Public Services and Procurement Canada

Requisition No: EZ899-222244/A

DRAWINGS & SPECIFICATIONS

For:

Km 357.2 – 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization

Project No. R.119901.003 February 4, 2022

APPROVED BY:

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APPENDICES

REFERENCE DOCUMENTATION

Manual of Standard Traffic Signs & Pavement Markings, BC Ministry of Transportation and Highways – September 2000
Available online at:
http://www.th.gov.bc.ca/publications/eng_publications/electrical/most_pm.pdf

BC Ministry of Transportation and Infrastructure, Traffic Management Manual for Work on Roadways – 2020 and applicable Amendments available at time of tender closing.
Available online at:
https://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/traffic-engineering-safety/trafficmanagementmanual

2016 Standard Specifications for Highway Construction, BC Ministry of Transportation and Infrastructure – July 1, 2016 – Volume 1 and 2 and applicable Amendments available at time of tender closing.
Available online at:
http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/standard-specifications-for-highway-construction

BC Ministry of Transportation and Infrastructure, Recognized Product List.
Available online at:
http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/recognized-products-list

Public Works and Government Services Canada – Acquisition Forms
Available online at:
http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html

Canadian Construction Association, COVID-19 – Standardized Protocols for All Canadian Construction Sites, Version 5, May 26, 2020
Available online at:
https://www.cca-acc.com/wp-content/uploads/2020/06/CCA-COVID-19-Standardized-Protocols-for-All-Canadian-Construction-Sites-05-26-20.pdf

WorkSafeBC Construction and COVID-19 Safety
Available online at:
https://www.worksafebc.com/en/about-us/covid-19-updates/covid-19-industry-information/construction

LIST OF CONTRACT DRAWINGS

SECTION INCLUDES

PART 1 – GENERAL

1.1 Order of Precedence

.1 In the event of any discrepancy or conflict, order of precedence shall be in accordance with GC1.2.2 – Order of Precedence and as follows:

.1 The Division 1 Sections of these Specifications take precedence over the other sections of the Specifications.

.2 If conflict arises between an item in the main body of these Specifications (Division 1 – Division 32) and an item found in one of the Appendices (Reference Documents), the main body of the Specifications (Division 1 – Division 35) shall govern.

.3 Any technical and manufacturer's standard, Government Act, Regulation or Code of practice referred to in the Contract documents shall be the version current (including applicable Amendments) available at the time of tender closing.

1.2 Work Covered by Contract Documents

.1 The project includes tree clearing, slope excavation and drainage improvements. The site is located between Km 357.2 and Km 358.2 of the Alaska Highway between Fort St. John and Fort Nelson, BC.

For reference, Dawson Creek is at Km 0, Fort St. John is at approximately Km 75, Fort Nelson is at approximately Km 455, and Watson Lake is at approximately Km 986 on the Alaska Highway.

.2 The work under this contract generally comprises of the following (including Optional Work which may not be undertaken by PSPC) but is not limited to:

.1 Project Management including all requirements of Section 01 31 00 – Project Management and Coordination.

.2 Contract submittals (using "CentralCollab") prior to and during the work (see 3.8 – Contract Submittals, Section 01 25 20 – Mobilization and Demobilization and Section 01 33 00 – Submittal Procedures).

.3 Supply and maintain of all traffic control for the duration of the works.

.4 Quality Management.

.5 Clearing and removal of trees, brush and other vegetation within the limits shown on the Contract Drawings by mulching or other means.

.6 Development of construction access to facilitate construction. Restoration of the disturbed areas following the construction.

.7 Excavation of natural ground, and offsite disposal / stockpiling of excavated material, and if needed, removal of snow and ice prior to excavation of the natural ground.

.8 Construction of Interceptor Ditch and Lateral Swales.

.9 Restoration to pre-construction conditions.

.10 Surveys (construction layout, payment quantities, as-built survey, and others as required).

.11 Environmental protection.

1.3 Codes

.1 Meet or exceed requirements of:

.1 Contract Documents.

.2 Specified standards, applicable legislation, codes, and referenced documents.

.3 Other codes of Local, Provincial, or Federal application (in the case of conflict or discrepancy, the more stringent requirements shall apply).

1.4 Contractor's Use of Site

.1 Restrict work to within the construction footprint shown on the Contract Drawings and as agreed to by the Departmental Representative.

.2 Any additional areas required by the Contractor outside the lands owned by the Departmental Representative or designated for use on this project, shall be the Contractor's responsibility to organize. Any costs associated with the use of these additional lands shall be the Contractor's responsibility.

.3 Assume full responsibility for protection and safekeeping of products under this contract.

