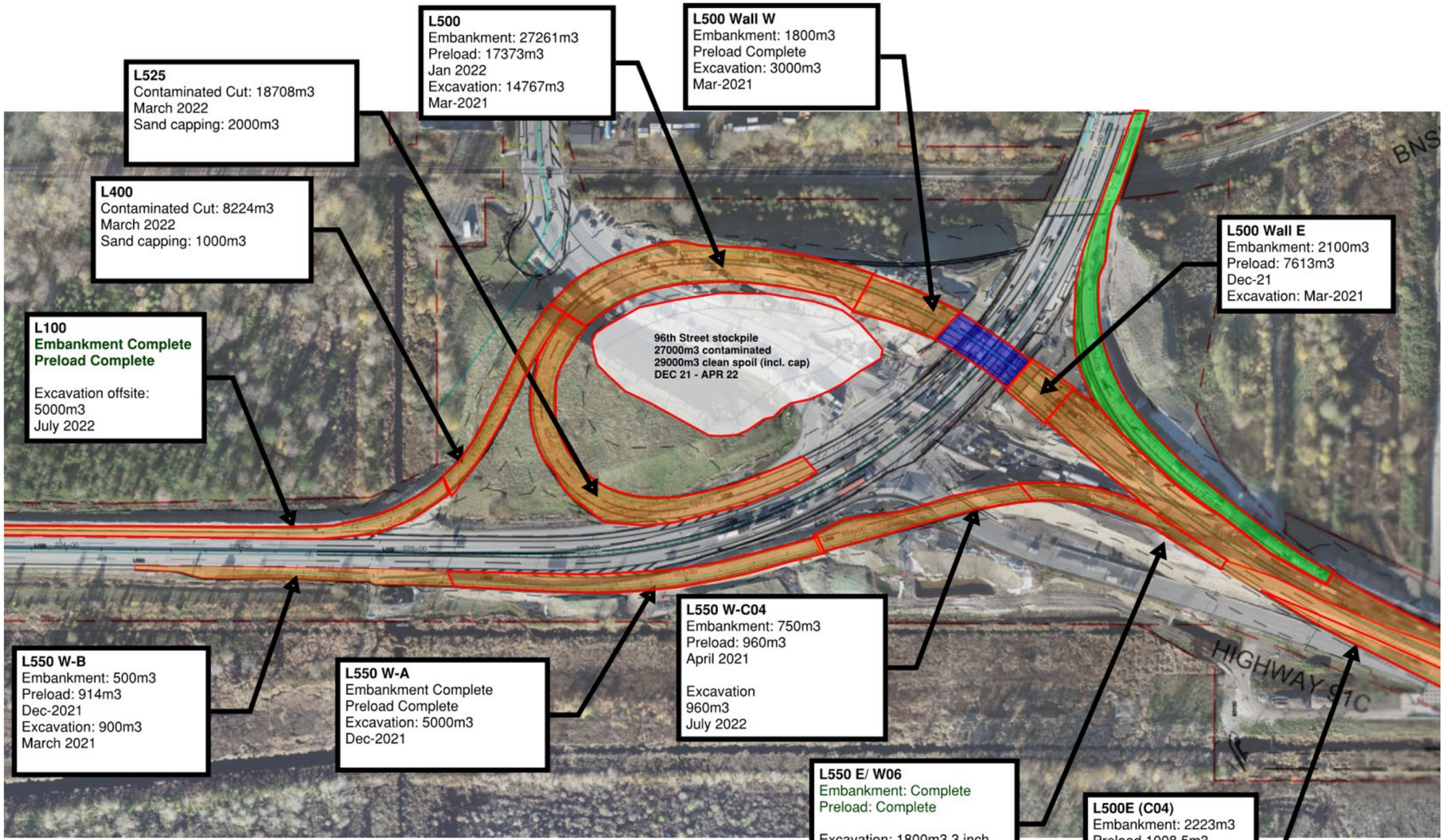
17.0 Heritage					
17.1	Ensure that the design, construction and operation of the proposed project is advanced in a way that avoids, or minimizes potential impacts to heritage buildings	All phases	MoTI, Contractor	X	
17.2	Consult with the Delta Heritage Advisory Commission and the Surrey Heritage Committee to define heritage interests and work with the Delta Museum and Archive to develop a photo record and inventory of potentially affected heritage houses.	Pre-construction, construction	Contractor	N/A	
17.3	Prior to construction, undertake pre-condition surveys with respect to heritage buildings, as further described in commitment 9.9.	Pre-construction	Contractor	N/A	
17.4	Avoid, where practical and technically feasible, direct impacts to heritage buildings.	All phases	Contractor	NA/	
18.0 Navigable Waters					

18.1	Obtain regulatory approval related to crossings of designated Navigable Waters pursuant to the Navigable Waters Protection Act (NWPA), including but not necessarily limited to, McAdam Creek, Collings Creek, Manson Canal, and Crescent Slough, prior to commencement of works.	Pre-construction, construction	MoTI, Contractor	N/A	
19.0 Socio-economic					
19.1	Mitigate potential Project-related visual/lighting impacts through use of screening, fencing and landscaping in consultation with local government. Use dark-sky compliant lighting for the Project.	Pre-construction, construction	Contractor	TBD	
19.2	Manage potential impacts to emergency response services by: - Ensuring emergency response plans (including a Spill Response Management and Emergency Response Plan) are in place during the construction phase of the Project, and updated annually, at a minimum; - Consulting first responders in Traffic Management Plan development; and - Consulting with local fire departments to ensure adequate access.	Pre-construction, construction	Contractor	X	
20.0 Rail					
20.1	Avoid or minimize potential impacts from Project works and activities to rail corridors.	All phases	Contractor	X	
20.2	Notify Transport Canada of project works as required under the *Notice of Railway Works Regulations*. Notify the public and affected stakeholders in accordance with the *Railway Safety Act.*	All phases	Contractor	TBD	
20.3	Comply with Canadian transportation standards and regulations as well as the design specifications of the respective railway with regard to vertical and horizontal railroad clearance of new or upgraded infrastructure.	Pre-construction	Contractor	TBD	
20.4	Minimize railroad closures during construction.	Construction	Contractor	X	