1.5 Use of Owner Gravel Pits and Quarries

.1 The Contractor's use of PSPC's gravel pits and quarries as listed elsewhere within the specifications for the purposes of extraction / manufacture of granular materials and rock, and disposal / stockpiling of excavated material and vegetation shall be subject to the following:

.1 Other Contractors may be working in the gravel pits and quarries completing similar or different types of work. Coordination with these other Contractors may be required.

.2 Laydown areas for equipment and stockpiles may be restricted due to other works ongoing or the existing size of the gravel pits and quarries.

.3 The Contractor is responsible for providing all equipment required to excavate, manufacture (as necessary), load, and haul the material from PSPC's gravel pits and quarries and maintenance yards.

.4 The security of equipment parked and material manufactured and stockpiled in the gravel pits and quarries along with the safety of the Contractor's personnel remains the Contractor's responsibility.

.5 If PSPC's gravel pits and quarries are equipped with a vehicle gate, the Departmental Representative will provide the Contractor with a gate key upon commencement of the onsite work. The Contractor shall be responsible for locking the vehicle gate anytime the Contractor's personnel have vacated the gravel pits and quarries (regardless of duration). The Contractor shall return the gate key to PSPC upon completion of the work.

.6 The Contractor shall be responsible for maintaining access roads into the gravel pits and quarries and for haul roads required to access the aggregate sources for the duration of the project. At a minimum maintaining and developing access may include grading and snow removal. At the conclusion of the works, all access roads and haul roads shall be left in a condition equal to or better than when work started.

PART 2 – PRODUCTS

2.1 Owner Supplied Materials (Outside Limits of Work)

.1 PSPC is providing access to stockpiled materials from the gravel pit identified in Appendix K (turn-off from the highway at Km 366.3 of the Alaska Highway). Various sizes of Riprap may be available for use by the Contractor, or the Contractor may have to manufacture Riprap from the stockpiled materials. The Contractor will be responsible for sorting through and stockpiled material and selecting the appropriate rock size or manufacturing the appropriate rock size (see Section 31 37 00 – Riprap for details). Should the Contractor choose to manufacture the rock using blasting, the Contractor shall be responsible to obtain all necessary permits.

.2 Should the Contractor choose to use the stockpiled materials from the gravel pit identified in Appendix K the Contractor will be responsible to ensure the selected materials achieve the gradation requirements and other product requirements as detailed within Section 31 37 00 – Riprap.

.3 If the available Riprap material is insufficient in quantity or size, the Contactor is responsible to source an alternate supply of the required material at no additional cost to the Contract.

PART 3 – EXECUTION

3.1 Site Inspection

.1 Submission of tender is deemed to be confirmation that the Contractor has inspected the site and is conversant with all conditions affecting execution and completion of the work.

3.2 Work Completion

.1 Preparation of required submittals to commence immediately upon receipt of notice to proceed and to be completed prior to commencement of work (unless specified otherwise).

.2 Achieve "Substantial Performance" by December 16, 2022.

.3 Achieve "Completion" of the Work by December 23, 2022.

.4 The Contractor shall account for possible impacts of COVID-19 in the construction schedule and the unit prices. The Contractor shall keep informed with the latest Federal and Provincial recommendations and protocols regarding COVID-19 at all times during construction and shall modify their construction approach accordingly to ensure adherence to these recommendations and protocols.

.5 If Federal and/or Provincial regulations require that the project work be stopped, the Contractor shall consult with the Departmental Representative and the Departmental Representative will advise as to the course of action the Contractor shall take. Any monetary impact to the Contractor from the work being stopped because of Federal and/or Provincial recommendations will be addressed in accordance with the Contract General Conditions.

.6 Works may need to be temporally shut down during high flow, heavy rain events, or other adverse weather conditions. The works may be stopped by the following processes:

.1 The Contractor with approval from the Departmental Representative shall suspend works should adverse weather conditions affect the Contractor's ability to achieve the contract specifications for quality of work.

.2 The Contractor's Environmental Monitor, with approval from the Departmental Representative, may suspend work should they feel it is not possible to achieve the environmental requirements due to adverse weather conditions.

.3 The Departmental Representative may suspend works should they feel that it is not possible to achieve the environmental requirements, or the contract specifications for quality of work due to adverse weather conditions.

.7 Regardless of who suspends the work, the Contractor will be responsible for maintaining the site and protecting the works throughout the suspension period to ensure the site is in an acceptable condition safe to the public.

.8 The Contractor shall account for the possibility of not being able to complete work due to high water flows or adverse weather conditions in the construction schedule and in the unit prices. No payment for temporary work stoppages due to high water flows or adverse weather conditions will be made.

3.3 Special Precautions

.1 The Contractor's attention is drawn to the possibility of impacting utilities, etc., within the limits of the work. The Contractor shall confirm the locations of all such utilities. The Contractor shall notify the Departmental Representative should utilities be located in areas other than those shown on the Contract Drawings or if they conflict with the construction, and await instructions from the Departmental Representative before proceeding with work in the vicinity of such encountered services or utilities.

.2 Existing structures, signs, utilities, Bituminous Surface Treatment (BST), culverts, cut & fill slopes, ditches, bridges, street furniture, geotechnical monitoring instruments, and all other structures, services, piping or equipment within the limits of work shall be properly protected from any injury or damage, direct or indirect. Any damage that is caused as a result of the operations of the Contractor shall be repaired and made good at the Contractor's expense to the satisfaction of the Departmental Representative.

.3 Maintain and protect from damage existing geotechnical monitoring instruments (slope inclinometers, vibrating wire piezometers, and standpipe piezometers) as listed in Table 31 23 33 – 01. The geotechnical monitoring instruments may be located flush with or below the surrounding native ground elevation or may protrude above the surrounding native ground. The Contractor shall be responsible for the cost to repair any damage to the existing geotechnical monitoring instruments that are the result of the Contractor's negligence while working around the instruments. No payment for Contractor delays as a result of working around the geotechnical monitoring instruments will be made. Refer to Section 31 23 33 – Excavation and Backfill for further details.

3.4 Sequence of Work

.1 Unless preapproved by the Departmental Representative, the sequencing of the work shall be in accordance with Item 1.9 Construction Staging in Section 01 14 00 – Work Restrictions, Access Development, Construction Staging, and Restoration.

.2 Optional Work (Unit Price Table – Optional Work) may be awarded to the Contractor at any time during the work at the sole discretion of the Departmental Representative. Optional Work shall be undertaken by the Contractor upon receipt of a signed Change Order.

3.5 Survey

.1 The Contractor shall be responsible for all layout surveys to complete the work per the design lines and grades, survey of construction for measurement for payment (see Section 01 29 00 – Payment Procedures), and as-built surveys (see Section 01 78 00 – Closeout Submittals). All surveys shall achieve the following:

.1 Be completed / collected to an accuracy of +/- 0.02 m horizontal and +/- 0.02 m vertical or better and shall be referenced / tie into the PSPC's monument / coordinate system as shown on the Contract Drawings.

.2 Use industry standards, methods, equipment, and the survey requirements of Section 01 29 00 – Payment Procedures, and other approaches (if necessary) as preapproved by the Departmental Representative.

.2 All layout surveys, quantity surveys, and as-built surveys shall be considered incidental to the work and will not be measured for payment.

.3 The Contractor shall utilize a qualified surveyor acceptable to the Departmental Representative to perform all the required surveying on the project. Submit the name and address of surveyor to the Departmental Representative upon request.

.4 Prior to starting on-site construction work, complete a check of the survey control monument coordinates and elevations provided by the Departmental Representative via a static survey of each monument. Provide results to the Departmental Representative for review and acceptance. If deemed necessary by the Departmental Representative, design adjustments may be made by the Departmental Representative to suit the findings of the monument survey checks.

.5 Prior to starting affected work, complete a check of the survey control monument coordinates and elevations for any discrepancies relative to the design and existing conditions. Provide results to the Departmental Representative for review and acceptance as soon as they are discovered. Should a discrepancy be found, await written approval from the Departmental Representative prior to proceeding. If deemed necessary by the Departmental Representative, design adjustments may be made by the Departmental Representative to suit the findings of the survey checks undertaken.

.6 Following completion of Tree Clearing, but prior to commencement of Excavation activities, submit to the Departmental Representative for review and acceptance survey of the existing ground surface (see Section 01 29 00 – Payment Procedures, Item 1.3 – Survey for further details).

.7 Establish working control points based on survey control monuments provided (other monuments not listed shall not be used). Report to the Departmental Representative when a working control point is lost or destroyed because of necessary work. Replace working control points from the project survey control monuments.

.8 Establish / layout the proposed alignment(s) and grades using paint lines and survey stakes based on working control points and survey control monuments provided.

.9 The Departmental Representative may elect to verify surveys. Verification of the survey by the Departmental Representative does not abdicate the Contractor's responsibility for the correctness and accuracy of the survey.

.10 Maintain a complete, accurate log of control and survey work as it progresses. On request of the Departmental Representative, submit documentation to verify the accuracy of the field engineering work.