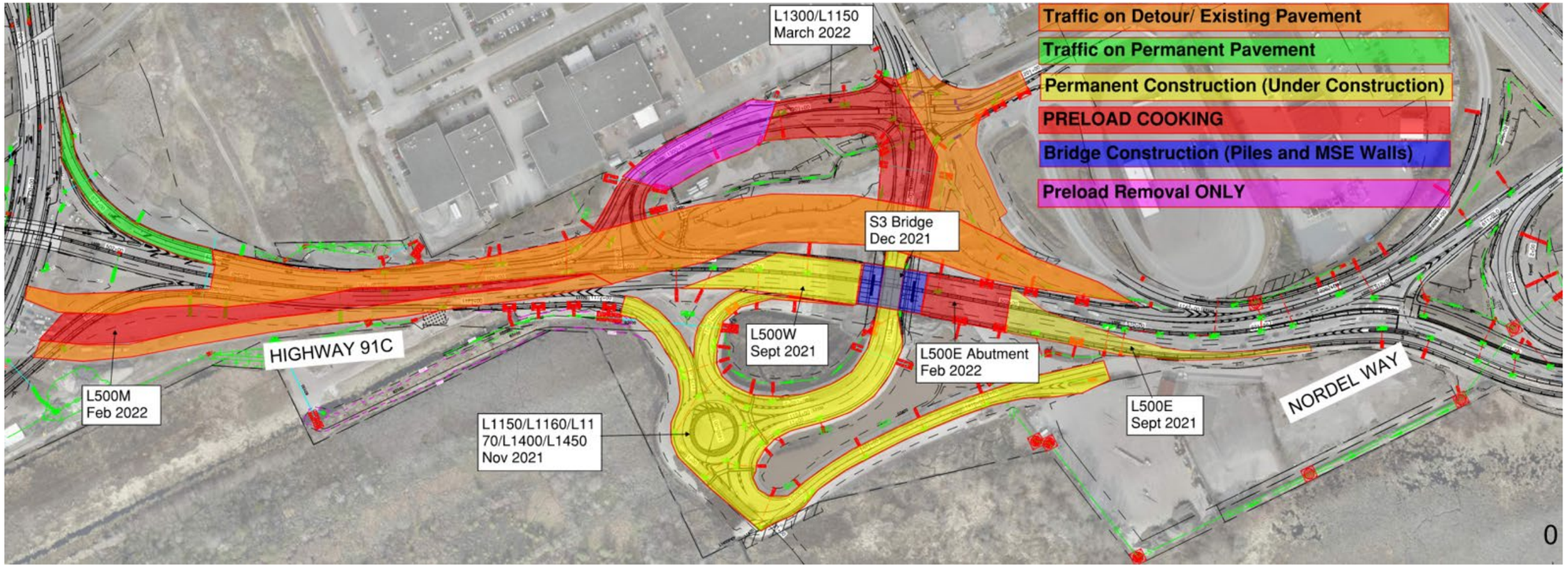
APPENDIX 2: OUTSTANDING WORK, AND WILDLIFE RELOCATION

OUTSTANDING WORKS FOR 2022

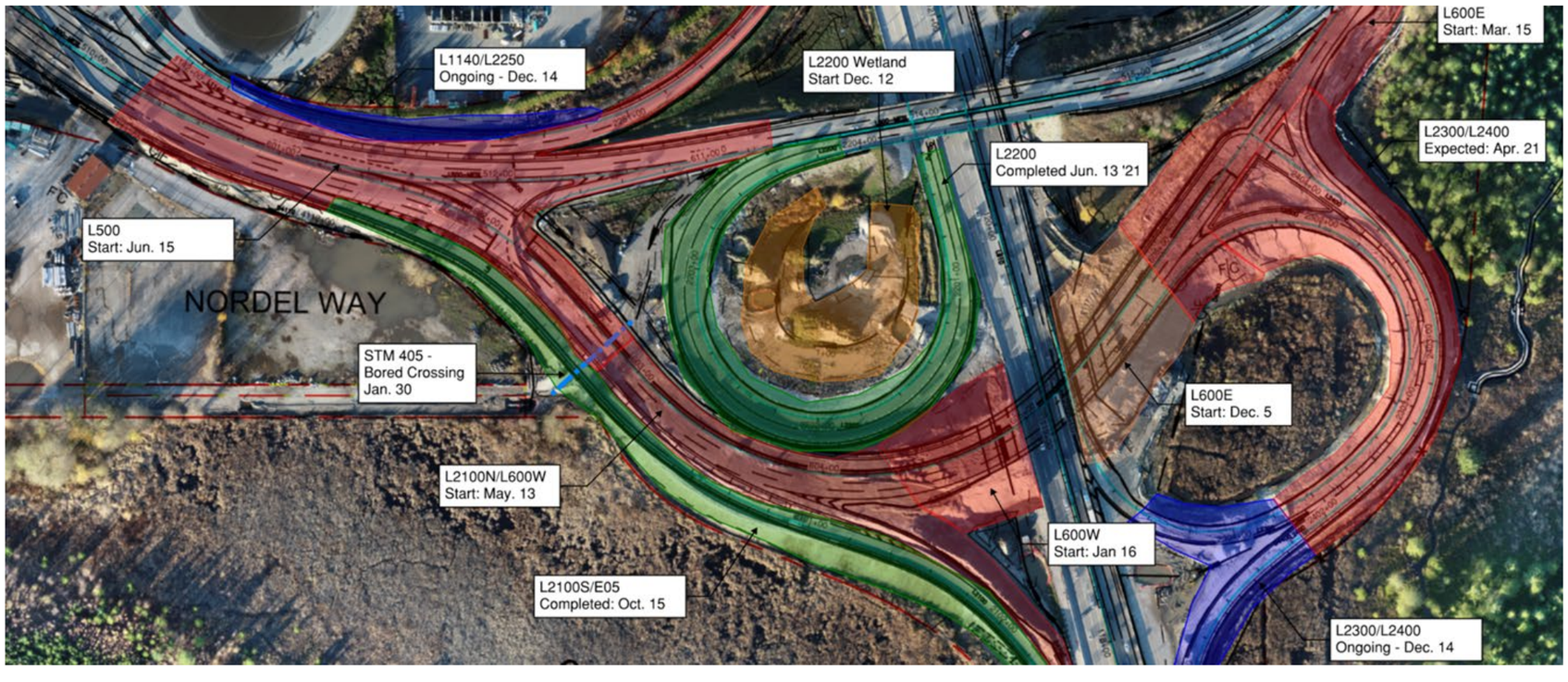
Section 2:



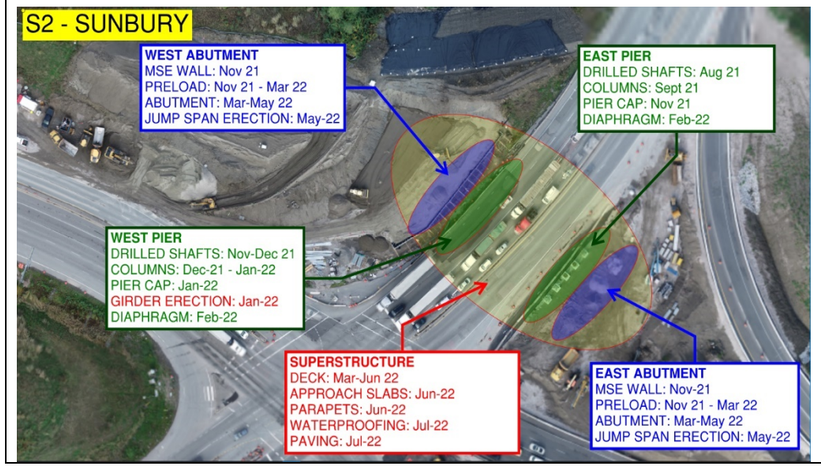
Section 3:



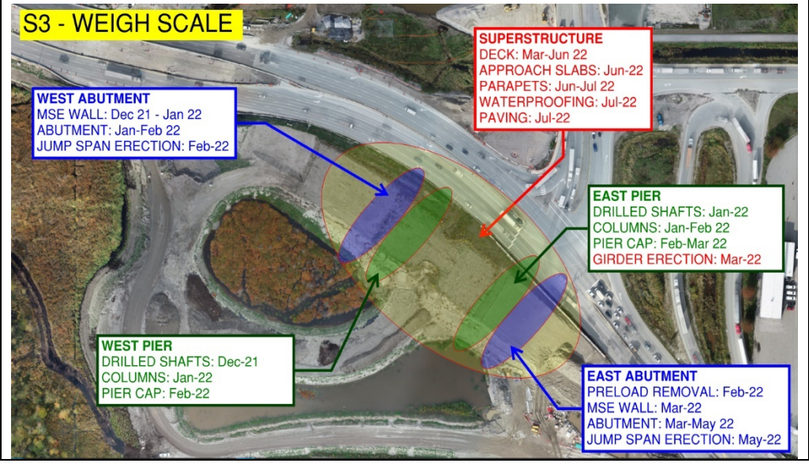
Section 4:



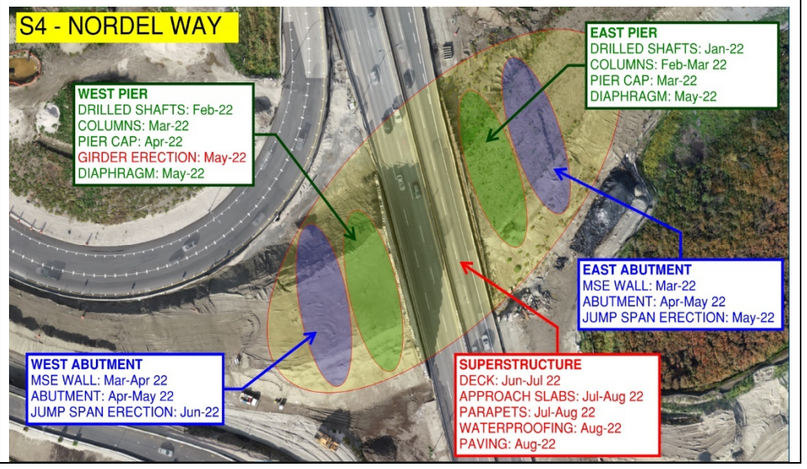
Section 2 Bridge



Section 3 Bridge



Section 4 Bridge



APPENDIX 3: ENVIRONMENTAL SPILL AND INCIDENT TRACKING SPREADSHEET

HWY 91/17 SITE
Environmental Spill and Incident Tracking

Planner Incident #	Date Of Event	Date Reported	Date Initial Notification Issued	Shift	Approx. Time	Contractor	Sub-Contractor	Silo	Classification	Description of Event	Location	Fluid Amount (L)	Fluid Type	Type of Equipment	Causal Factors	Action Taken	Corrective Actions Date Complete	Previous Incident #
43	4-Jan-21	4-Jan-21	5-Jan-21	Night	20:31-21:00	PGC	Delta Aggregate		Minor spill (<1L)	Hydraulic line broke	S3 L1400	<500mL	Hydraulic fluid	Rock truck (Volvo T-13)	Normal wear and tear on moving machine parts (hydraulic line); unforeseen circumstances.	Leaking hydraulic line noticed during pre-shift inspection. Operator shut down the machine immediately and placed spill pads on the leak source and on the ground below the leak. Machine was parked with its box up how leak was found and in the locked position. A spill tray was placed below the leak, and contaminated pads and sand below were removed for disposal. Mechanic repaired the broken line in the morning (05 Jan 2021).	5-Jan-21	43
44	6-Jan-21	6-Jan-21	6-Jan-21	Day	9:01-9:30	PGC			Minor spill (<1L)	Hydraulic line broke	S2 L500 preload	<500mL	Hydraulic fluid	Excavator (CAT 320E)	Normal wear and tear on moving machine parts (hydraulic line); unforeseen circumstances.	Leaking hydraulic line noticed on boom during operation. Operator shut down the machine immediately and placed spill pads on the leak source and on the ground below the leak. Machine was taken out of service, and a spill tray was placed below the leak. Contaminated pads and sand below were removed for disposal. Mechanic repaired the broken line later in the day.	6-Jan-21	44
45	12-Jan-21	12-Jan-21		Night	00:01-00:30	PGC				Silty water released to 96th St ditch	S2 adjacent to 96th st ditch	unknown quantity of water	silty water		not following silt practices. No EM present. Working during heavy rain event	Work was immediately stopped and pumps turned off.	Jan 17 - EM will be present for operations to resume with a dewatering plan in place.	45
46	14-Jan-21	14-Jan-21	14-Jan-21	Day	14:31-15:00	PGC			Spill (1.1 L - 5L)	Hydraulic hose broke	S2 L500 preload	<5L	Hydraulic fluid	Dump truck	Normal wear and tear on moving machine parts (hydraulic line); unforseen circumstances.	Hydraulic line burst while raising box of dump truck to offload sand. Machine was immediately turned off. Hydraulic fluid spilled onto machine and preload sand. Spill pads were applied to ground and machine. Contaminated sand that had absorbed oil was quickly removed and bagged for disposal. Oil was fully cleaned off machine and surrounding ground.	Trucking company took machine out of service and will complete repairs offsite.	46
54	10-Feb-21	10-Feb-21	11-Feb-21	Night	3:31-4:00	PGC	Nordel Trucking		Spill (1.1 L - 5L)	Tandem truck failed to lower box causing collision with bridge	Underside of the Nordel Way overpass	3-4L	Hydraulic fluid	Dump truck	Damage to the bridge and the fluid release	It is unclear at this point what immediate action was taken by the sub-contractor after the incident occurred. This incident is currently under investigation. The dayshift crew observed the spill on the asphalt and the road shoulder. A cleanup was initiated and approximately 2-3 m^3 of contaminated soil was collected and placed into super sack bags. The bags were taken to the PGC waste management area and placed under polyethene plastic. The removal of the contaminated soil by the PGC service provider has been requested.	Incident is currently under investigation	54
56	16-Feb-21	16-Feb-21	16-Feb-21	Night	11:01-11:30	PGC	Delta Aggregate		Minor spill (<1L)	Mechanical failure caused oil to spill into spill tray	L1400 pre-load	approx. 500ml	Engine oil	Rock truck (Volvo T-13)	Mechanical failure	At approximately 11:15 pm a small amount of engine oil spilled onto the placed preload sand. This was because of a mechanical failure of a stationary rock truck not in use. The oil was dripping into the drip tray and approximately 500 mm of oil was spilled on the preload surface.	Equipment maintenance	56
57	17-Feb-21	17-Feb-21	17-Feb-21	Day	8:31-9:00	PGC	Norland		Minor spill (<1L)	Mechanical failure caused hydraulic oil to spill into excavator bucket	L-550 culvert installation	approx. 500ml	Hydraulic fluid	Excavator (CAT 328D)	Mechanical failure	At approximately 8:57am a spill occurred during a bucket change on an excavator which resulted in less than 1L of hydraulic oil making contact with the ground. Luckily the excavator arm was above the bucket and the majority of the hydraulic oil dripped into the excavator bucket. Spill pads were immediately deployed, and the spill was cleaned up.	The Excavator was repaired	57
XX	23-Mar-21	23-Mar-21	23-Mar-21	Night	13:31-14:00	PGC	Norland		Large Spill (5.1L - 99.9L)	Mechanical failure caused hydraulic oil to spill into asphalt	L-2400 on the highway off ramp	approx. 10L	Hydraulic fluid	Haul truck	Mechanical failure	At approximately 13:45 a spill occurred when a dump truck was unloading sand for preload placement. The hydraulic oil spill released approximately 10L to the asphalt. Luckily the asphalt was covered in fine sand which absorbed the spilled material. Spill pads were immediately deployed, and the contaminated sand was excavated by hand bagged and stored on site for later disposal to an appropriate off site facility.	The Dump truck was removed from site and sent to a facility for repairs	XX
XX	23-Mar-21	23-Mar-21	23-Mar-21	Night	21:31-22:00	PGC	Nordel Trucking		Spill (1.1 L - 5L)	Mechanical failure caused hydraulic oil to spill into asphalt	L-2400 on the highway off ramp	3-5 L	Hydraulic fluid	Haul truck	Mechanical failure	At approximately 21:45 a tandem truck was busy offloading preload sand- While lifting the load box a hydraulic line burst open causing approximately 3-5 L of hydraulic fluid to spill onto the asphalt area. Absorbent pads were placed at the spill area and all contaminated soils were removed. A hazardous waste pickup is scheduled by Tervita.	The Dump truck was removed from site and sent to a facility for repairs	XX
XX	26-Mar-21	26-Mar-21	26-Mar-21	Day	16:01-16:30	PGC	Menard		Large Spill (5.1L - 99.9L)	Mechanical failure caused a diesel spill onto so l	L910 on the shoulder of the road	approx. 10-20 L	Diesel Fuel	Dump Truck	Mechanical failure	At approximately 16:00 a spill occurred when a dump truck drove off the road. The spill released approximately 20L of diesel to the ground. The spill did to affect the nearby waterway and the spill was contained to the immediate area. Menard immediately responded to the incident and contained the spill. Spill pads, booms and a drip tray were immediately deployed, and the contaminated soil was excavated with a hydro-vac and sent off-site for disposal to an appropriate off-site facility.	Truck immediately removed from site and will be repaired by a mechanic in the morning.	XX