.11 The Contractor shall regularly monitor the condition of the Work Site and of property on and adjoining the Work Site throughout the construction period, and shall immediately notify the Owner if any deterioration in condition is detected. Such monitoring shall cover all pertinent features and property including, but not limited to, bridges, structures, roads, walls, fences, slopes, culverts and landscaped areas.

.12 The Departmental Representative may, but shall not be obligated to, survey and record the condition of the Work Site and of property on or adjoining the Work Site prior to the commencement of construction by the Contractor. If a survey is undertaken and if requested by the Contractor, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.

.13 Whenever supplied with survey records, the Contractor shall satisfy itself as to the accuracy and completeness of the survey records provided by the Departmental Representative for any area before commencing construction in that area. Commencement of construction in any area shall be interpreted to signify that the Contractor has accepted such survey records as being a true record of the existing conditions prior to construction.

.14 The provision of the records of a survey of existing conditions by the Departmental Representative shall in no way limit or restrict the Contractor's responsibility to exercise proper care to prevent damage to all property within or adjacent to the Work Site, whether all such property is covered by the survey

or not.

3.6 Contract Drawings

.1 Upon award of the project, PSPC will, at the request of the successful Contractor, provide the successful Contractor with up to 2 × 609.6 mm × 914.4 mm (24" × 36") and 4 × 279.4 mm × 431.8 mm (11" × 17") "Issued for Construction" or "Issued for Tender" hardcopy contract drawing sets. Preparation and plotting of the hard copy drawing sets may take up to 14 days to prepare (excluding shipping).

.2 Upon award of the project, PSPC will provide the successful Contractor with a digital PDF version of the "Issued for Construction" or "Issued for Tender" Contract Drawings. Preparation of the PDF drawing file may take up to 14 days to prepare.

3.7 Electronic Contract Drawings

.1 If requested by the Contractor, the Departmental Representative will provide the Contractor with available Contract Drawings in electronic format for the Contractor to reference throughout the work.

.2 The format and software of the electronic Contract Drawings shall be at the Departmental Representative's discretion.

.3 The Departmental Representative accepts no responsibility for the accuracy or completeness of the electronic Contract Drawings. Should the Contractor choose to reference the electronic Contract Drawings, the Contractor shall satisfy itself as to the accuracy and completeness of the electronic contract drawings before commencing construction. Should a discrepancy between the electronic Contract Drawings and the hardcopy Contract Drawings be discovered at any time during the work, the hardcopy Contract Drawings shall govern. The Contractor will be responsible for all costs associated with any corrections to ensure the work is in conformance with the hardcopy Contract Drawings. The Departmental Representative shall not be responsible for updating or correcting any discrepancies between the electronic Contract Drawings and the hardcopy Contract Drawings identified by the Contractor.

3.8 Contract Submittals

.1 Complete and submit for the Departmental Representative's review, all required contract submittals as detailed in the relevant sections of the contract specifications. Work affected by the submittals shall not proceed until the submittal is accepted by the Departmental Representative. Allow for submittal review periods as required for each submittal and as detailed in Section 01 33 00 – Submittal Procedures. Required submittals include, but are not limited to, the following:

.1 Project Schedule (see Section 01 32 16).

.2 Traffic Management Plan (see Section 01 35 00).

.3 Project Specific Health and Safety Plan (see Section 01 35 33 and Appendix B – Project Specific Health and Safety Plan template) including:

.1 Appendix 1 – Preliminary Hazard Assessment Form.

.2 Appendix 2 – Confirmation of Prime Contractor's Main Responsibilities Under the WorkSafeBC Occupational Health and Safety Regulations and Worker's Compensation Act form.

.3 Appendix 3 – Contractor's COVID-19 Safe Work Plan.

.4 Appendix 4 – Contractor Daily Toolbox Meeting Form.

.5 Appendix 5 – Site Safety Orientation Form.

.6 Appendix 6 – Incident / Accident Report Template.

.7 Appendix 7 – Key Members Resumes and Safety Certifications.

.8 Appendix 8 – Local Hospital Maps.

.9 Appendix 9 – Safe Work Procedures.

.4 Environmental Protection Plan (see Section 01 35 43 – Environmental Protection and Appendix H – Environmental Protection Plan (EPP) – Checklist).

.5 Hazardous Materials Management Plan (if requested by the Departmental Representative, see Section 02 61 33 – Hazardous Materials).

.6 Pre-Construction Survey (see Section 01 29 00 – Payment Procedures).

.7 As-built Survey, and As-built Drawing mark-ups (see Section 01 78 00 – Closeout Submittals).

.8 Progress Payment Submittal Form (see Appendix E).

.9 Measurement for Payment Survey Details Form (see Appendix F).

.10 General Contractor / Sub-contractor Construction Equipment List (See Section 01 52 00 – Construction Facilities and Equipment and Appendix G).

3.9 Supervisory Personnel

.1 Within five (5) days of contract award notification, the Contractor shall submit to the Departmental Representative confirmation of the names of the supervisory personnel and other key staff designated for assignment on the Contract. At a minimum, the following personnel shall be included:

.1 Project Superintendent.

.2 Deputy Project Superintendent.

.3 Health and Safety Coordinator.

.4 Quality Control Manager.

.5 Environmental Monitor(s).

.2 The above personnel shall perform the following duties:

.1 Project Superintendent: shall be employed full time and shall be present on the Work Site each and every workday that Work is being performed, from the commencement of work to Substantial Performance and Completion of the Work.

.2 Deputy Project Superintendent: shall have the authority of the Project Superintendent during the latter's absence for short periods of time.

.3 Health and Safety Coordinator: shall possess safety experience in general construction. Duties shall encompass all matters of safety activities from commencement of work until Substantial Performance and Completion of the Work (see Section 01 35 33 – Health and Safety for further requirements).

.4 Quality Control Manager: shall be experienced in Quality Management, available to address quality matters from commencement of work until Substantial Performance and Completion of the Work, and remain onsite at all times the Contractor is performing work which must be tested or inspected in-process (see Section 01 45 00 – Quality Management for further requirements).

.5 Environmental Monitor(s): shall be a P.Biol, RPBio or Qualified Environmental Professional (QEP) (see Section 01 35 43 – Environmental Protection for further requirements).

3.10 Work by Others	.1	The Contractor is advised that concurrent with this project there may be Other Contractors working in nearby adjacent projects. Should Other Contractors be working in nearby adjacent projects, the Contractor shall coordinate their operations with the Other Contractors, including traffic management.
	.2	PSPC through their maintenance contractor will maintain "typical" snow plowing and sanding operations through the length of the project worksite for the duration of the project. "Typical" snow plowing and sanding will be completed to the level and standard that would be undertaken in this area should there not be an active, ongoing construction project. The Contractor shall account for the possibility that highway snow clearing operations will result in snow being plowed off the highway and into the area of work.
3.11 Contractor's Personnel	.1	Upon request of the Departmental Representative, the Contractor shall remove any personnel from the project work site who, in the opinion of the Departmental Representative, is incompetent or has been guilty of improper conduct.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Use of Work Site.

1.2 Work Conducted in and Adjacent to Waterways.

1.3 Utilities.

1.4 Protection of Persons and Property.

1.5 Use of Public Areas.

1.6 Construction Signage.

1.7 Access Development.

1.8 Construction Start-up.

1.9 Construction Staging.

1.10 Restoration.

PART 1 – GENERAL

1.1 Use of Work Site

.1 The Work Site will be specified by the Departmental Representative and shall only be used for the purposes of the Work. The Work Site will be made available to the Contractor for its exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.

.2 The Contractor's office trailer may be set up in the locations identified in Section 01 52 00 – Construction Facilities and Equipment. The Contractor's construction camp will not be permitted within PSPC's Right-of-Way or other lands owned or leased by PSPC as identified in Section 01 59 10 – Construction Camp.

.3 While the Work Site is under the Contractor's control, the Contractor shall be entirely responsible for the security of the Work Site and of the Work.

.4 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of the source. Snow / ice shall be removed by the Contractor as necessary for the performance and inspection of the Work.

.5 The Contractor shall provide sanitary facilities for the work force in accordance with governing regulations and the Environmental Procedures for this project. The Contractor shall post notices and take such precautions as required by local health authorities and keep the area and premises in sanitary condition.

.6 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at the Contractor's expense.

.7 The Contractor may complete onsite highway work seven days per week with the following restrictions.

.1 Work in excess of 12 hours per day shall require pre-approval from the Departmental Representative. At a minimum, pre-approval shall require a plan from the Contractor to ensure all necessary QC work per the contract requirements is completed during all times of work. The Departmental Representative may withdraw approval for the extended work hours at any time should the Contractor fail to achieve all necessary QC requirements or any other contractual requirement as a result of the extended work hours.

.2 Request for approval to work in excess of 12 hours per day must be submitted in writing to the Departmental Representative a minimum of five (5) days in advance of the planned change in working hours.

.3 No hauling of material during inclement weather.

.4 No Work during non-daylight hours (before sunrise and after sunset) will be permitted unless the Contractor has suitable illumination for traffic control personnel and equipment working within the highway clear zone to provide a safe working environment for workers and safe conditions for vehicle traffic travelling through the work site. Details of the illumination that will be provided by the Contractor during non-daylight hours is to be detailed in the Contractor's Traffic Management Plan and Project Specific Health and Safety Plan (refer to Section 01 35 00 – Traffic Management, subsection 1.5.1.1.11 for additional details).