HWY 91/17 SITE
Environmental Spill and Incident Tracking

Planner Incident #	Date Of Event	Date Reported	Date Initial Notification Issued	Shift	Approx. Time	Contractor	Sub-Contractor	Silo	Classification	Description of Event	Location	Fluid Amount (L)	Fluid Type	Type of Equipment	Causal Factors	Action Taken	Corrective Actions Date Complete	Previous Incident #
XX	14-Apr-21	14-Apr-21	14-Apr-21	Day	15:31-16:00	PGC	Delta Aggregate		Large Spill (5.1L - 99.9L)	Mechanical failure caused a hydraulic oil spill onto soil	L1400 on the sand preload haul road	approx. 5- 10 L	Hydraulic fluid	Water Truck	Mechanical failure	At approximately 15:30 a spill occurred when a water truck experienced a mechanical failure while spraying water for dust suppression. The spill released approximately 10L of hydraulic fluid to the ground. The spill did not appear to affect any nearby waterways and the spill was contained to the immediate area. PGC immediately responded to the incident and initiated the spill response. The contaminated soil was excavated by hand with a shovel and placed into plastic hazardous waste bags before being stored into a contaminated soil waste bin. The soil will be sent off-site for disposal to an appropriate off-site facility on a later date.	The Water Truck was parked on site and the source of the leak was wrapped in spill pads to prevent more fluid from leaking out. The equipment will be repaired by a mechanic and cleaned before putting back to service.	XX
70	18-Apr-21	18-Apr-21	18-Apr-21	Night	20:31-21:00	PGC	Menard		Large Spill (5.1L - 99.9L)	Improper fueling operations	L2300 and L600W	approx. 10- 20 L	Diesel Fuel	Fuel Truck	Improper Fueling Procedure	At approximately 20:30 three spills were observed under various equipment on site which were not reported to the environmental department. Approximately 20L of Diesel fuel was expected to have been released to the ground and it does not appear to have affected any nearby waterways. The spill was observed to be contained to the immediate area. PGC contacted the responsible party the following morning when they were present on site to initiate the spill response. The contaminated soil was excavated by hand with a shovel and placed into plastic Haz waste bags before being stored into a contaminated soil waste bin. The soil will be sent off-site for disposal to an appropriate off-site facility on a later date.	PGC will be issuing a spill response and refueling toolbox topic for the subcontractor to present to their employees which will be required to sign and acknowledge their environmental obligations on this site.	70
71	20-Apr-21	20-Apr-21	20-Apr-21	Night	2:01-2:30	PGC	Pro Quip		Spill (1.1 L - 5L)	Improper fueling operations	Truck parking (old)	approx. 2L	Diesel Fuel	Excavator	Improper Fueling Procedure	Improper fueling practices at truck parking. Spill to asphalt- absorbent powder placed on spill- all contaminants scooped up with a shovel and taken to the Hazardous waste management area for proper disposal.	Easy to clean.Proquip refuelling company to be reminded of proper fuelling procedures.	71
XX	25-Apr-21	26-Apr-21	26-Apr-21	Night	2:01-2:30	PGC	Steamer Transport		Large Spill (5.1L - 99.9L)	Hydraulic line failure	L2200	10-15L	Hydraulic fluid	Gravel haul truck	Hydolic mechanical failure	Contaminated sand removed. Spill contained. Absorbent pads paced on surface	At approximately... 2am one of the sub-contractor gravel trucks hauling sand from the L2200, developed a leak while attempting to offload. (Steamer Transport, unit 404, plate number MM 9854). We estimate about 10 to 15 liters of hydraulic oil was spilled to ground. Immediate response was taken with absorbent pads put down. A visual inspection of the truck was done and determined it was a line coming from the trucks PTO. It was noticed that so if it remained disengaged there was no further chance of additional leakage, the truck was sent away for repairs. Pads were cleaned up and disposed of as to our plans and the soil was removed and placed in a large tote and brought to our yard for disposal.	XX
80	5-May-21	6-May-21	6-May-21	Night	20:01-20:30	PGC	Steamer Transport		Spill (1.1 L - 5L)	Mechanical failure- spill to preload	L2300	2L	Hydraulic fluid	Sand delivery truck	Mechanical failure	At approximately 20:25 a Sand delivery truck and trailer had a mechanical failure and spilled approximately two liters of hydraulic fluid onto the placed preload. The spill was contained, and absorbent spill pads were placed on the surface to absorb any surface fluid. All the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	The spill was contained, and absorbent spill pads were placed on the surface to absorb any surface fluid. All the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	80
85	3-Jun-21	3-Jun-21	3-Jun-21	Day	10:31-11:00	PGC			Minor spill (<1L)	Small hydro-carbo spill while relocating the pipe puller machine	L500	<100ml	Hydraulic fluid	Pipe puller	Mechanical failure	Spill pads were used to wipe down the machine and to remove residue spills from the ground surface. Contaminated soil removed.	Machine currently off-line, mechanic was mobilized to repair the machine before it is used again.	85
96	8-Jun-21	8-Jun-21	8-Jun-21	Day	15:01-15:30	PGC			Minor spill (<1L)	Small grease spill from excavator.	L2300 Loop	<250ml	Hydraulic fluid	Excavator	Mechanical failure	Excavator mechanical failure on main boom hydraulic. A few drops of hydraulic dropped on the ground. The drops were and contaminated soil was removed from site for disposal and the excavator was repaired.	The excavator was repaired, cleaned, and removed from site by sub-contractor. Sub-contractor have been advised not to conduct on-site repairs.	96
97	16-Jun-21	16-Jun-21	16-Jun-21	Day	9:01-9:30	PGC			Minor spill (<1L)	Diesel leak from backhoe	L325	~200ml	Diesel Fuel	Backhoe	Improper Fueling Procedure	At approximately 9:00, a fuel spill from a backhoe was identified on sand covered asphalt at the L325 southern shoulder. The spills residue from the ground surface and contaminated soil were removed, and disposed of at the PGC waste management yard.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	97
98	16-Jun-21	16-Jun-21	16-Jun-21	Day	14:01-14:30	PGC			Spill (1.1 L - 5L)	Small hydraulic leak from excavator	L325	>2,000ml	Hydraulic fluid	Excavator	Mechanical failure	At approximately 14:00, a mechanical failure on the main boom arm of an excavator caused a hydraulic fluid leak on the southern shoulder of L325. Spill pads were used to wipe down the machine and to remove residue spills from the ground surface. Contaminated soil removed.	The excavator was repaired and all contaminated soil was dug out and sent to the PGC waste management for disposal by the sub contractor.	98
99	22-Jun-21	22-Jun-21	22-Jun-21	Day	3:01-3:30	PGC	Menard		Large Spill (5.1L - 99.9L)	Hydraulic leak from haul truck	L2200	5L	Hydraulic fluid	Haul truck	Mechanical failure	Absorbent materials as been placed on the stained asphalt, and contaminated sand is being removed and disposed of.	PGC is requesting that all of Menard's field crews and supervisors go through our safety orientation again.	99