1.2 Work Conducted in and Adjacent to Waterways

.1 All components of the work shall be conducted in accordance with Section 01 35 43 – Environmental Protection.

1.3 Utilities

.1 There are active utilities within the Highway Right of Way. The Contractor shall be responsible for completing utility locates in advance of the work.

.2 The locations of Utilities shown are not necessarily exact nor is there any guarantee that all Utilities in existence within the limits of the Work Site have been shown on the Drawings.

.3 The Contractor shall allow the utility company the opportunity to locate and assess the potential proposed work / utilities conflicts within the limits of the work. If it is determined by the Departmental Representative and utility owner that the utilities

are affected by the permanent Work, the Contractor shall await instructions from the Departmental Representative before proceeding with work in the vicinity of such encountered services or utilities.

.4 The Contractor shall notify the Departmental Representative and the Utility companies at least seven (7) Days in advance of any activities which may interfere with the operation of such Utilities.

.5 Whenever working in the vicinity of Utilities, the Contractor shall locate such Utilities and expose those that may be affected by the Work, using hand labour as required.

.6 The Contractor shall assess the possible impact of its operation on all utilities and shall protect, divert, temporarily support or relocate, or otherwise appropriately treat such Utilities to ensure that they are preserved.

.7 The Contractor shall immediately report any damage to Utilities to the Departmental Representative and to the Utility company or authority affected and shall promptly undertake such remedial measures as are necessary at no additional cost to the Owner.

1.4 Protection of Persons and Property

.1 The Contractor shall comply with all applicable safety regulations of WorkSafeBC, including but not limited to the Workers Compensation Act, Occupational Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations (see Section 01 35 33 – Health and Safety for additional requirements).

.2 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.

.3 The Contractor shall promptly take such measures as are required to repair, replace or compensate for any loss or damage caused by the Contractor to any property.

1.5 Use of Public Areas

.1 Off-road construction equipment (including equipment which exceeds legal highway load limits or dimensions) will not be allowed on the Alaska Highway, including the Bougie Creek River Bridge, unless trailered. Steel tracked equipment with cleats will not be allowed on BST unless measures are taken to protect the existing BST road surface against any damage.

.2 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Site and entering public roadways shall be cleaned of mud, dirt, snow, and ice clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Site and transporting materials shall be loaded in a manner which will prevent dropping of materials or debris on the roadway, and where contents may otherwise be blown off during transit, such loads shall be covered by tarpaulins or other suitable covers.

.3 Spills of material, including rocks and debris from loaded trucks, shall be removed or cleaned immediately by the Contractor at no cost to the Owner. All activities shall be in accordance with Section 01 35 43 – Environmental Protection and the Environmental Protection Plan prepared by the Contractor for the project.

.4 The traveled lanes of the Alaska Highway shall remain a Public Highway subject to the rules and laws of Public Highways in the Province of British Columbia. The Contractor is responsible for ensuring all equipment accessing the Highway meets all requirements for vehicles traveling on Public Highways in the Province.

1.6 Construction Signage

.1 No Signs or advertisements, other than regulatory or warning signs, PSPC-supplied signage, and portable electrically illuminated message signs are permitted on site.

.2 Signs and notices for safety and instruction shall be provided by the Contractor (see Section 01 35 00 – Traffic Management for additional details).

.3 Maintain approved signs and notices in good condition for duration of Project and dispose of off-site on completion of Project or earlier as directed by the Departmental Representative.

.4 Signage shall be coordinated with other Contractors working in the area as needed.

1.7 Access Development

.1 The Contractor is required to develop access to the required work areas. The Contractor is fully responsible for the selection and implementation of all methods to accomplish this requirement. Any access roads or trails extending outside the limits of the work shall be submitted to the Departmental Representative for approval in the Traffic Management Plan. All construction access shall be completed in conformance with the requirements of Section 01 35 43 – Environmental Protection and the Contractor's Environmental Protection Plan.

1.8 Construction Start-up

.1 The Contractor and their Sub-contractors shall not perform any on site work until all necessary submittals have been provided, reviewed, and accepted by the Departmental Representative and the Contractor has received from the Departmental Representative a completed version of the "On-site Construction Start-up Form" (see Appendix D) which has been completed and signed by the Departmental Representative. PSPC reserves the right to refuse payment for any on-site work performed prior to issuing the completed and signed "On-site Construction Start-up Form".

1.9 Construction Staging

.1 The Contractor shall stage the work ensuring that:

.1 All design requirements as specified in the Contract Drawings, and Contract Specifications are achieved.

.2 All requirements of Section 01 35 00 – Traffic Management are achieved.

.3 All requirements of Section 01 35 43 – Environmental Protection, the Contractor's Environmental Protection Plan, and a Breeding Bird and Bird Nest Survey are achieved if the tree clearing is to occur between April 24 and August 29 (see Section 01 35 43 – Environmental Protection).

.4 The work is completed in accordance with the dates for Substantial Performance and Completion provided in Section 01 11 10 – Summary of Work.

.5 The work (including stockpiling of excavated materials for offsite disposal) is completed such that no part of the work, existing ground, or infrastructure is subject to a load or force which will endanger its safety or will cause deformation. To achieve this requirement, the Contractor may need to immediately load all excavated material (no onsite stockpile).

.2 The Contractor is fully responsible for the selection and implementation of all methods to accomplish these requirements.

1.10 Restoration

.1 Remove access points, roads, detours, laydown areas, pads, and all other works installed during access development and construction staging. Re-instate the worksite to a condition equal to or better than the site condition prior to construction by:

.1 Restoring organic soils (if removed or damaged during access development or other works).

.2 Eliminating uneven areas and low spots.

.3 Restoring existing and proposed drainage patterns as shown on the Contract Drawings.

.4 Removing all gravels, other materials, and structures placed to create access points, temporary detour roads, or pads. Dispose of gravels, other materials, or structures at an off-site disposal facility acceptable to the Departmental Representative.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Definitions.

1.2 Measurement and Payment Procedures.

PART 1 – GENERAL

1.1 Definitions

.1 Mobilization and Demobilization: Consists of preparatory work and operations, including but not limited to:

.1 Preparation and acceptance of submittals (Construction Schedule, Traffic Management Plan, Environmental Protection Plan, Project Specific Health and Safety Plan, and any other submittals required prior to starting work).

.2 Work and costs incurred necessary for the movement of personnel, equipment, supplies and incidentals to and from the work site.

.3 Work and cost incurred in the establishment and operation of offices, camps, and other facilities necessary to undertake the work.

.4 Work and costs incurred in the completion of clean-up and project completion.

.5 All other work and costs incurred in the successful completion of mobilization and demobilization.

1.2 Measurement and Payment Procedures

.1 Payment for Mobilization and Demobilization will be made on the basis of the Price per Unit Bid for Mobilization and Demobilization in the Bid and Acceptance Form. The Price per Unit Bid shall include all costs associated with the items of work listed in 1.1 Definitions above.

.2 Measurement for Payment for completion of Mobilization and Demobilization will be made at the Lump Sum price and will be scheduled as follows:

.1 50% of the Lump Sum bid price to a maximum of 5% of the Total Tender price at the beginning of construction after the Contractor's required submittals (including Construction Schedule, Traffic Management Plan, Environmental Protection Plan, Project Specific Health and Safety Plan, and any other submittals noted in the specifications as being required prior to starting work) have been submitted for review, accepted for the work in its entirety, and work onsite has commenced to

the satisfaction of the Departmental Representative. Should the Departmental Representative allow the work to start prior to submission or acceptance by the Departmental Representative of any of submittals listed above, the Departmental Representative may choose to hold back a minimum of 5% of the 50% Mobilization and Demobilization payment for each outstanding submittal until an acceptable submission is provided.

.2 50% of the Lump Sum bid price once the project has achieved "Completion" and all equipment has been demobilized from the site, the site has been cleaned to the satisfaction of the Departmental Representative, remaining deficiencies identified during final inspection (Section 01 77 00 – Closeout Procedures) are corrected, and all closeout submittals are provided and accepted by the Departmental Representative.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Terms of Payment.

1.2 Basis of Payment.

1.3 Survey.

PART 1 – GENERAL

1.1 Terms of Payment

.1 The project's terms of payment shall be per General Conditions (GC) 5 – Terms of Payment. Progress payments shall be submitted by the Contractor on a monthly basis unless accepted otherwise by the Departmental Representative. The progress payment shall use PSPC's Request for Progress Payment – Construction Contracts form: PWGSC-TPSGC 1792, found online (see link to Public Services and Procurement Canada – Acquisition Forms within the Reference Documentation section of the Table of Contents for link).

With each progress payment, provide to the Departmental Representative the required documentation as listed below. Upon receipt of this required documentation, PSPC will commence a review of the progress payment request in accordance with General Conditions (GC) 5 – Terms of Payment.

.1 Documentation required by General Conditions (GC) 5 – Terms of Payment including signed statutory declaration.