HWY 91/17 SITE
Environmental Spill and Incident Tracking

Planner Incident #	Date Of Event	Date Reported	Date Initial Notification Issued	Shift	Approx. Time	Contractor	Sub-Contractor	Silo	Classification	Description of Event	Location	Fluid Amount (L)	Fluid Type	Type of Equipment	Causal Factors	Action Taken	Corrective Actions Date Complete	Previous Incident #
100	22-Jun-21	22-Jun-21	22-Jun-21	Day	20:31-21:00	PGC	Menard		Minor spill (<1L)	Hydraulic Leak from Zoomboom	L2200	~100ml	Hydraulic fluid	Zoomboom	Mechanical failure	The small amount of contaminated soil was excavated and removed.	PGC requested the equipment be removed from site Menard agreed to remove the equipment on June 24th on night shift.	100
101	30-Jun-21	30-Jun-21	30-Jun-21	Day	8:01-8:30	PGC	All-Road		Minor spill (<1L)	Diesel leak from backhoe	L325	~200ml	Diesel Fuel	Backhoe	Improper Fueling Procedure	At approximately 8:00, a fuel spill from a backhoe was identified on sand covered asphalt at the L325 southern shoulder. The contaminated soil was removed and disposed of at the PGC waste management yard.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	101
102	11-Jul-21	11-Jul-21	11-Jul-21	Night	20:01-20:30	PGC	Henry Drilling		Spill (1.1 L - 5L)	Diesel Spill from Drill Rig	L575	~1L	Diesel Fuel	Drill Rig	Improper Fueling Procedure	At approximately 20:00, a fuel spill from a drill rig was identified on S2 west stone colomn laydown area. The contaminated soil was removed and disposed of at the PGC waste management yard.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	102
103	27-Jul-21	27-Jul-21	27-Jul-21	Day	3:31-4:00	PGC	Jacob Brother		Spill (1.1 L - 5L)	Hydraulic leak from concrete truck	L375	~4L	Hydraulic fluid	Concrete Truck	Mechanical failure	Driving into site, a concrete truck had a hydraulic failure on the asphalt section of the roundabout before driving onto the gravel/sand portion of the site under the S1 Bridge. Absorbent material and pads were immediately placed on the spill area and the environmental team was contacted to assess the situation.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	103
104	29-Jul-21	29-Jul-21	29-Jul-21	Day	5:01-5:30	PGC	Jacob Brother		Spill (1.1 L - 5L)	Hydraulic leak from concrete pump	L100N	2-3L	Hydraulic fluid	Concrete Pump	Mechanical failure	The Gastaldo concrete pump sprung a hydraulic leak this morning at the south side of the river road bridge after the pump fa led to prime. The crew immediately placed drip trays under the equipment to catch the leak; however, 2-3 litres of fluid spilled on the graveled ground. Absorbent pads were used to collect the spill, and contaminated soil was picked-up and placed into bags for later disposal.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	104
105	4-Aug-21	4-Aug-21	4-Aug-21	Day	11:01-11:30	PGC	CDI		Minor spill (<1L)	Hydraulic leak from drill rig	L500W	~250ml	Hydraulic fluid	Drill Rig	Mechanical failure	A dr ll rig from CDI experienced a mechanical failure on its hydraulic system. The majority of fluids were captured using driptrays and absorbent pads; however, approximately 250ml spilled onto the sandy ground.	All the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor. The drill rig was repaired and cleaned before being put back into operations.	105
107	15-Aug-21	15-Aug-21	15-Aug-21	Night	19:01-19:30	PGC	All Roads		Spill (1.1 L - 5L)	Tack Spill on Road Shoulder	L500W	~2L	Tack Fluid	Asphalt tack spray nozzle	Mechanical Failure: The tack pray nozzle was accidently hit by one of the worker's arms and started spraying tack fluid on the gravel ground.	The nozzle was quickly turned off, and all spill fluid was absorbed using absorbent pads, absorbent socks and granular absorbent.	The spill was contained to the immediate area and all the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor.	107
108	17-Aug-21	17-Aug-21	17-Aug-21	Day	7:01-7:30	PGC	Henry Drilling		Minor spill (<1L)	Drill Rig Hydraulic Leak	L500W	<1L	Hydraulic fluid	Drill Rig	Mechanical Failure: A small spill occurred when an o-ring seal failure occurred while the drilling system was under pressure.	The spill was contained and cleaned up using absorbent pads.	All the contaminated soil was dug out and sent to the PGC waste management for disposal by the sub-contractor. The drill rig was repaired and cleaned before being put back into operations.	108
109	17-Aug-21	17-Aug-21	17-Aug-21	Night	21:31-22:00	PGC	Wetdown Water Services		Spill (1.1 L - 5L)	Water Truck Fuel Leak	L500E	~4L	Fuel	Water Truck	Mechanical Failure: Vibration from the rear spray motor on the water truck caused a fuel valve to open and spill to the eastbound closed lane of Highway 91C.	The spill was cleaned from the asphalt with absorbent pads and granular absorbent, and a absorbent sock was placed downstream of the leak to eliminate any possibility of fuel entering a catch basin.	Absorbent used to clean this spill from the asphalt was sent to the PGC waste management for disposal by the sub-contractor.	109
1010	7-Sep-21	7-Sep-21	7-Sep-21	Night	17:31-18:00	PGC	Menard		Spill (1.1 L - 5L)	Water pump fuel leak	L500W	~2L	Fuel	Water Pump	Misshandling, Mechanical Failure: When moving the pump the fuel inside of the tank leaked out from the gas cap which appears to be defective.	The spill was cleaned with absorbent pads and the contaminated gravel was excavated and stored for later dispossal to an offiste facility.	Absorbent pads used to clean this spill from the asphalt. The leaking gas cap was tempoarily taped to seal off the leak and the gas cap wil be replaced on a later date.	1010
111	22-Sep-21	22-Sep-21	22-Sep-21	Day	12:31-13:00	PGC	Nordel Trucking		Minor spill (<1L)	Hydraulic spill at L1300 Spoil material placement area	L1300	<1L	Hydraulic fluid	Dump truck	While offloading spoil material a hydraulic hose raptured causing a spill of approximately 1 L of hydraulic fluid onto compacted haul road. A small amount was of hydraulic liquid was leaked into a small rain puddle on site.	White absorbent pads were used to remove all surface residue. Grey absorbent pads were applied to the contaminated puddle and all potentially contaminated water & hydraulic fluid was removed. An interlocking spill boom was used to prevent any contaminants from entering the down stream low lying area .	Spilll mitigation done sucesfully and no hydro-carbons entered any water courses or sensitive areas	111
112	27-Sep-21	28-Sep-21	28-Sep-21	Night	22:31-23:00	PGC	PGC		Significant Spill (To water or >100L)	Sediment released into s Ida ditch	L1300	5-8m3	Sand & Gravel	Godwin Pump	At approximately 11:00pm placed preload sediment (sand & gravel) was released into the Silda Ditch when a Godwin pump hose experienced a water surge while diverting water flow during night shift.	During this event the discharge hose moved from the discharge position out onto the sand/gravel bank causing embankment scouring. Approximately between 5-8m³ of sand and gravel washed down the bank and into the ditch. The ditch is isolated with fish screen both upstream and downstream. Future instream work is planned for this area during the installation of habitat enhancement features and permanent drainage that connects to Silda ditch.	A one lane closure is planned for night shift (28 Sept) to initiate immediate repairs to the embankment fill that was washed away. Monitoring (Dayshift and Nightshift) will be done downstream to ensure that there is no environmental impact to downstream Silda ditch. To avoid unnecessary disturbance to the ditch substrate no sand/gravel will be removed from the Silda ditch area at this stage but, will be completed during instream landscaping work in that area which would include excavations.	112

HWY 91/17 SITE
Environmental Spill and Incident Tracking

Planner Incident #	Date Of Event	Date Reported	Date Initial Notification Issued	Shift	Approx. Time	Contractor	Sub-Contractor	Silo	Classification	Description of Event	Location	Fluid Amount (L)	Fluid Type	Type of Equipment	Causal Factors	Action Taken	Corrective Actions Date Complete	Previous Incident #
113	12-Oct-21	12-Oct-21	12-Oct-21	Day	9:01-9:30	PGC	PGC		Minor spill (<1L)	Hydraulic spill at L2100	L2100	~250ml	Hydraulic fluid	Dump truck	At approximately 9:00AM a dump truck experienced a hydraulic leak when unloading gravel on site. This resulted from a mechanical failure which spilled approximately 250ml of hydraulic oil to the asphalt.	The haul truck was immediately stopped when the ground crew noticed it leaking and they placed plug and dyke on it to temporarily seal it. The spill was contained an cleaned up using white spill pads and the truck was sent off site to a mechanic for repair. All of the contaminated pill pads were disposed of at PGC waste management area for disposal by a sub contractor.	Spillll mitigation done sucesfully and no hydro-carbons entered any water courses or sensitive areas	113
114	18-Oct-21	18-Oct-21	18-Oct-21	Day	13:31-14:00	PGC	PGC		Significant Spill (To water or >100L)	L1300 Turbid Water Release	L1300	>100L	High turbidity water release	Godwin Pump	During an in-stream trenching activity at the L1300 high NTU water was released into the downstream-Silda ditch area. The activity formed part of a routine stream diversion; however, during the trenching of the ditch all downstream isolation was removed. In addition, the two 6" Godwin pumps that	When the problem was noticed the pumps were turned off immediately and downstream monitoring was conducted by the PGC Environmental Coordinator. NCR 73 has been opened and this incident is currently receiving attention from PGC upper management. Downstream monitoring was done, and the turbidity (NTU) returned to normalcy at around 23:07pm data is available for reference.	18-Oct-21	
115	20-Nov-21	20-Nov-21	20-Nov-21	Day	1:01-1:30	PGC	PGC		Significant Spill (To water or >100L)	High pH Water in L1300 Lightweight Cell	L1300	>100L	High pH Water	N/A	After September 17 heavy rain, the lightweight concrete in the L1300 northern cell broke when it filled with water.	This water is now at a pH of ~10.0 and needs to be treated with CO2 before being pumped out. Comments: The pH of Silda Ditch downstream and midstream were measure at pH 7.2 on Monday morning.	20-Nov-21	
116	2-Nov-21	2-Nov-21	2-Nov-21	Night	1:01-1:30	PGC	Delta Aggregate		Spill (1.1 L - 5L)	Hydraulic spill at L375	L375	<5L	Hydraulic fluid	Dump truck	At approximately 01:30, a haul truck experienced a hydraulic leak when unloading gravel on site. The leak resulted a snagged hose resulting in a spill of approximately 3L of hydraulic fluid onto gravel.	The haul truck was immediately stopped after the ground crew noticed a leak. The crew placed spill pads over the hose and duct taped the hose to temporarily stop the leak. The spill was contained and cleaned up using spill pads and hand excavation. The truck was then sent off site to a mechanic for repair. All of the contaminated soil and spill pads were disposed of at the PGC waste management area for later disposal by a third party.	2-Nov-21	115
117	9-Nov-21	9-Nov-21	10-Nov-21	Day	12:01-12:30	PGC			Large Spill (5.1L - 99.9L)	117-Overflowing of oil/water separator causing oil to accumulate in containment pond	Truck parking (old)	5-7L	Waste o l	Oil Water Seperator	During an inspection by the PGC Structures General Superintendent it was discovered that the oil/water separator at the truck parking overflowed. Excess waste oil was spilled onto asphalt and flowed towards a collection pond directly northeast of the separator. This pond is not connected to any stream, and it is estimated that approximately 5-7 liters of oil was spilled.	The PGC Environmental Coordinator has placed absorbent pads and interlockable boom socks on the surface of the water to contain the spill. PGC is currently in the process of arranging a hydrovac truck to empty the oil/water separator and to remove contaminated water and substrate from the pond. All areas will be inspected to ensure that oil residue is removed and cleaned from all surfaces.	12-Nov-21	116
118	19-Nov-21	19-Nov-21	19-Nov-21	Day	10:01-10:30	PGC			Spill (1.1 L - 5L)	Diesel sp ll from excavator refuelling	L375	~1 litre	Diesel Fuel	Excavator	During the refueling of an excavator at 10:00, the fuel nozzle of the refueling truck got stuck in the open position. This resulted in the excavator's fuel tank overfilling, spilling approximately 1 litre of diesel onto muddy ground, south of L375.	The spill was contained and cleaned using spill pads, granular absorbent, and hand excavation. The tracks of the excavator were cleaned, and all contaminated soil and absorbent material were disposed of at the waste management area for later disposal by a third party. Workers were reminded to place drip trays under equipment during refueling.	19-Nov-21	
119	19-Nov-21	19-Nov-21		Night		PGC	All-Roads		Spill (5.1L - 99.9L)	Tack Spill as the result of spraying durring rain event	L475	5 - 10L	Tack Fluid		Durring the application of tack it began to rain despite the fact that rain was not forcated in the weather report. This resulted in ~10L of tack releasing into ditches from L475 paving activity	The spill was contained with oil booms and cleaned using spill pads, granular absorbent, and hand excavation. All contaminated soil and absorbent material were disposed of at the waste management area for later disposal by a third party.		

SUMMARY		
Totals	**Unit/Value**	**Total**
Total Volume	L	**0**
Total Spills	#	**15**
Classification		**Total**
Minor Spill (<1L)	#	**4**
Spill (1.1L-5L)	#	**0**
Large Spill (5.1L-99.9L)	#	**5**
Significant Spill (To water or >100L)	#	**0**
Total	#	**9**
Fluid Type		**Total**
Hydraulic	#	**10**
Antifreeze	#	**0**
Diesel	#	**3**

HWY 91/17 SITE
Environmental Spill and Incident Tracking

Planner Incident #	Date Of Event	Date Reported	Date Initial Notification Issued	Shift	Approx. Time	Contractor	Sub-Contractor	Silo	Classification	Description of Event	Location	Fluid Amount (L)	Fluid Type	Type of Equipment	Causal Factors	Action Taken	Corrective Actions Date Complete	Previous Incident #
Oil		#	1															
Gasoline		#	0															
Black Water		#	0															
Glycol		#	0															
Unknown		#	0															
Total		#	14															

APPENDIX 4: PERMIT TRACKING

McElhanney

Environmental Permits and Approvals Tracking Sheet: For Information Only

Rev A

Item #	Area Reference	Section	Site Descr ption	Work Description	Current Sta us	arget Submission Date to C V	IDR (3 Days)	Agency Submission Date	Agency's Approval Process Ime (Days) *	Regu ator racking Number	Anticipated Approval Date	Revised Anticipated Approval Date**	Permit Numbers	Actual Approval Date	Enhancement Management P an Anticipated Submission Date	Enhancement Management Plan Anticipa ed Approval Date	Approval Expiration	Notes
Sec 11 WSA Notification																		
1	A	2	96th St eet D tch	Sto mwate outfall south of Hwy 17	Obta ned	14-Feb-20	20-Feb-2020	21-Feb-2020	45	100010655	6-Ap -2020	1-May-2020	100310655	8-Ap -20	N/A	N/A	May 02, 2020-May 02, 2021	Please note that the sta t date s May 2, 2020
2	C	1	R ve Road D tch	Culve t Installat ons (L350/L325)	Obta ned	14-Feb-20	20-Feb-2020	21-Feb-2020	45	100010655	6-Ap -2020	1-May-2020	100310655	8-Ap -20	N/A	N/A	May 02, 2020-May 02, 2021	Please note that the sta t date s May 2, 2020
Sec 11 WSA Approval																		
3	B	2	96th St eet D tch	Hwy 17 Culve t Extens on L100/L400)	Obta ned	14-Feb-20	20-Feb-2020	21-Feb-2020	140	100011219	15-Ju -2020	22-Jul 2020	2007795	23-Jul-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Date ev sed to July 15, 2020. FLNRORD Job # 114324. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
4	E	2	S lda D tch and wetland	Culve t Extens on Downst eam of Hwy 91C and oad nf ll	Obta ned	14-Feb-20	20-Feb-2020	21-Feb-2020	140	100011219	15-Ju -2020	22-Jul 2020	2007795	23-Jul-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Date ev sed to July 15, 2020. FLNRORD Job # 114324. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
5	D	1	S lda D tch wetland	Roundabout and Ramp Enc oachment (L 375, L475, L450)	Obta ned	21-Feb-20	20-Feb-2020	21-Feb-2020	140	100011219	15-Ju -2020	22-Jul 2020	2007795	23-Jul-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Date ev sed to July 15, 2020. FLNRORD Job # 114324 Amendment sent fo the sto m outfall nto S lda D tch on 13 August 2020. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
6	F	3	EW Bu ns Bog Pe mete D tch	Block ng of the D tch, oundabout and new oad n Bog (L1400, L1150, L1160, L1170)	Obta ned	21-Feb-20	26-Feb-2020	28-Feb-2020	140	100011385	17-Ju -2020	21-Aug-2020	2007783	17-Aug-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
7	H	3	West D tch/FC239 and We gh Scale Road	FC239 Offset d tches, west d tch and st eam to S lda D tch and oad (L1300)	Obta ned	11-Ma -20	16 Ma -2020	17-Ma -2020	140	100012729	4-Aug-2020	21-Aug-2020	2007755	21-Aug-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
8	I	4	No del D tch, West D tch, and unnamed d tches by FC239	Road and d tch eloc at on (SW co ne of No del Inte change L2100, L2200, L2250)	Obta ned	5-Ma -20	9-Ma -2020	11-Ma -2020	140	100012676	29-Ju -2020	21-Aug-2020	2007770	20-Aug-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
9	G	4	Delta Natu e Rese ve	Road and d tch eloc at on (SE co ne of No del Inte change L2300, L2400)	Obta ned	21-Feb-20	26-Feb-2020	28-Feb-2020	140	100011391	17-Ju -2020	21-Aug-2020	2007749	17-Aug-20	4-Dec-20	30-Oct-21	31-Dec-33	P o ty Lette send to FLNRORD by the P ov nce Ap l 24, 2020. B Redd ngton p ov ded G Consultat on eco ds. Meet ng w th FLNRORD May 20, 2020. Hold lette ec eved May 25, 2020 and esponded on June 8, 2020. Conf mat on of ece pt on June 15, 2020. Amendment to S te G pe m t subm tted Septembe 9, 2020 and was w thd awn f om ev ew on Janua y 22, 2021. Rev s on 2 to the EEMP subm tted on Feb ua y 8, 2021 and ev s on 3 dated Ap l 23, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 ssues on the EEMP on Septembe 17, 2021.
~~10~~	~~I~~	~~–~~	~~[illegible]~~	~~[illegible]~~		N/A	N/A	N/A	~~1-0~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	P ov nce adv sed that Boa dwalk w ll be emoved f om scope. Off c al Change O de obta ned.
DFO Request for Review																		
11	A	2	96th St eet D tch	Sto mwate outfall south of Hwy 17	Lette to Avo d and M t gate	14-Feb-20	20-Feb-2020	21-Feb-2020	60	20-HPAC-00095	21-Ap -2020	15-Jun-2020	20-HPAC-00694	17-Jun-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22. Rece ved lette to Avo d and M t gate
12	B	2	96th St eet D tch	Hwy 17 Culve t Extens on L100/L400)	Lette to Avo d and M t gate	14-Feb-20	20-Feb-2020	21-Feb-2020	60	20-HPAC-00694	21-Ap -2020	15-Jun-2020	20-HPAC-00694	17-Jun-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22. Rece ved lette to Avo d and M t gate
13	C	1	R ve Road D tch	Culve t Installat ons	Lette to Avo d and M t gate	14-Feb-20	20-Feb-2020	21-Feb-2020	60	20-HPAC-00694	21-Ap -2020	25-May-2020	20-HPAC-00095	15-May-20	N/A	N/A	31-Jan-21	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Rev sed app oval date based on DFO meet ng, May 7, 2020. Rece ved lette to Avo d and M t gate
14	D	1	Slda D tch	Roundabout Enc oachment (oad)	Lette to Avo d and M t gate	14-Feb-20	20-Feb-2020	21-Feb-2020	60	20-HPAC-00694	21-Ap -2020	15-Jun-2020	20-HPAC-00694	17-Jun-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22.Rece ved lette to Avo d and M t gate
15	E	2	S lda D tch	Culve t Extens on Downst eam of Hwy 91C	Lette to Avo d and M t gate	14-Feb-20	20-Feb-2020	21-Feb-2020	60	20-HPAC-00694	21-Ap -2020	15-Jun-2020	20-HPAC-00694	17-Jun-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22. Rece ved lette to Avo d and M t gate
16	F	3	EW Bu ns Bog Pe mete D tch	Block ng of the D tch, oundabout and new oad n Bog (L1400, L1150, L1160, L1170)	Lette to Avo d and M t gate	21-Feb-20	26-Feb-2020	28-Feb-2020	60	20-HPAC-00303	28-Ap -2020	NA	20-HPAC-00303	2-Jul-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22. Rece ved lette to Avo d and M t gate
17	H	3	West D tch/FC239 and We gh Scale Road	FC239 Offset d tches, west d tch and st eam to S lda D tch and oad (L1300)	Lette to Avo d and M t gate	11-Ma -20	16 Ma -2020	17-Ma -2020	60	20-HPAC-00350	16-May-2020	NA	20-HPAC-00350	6-Aug-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22
18	I	4	No del D tch, West D tch, and unnamed d tches by FC239	Road and d tch eloc at on (SW co ne of No del Inte change L2100, L2200, L2250)	Lette to Avo d and M t gate	28-Feb-20	9-Ma -2020	11-Ma -2020	60	20-HPAC-00349	10-May-2020	NA	20-HPAC-00349	6-Aug-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22
19	G	4	Delta Natu e Rese ve	Road and d tch eloc at on (SE co ne of No del Inte change L2300, L2400)	Lette to Avo d and M t gate	21-Feb-20	26-Feb-2020	26-Feb-2020	60	20-HPAC-00304	26-Ap -2020	NA	20-HPAC-00304	8-Jul-20	N/A	N/A	Dec-23	DFO has dete m ned that the p oject subm ss on equ es a mo e deta led ev ew. W l not be ev ew ng sepa ately, they cons de th s a l one p oject. Meet ng w th DFO on May 7, 2020 add t onal nfo p ov ded by May 22. Rece ved lette to Avo d and M t gate
DFO Authorization																		
20	A	2	96th St eet D tch	Sto mwate outfall south of Hwy 17	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on June 17, 2020 not need fo an Autho zat on
21	B	2	96th St eet D tch	Hwy 17 Culve t Extens on L100/L400)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on June 17, 2020 not need fo an Autho zat on
22	C	2	R ve Road D tch	Culve t Installat ons	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on May 25, 2020 not need fo an Autho zat on
23	D	1	S lda D tch	Roundabout Enc oachment (oad)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on June 17, 2020 not need fo an Autho zat on
24	E	2	S lda D tch	Culve t Extens on Downst eam of Hwy 91C	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on June 17, 2020 not need fo an Autho zat on
25	F	3	EW Bu ns Bog Pe mete D tch	Block ng of the D tch, oundabout and new oad n Bog (L1400, L1150, L1160, L1170)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on July 2, 2020 not need fo an Autho zat on
26	H	3	West D tch/FC239 and We gh Scale Road	FC239 Offset d tches, west d tch and st eam to S lda D tch and oad (L1300)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on August 6, 2020 not need fo an Autho zat on
27	I	4	No del D tch, West D tch, and unnamed d tches by FC239	Road and d tch eloc at on (SW co ne of No del Inte change L2100, L2200, L2250)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on August 6, 2020 not need fo an Autho zat on
28	G	4	Delta Natu e Rese ve	Road and d tch eloc at on (SE co ne of No del Inte change L2300, L2400)	Pend ng outcome of DFO Request fo Rev ew-No Author zation required	NA	NA	NA	90	NA	NA	NA	NA	NA	N/A	N/A	NA	Rec eved Lette to Avo d and M t gate on July 8, 2020 not need fo an Autho zat on
Scientif c Collection/Fish Salvage Permits																		
29	A	2	96th St eet D tch	Sto mwate outfall south of Hwy 17	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
30	B	2	96th St eet D tch	Hwy 17 Culve t Extens on L100/L400)	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
31	C	2	R ve Road D tch	Culve t Installat ons	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
32		1	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~		~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~				N/A	N/A		~~[illegible]~~
33	E	2	S lda D tch	Culve t Extenst on downst eam of Hwy 91C	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
34	F	3	EW Bu ns Bog Pe mete D tch	Block ng of the D tch, oundabout and new oad n Bog (L1400, L1150, L1160, L1170)	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
35	H	3	West D tch/FC239 and We gh Scale Road	FC239 Offset d tches, west d tch and st eam to S lda D tch and oad (L1300)	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
36	I	4	No del D tch, West D tch, and unnamed d tches by FC239	Road and d tch eloc at on (SW co ne of No del Inte change L2100, L2200, L2250)	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
37	G	4	Delta Natu e Rese ve	Road and d tch eloc at on (SE co ne of No del Inte change L2300, L2400)	Obta ned	27-Jan		30-Jan-2020	14	100308107 FLNRORD	13-Feb-2020	NA	SU20-601411/XHAB-31-2020	24-Feb-20	N/A	N/A	FLNRORD/DFO Sept 30, 2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account and faxed to DFO- ece ved
Wildlife Salvage Permits																		
38	A	2	96th St eet D tch	Sto mwate outfall south of Hwy 17	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
39	B	2	96th St eet D tch	Hwy 17 Culve t Extens on	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
40	C	2	R ve Road D tch	Culve t Installat ons	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
41		1	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~		~~[illegible]~~	~~90~~	~~[illegible]~~	~~[illegible]~~	NA	NA	NA	N/A	N/A		~~[illegible]~~
42	E	2	S lda D tch	Culve t Extenst on downst eam of Hwy 91C	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
43	F	3	EW Bu ns Bog Pe mete D tch	Block ng of the D tch, oundabout and new oad n Bog (L1400, L1150, L1160, L1170)	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
44	H	3	West D tch/FC239 and We gh Scale Road	FC239 Offset d tches, west d tch and st eam to S lda D tch and oad (L1300)	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
45	I	4	No del D tch, West D tch, and unnamed d tches by FC239	Road and d tch eloc at on (SW co ne of No del Inte change L2100, L2200, L2250)	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
46	G	4	Delta Natu e Rese ve	Road and d tch eloc at on (SE co ne of No del Inte change L2300, L2400)	Obta ned	27-Jan		1/30/2020, Renewal Ma ch 31, 2021	90	100308425/100344520	04/29/2020 and 05/30/2021	NA	SU20-601719/SU21-622077	04/08/2020 and 06/28/2021	N/A	N/A	4/8/2021 and 04/06/2022	Subm tted unde the FLNRORD F ontCounte webpo tal us ng AE account. Renewal appl cat on subm tted Ma ch 31, 2021.Based on COVID-19 t m ght take 30-60 days. Rec eved June 28, 2021
Highway Use/ raffic Control Permits for Site Investigations																		
47		1	Contam nated So l and G oundwate	Segment 1 No th and South					30									
~~[illegible]~~																		
48		1	~~[illegible]~~	~~[illegible]~~					~~1~~									
49		1	~~[illegible]~~	~~[illegible]~~					~~1~~									
50		1	~~[illegible]~~	~~[illegible]~~					~~1~~									
Notice of Independent Remediation																		
51		1	Contam nated So l and G oundwate	Ut l ty t enches n contam nated so ls					7									
52		1	Contam nated So l and G oundwate	Contam nated wate management					7									
53		1	Contam nated So l and G oundwate	Sect on 4 Stone column a eas					7									
54		1	Contam nated So l and G oundwate	Chance F nd					7									
55		1	Contam nated So l and G oundwate	Chance F nd					7									
56		1	Contam nated So l and G oundwate	Chance F nd					7									
AIP																		
57		1	Contam nated So l and G oundwate	Segment 1 and 2		17-Jun		31-Aug-2020	60	26250-20/14000	3-Nov-2020	31-Jan-2021	26250-20/14000	30-Jun-21				Request sent to P ov nce (MOTI) fo ass stance w th each ng ENV fo status of appl cat on. Ca l nto Lucy Hewlett fo an update as of 20201030. 03-Dec-2020 Lucy contacted to conf m that ENV has ece ved the payment fo the A P appl cat on. Requested that she follow up w th the next step n the p ocess. A P obta ned June 30, 2021
~~58~~		~~–~~	~~[illegible]~~	~~[illegible]~~		~~[illegible]~~		~~[illegible]~~	~~60~~		~~[illegible]~~							~~[illegible]~~
Environmental Management Plans																		
59		1 to 4	CEMP		Rev s on 6	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
60		1 to 4	Wo k P ocedu es	Ag cultu e M t gat on Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020.
61		1 to 4	Wo k P ocedu es	A Qua l ty and Dust Cont ol Plan	Rev sed fo CEMP 4	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020. Rev sed fo CEMP 4 on Novembe 2 2020
62		1 to 4	Wo k P ocedu es	Change F nd Management Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
63		1 to 4	Wo k P ocedu es	Const uct on & Haza dous Waste Management Plan	Rev sed fo CEMP 6	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020. Rev sed fo CEMP 6 on May 13, 2021
64		1 to 4	Wo k P ocedu es	Contam nted S tes Management Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020, updated fo Ap l 7 2020 MoTI comments.
65		1 to 4	Wo k P ocedu es	Cont acto Awa eness and Educat on plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
66		1 to 4	Wo k P ocedu es	Env onmental Mon to ng Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
67		1 to 4	Wo k P ocedu es	F sh Hab tat M t gat on and Compensat on Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
68		1 to 4	Wo k P ocedu es	Health and Safety Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
69		1 to 4	Wo k P ocedu es	Invas ve Spec es Management Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
70		1 to 4	Wo k P ocedu es	No se and V b at on Management Plan	Rev sed fo CEMP 4	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020. Rev sed fo CEMP 4 on Novembe 2 2020
71		1 to 4	Wo k P ocedu es	Sp ll Management and Eme gency Response Plan	Rev sed fo CEMP 4, 5 and 6	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020. Rev sed fo CEMP 4 on Novembe 2 2020. Rev sed fo CEMP 5 on Novembe 9 2020. Rev sed fo CEMP 6 on May 13 2021
72		1 to 4	Wo k P ocedu es	Su face Wate Qua l ty and Sed ment Cont ol Plan	Rev sed fo CEMP 5	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020. Rev sed fo CEMP 5 on Novembe 9 2020
73		1 to 4	Wo k P ocedu es	W ldl fe and Hab tat Management Plan	Accepted	11-Ma -20	13-Ma -20	20-Ma -20	30	DB-TMS-0001	NA	NA	NA	27-Ap -20	NA	NA	NA	Updated document Re-Subm tted by Des gn team to the PGC on Ma ch 16, 2020
[redacted]																		
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			[redacted]	[redacted] S. 18
Dike Commission Permit																		
80			R ve Road D ke	P oposed Wate ma n at R ve Road	CJV subm tted the pe m t	NA	NA	27-May-20		35050-20/DIOD/18TSAWWAFNN02				23-Jun-20			24-Jun-21	
81			R ve Road D ke	P oposed Wo ks at R ve Road (oadwo ks, d a nage, l ght ng, gu de s gns)	B yb l subm tted the pe m t	2-Sep-20		18-Sep-2020					IoD F le 35050-20/DIOD/20DELTACOR05	17-Dec-20				On Novembe 5, 2020 Queen e p nd cated t at by end of Novembe 2020 oD s ould be able to ev ew appl cat on fo t o oug ness and adv se us acco d ngly. Request sent to P ov nce fo ass stance w th exped t ng pe m t app oval. 17-Dec-2020 App oval ece ved.

Health Permit																	
82			R ve Road	P oposed Wate ma n at R ve Road		NA	NA	15-Jun-20	NA	NA	26-Jun-2020	NA	20-Jun 3544	25-Aug-20			NA	
Notice of Railway Works																	
83			96 St eet	BNSF a lway c oss ng at 96 St eet	Not ce subm tted by the P ov nce	NA	NA	23-Sep-20	60	NA	23-Dec-2020	NA						The not ce sent on Septembe 23, 2020 and has 60 days object ons/comments pe od. As of Novembe 2, 2020 P ov nce has not ece ved any object ons/comments.
84			The P oject ROW	Env onmental Enhancement Management Plan	Rev s on 1 ed to	NA	NA	13-Nov-20	NA	2007729, 2007755, 2007770, 2007783, 2007795	15-Jan-2021	5-Feb-2021	2007729, 2007755, 2007770, 2007783, 2007795	29-Sep-21	13-Nov-20	29-Sep-21		Rev 2 was esubm tted to the P ov nce on Feb ua y 5, 2021. Rev 3 was esubm tted dated Ap l 15, 2021. Tech memo suppl ed to FLNRORD to cla fy 2 sues on the EEMP on Septembe 17, 2021. Add t onal quest ons f om the Septembe 17, 2021 was subm tted on Septembe 28, 2021. O da f om FLNRORD ec eved Septembe 29, 2021 amended clause (oo) n App ova 2007795, ( ) n App ovals 2007748, 2007783, ( )) n App ova 207755 and clause (ff) n App ova 2007770.