.2 "Progress Payment Request Form" (see Appendix E) completed and signed by the Contractor's representative. Upon receipt of this form and all other required documentation, PSPC will commence review of the progress payment request in accordance with General Conditions (GC) 5 – Terms of Payment.

.3 WorkSafeBC Clearance Letter, indicating the Contractor is in active and good standing per the end date of the progress payment in accordance with Section 51 of the Workers Compensation Act (Departmental Representative may waive this requirement).

.4 Updated construction progress schedule (accepted project schedule shown as the baseline and actual start dates / completion dates / percent complete shown for each task, see Section 01 32 16 – Construction Progress Schedules – Bar (Gantt) Chart).

.5 All survey information (digital csv file with xyz data and breaklines in DXF file format) for each payment item claimed on the progress payment and measured by survey as defined in the Contract Specifications. For each payment item claimed on the progress payment and measured by survey, provide a "Measurement for Payment Survey Details Form" (Appendix F).

1.2 Basis of Payment

.1 Basis of payment shall be per the Measurement and Payment Procedures in the applicable specification section. Where not specified, basis of payment for all work included in these specifications or Contract Drawings not specifically mentioned is considered incidental to other work and is part of the Total Contract Amount. No additional payment will be made for incidental work.

.2 Payment for work shall be made per the Price per Unit as shown in the Unit Price Table.

.3 For unit price items in the Bid and Acceptance Form, progress payments shall be made based on the quantities of work in place (following Tree Clearing and following excavation), surveyed, and accepted by the Departmental Representative in the field. Provide to the Departmental Representative for each progress claim, survey data at each stage of construction to support progress claim quantities for each unit price item.

.4 For lump sum items in the Bid and Acceptance Form, progress payments shall be made based on the percent of work completed and accepted by the Departmental Representative at the time of the monthly progress payment (excluding Mobilization and Demobilization which is paid per Item 1.2 Measurement and Payment Procedures of Section 01 25 20 – Mobilization and Demobilization). Survey may be required to verify the work is completed to the design requirements (i.e. thickness, length, grade, volume, area, etc.).

.5 The Contractor must support any claims for products purchased, manufactured, or delivered to the place of work but not yet incorporated into work. The support for such claims must include such evidence as may be required by the Departmental Representative to establish value and the percentage of the work completed. During or at the completion of the work any products purchased, manufactured, or delivered to the place of work but not incorporated into the work shall be removed from the site at the Contractor's cost and no payment (including adjustment to quantities on previous progress payments, see GC5.2 – Amount Payable) shall be made (excluding items resulting from changes to the work made by the Departmental Representative during the work and brought to the attention of the Departmental Representative by the Contractor at the time of the change).

.6 Any work called for in the Contract Specifications or shown on the Contract Drawings but not specifically mentioned as an item for which payment will be made, will be considered incidental to the items of work listed. No additional payment will be made for this incidental work.

.7 All equipment, materials, and labour necessary to complete any item of work shall be included in the cost of that work.

.8 Materials shall be excavated or placed within the specified tolerances of the design lines and grades shown on the Contract Drawings but not uniformly high or low. Materials excavated or placed outside the specified tolerances will not be measured for payment unless preapproved by the Departmental Representative.

.9 Measurement for Payment will be at the Departmental Representative's discretion using one or more of the following methods:

.1 Based upon the survey data collected by the Contractor: when the materials have been excavated or placed within the specified tolerances of the design lines and grades shown on the Contract Drawings but not uniformly high or low.

.2 Based upon the survey data collected by the Contractor: when the Contractor's or Departmental Representative's survey data indicates that less materials were excavated or placed than called for by the design lines and grades on the Contract Drawings.

.3 By the design grade / design drawing neat lines: when the Contractor's or Departmental Representative's survey data indicates that materials were excavated or placed outside / beyond the specified tolerances of the design lines and grades on the Contract Drawings.

.10 At any point throughout the project, the Departmental Representative may compile and review the survey data (individual surveys or multiple surveys of particular items of work) to reconcile the total quantities of items of work to date on the project. Adjustments to quantities on future progress payments may then be made per GC5.2 – Amount Payable.

1.3 Survey

.1 Surveys shall be undertaken by the Contractor to verify quantities for payment purposes or in the case of Lump Sum items to verify that work has been completed to the design requirements. Survey shall be considered incidental to the work and not measured for payment.

.2 The Contractor shall utilize a qualified surveyor acceptable to the Departmental Representative to perform all required surveying on the project, including all quantity surveys, quantity calculations for the purposes of progress payments, and surveys to verify the work is completed to the design requirements. Submit name and resume of surveyor to the Departmental Representative upon request.

.3 Survey data collected shall be of sufficient density to fully characterize the work. Survey methods and location of surveyed cross sections is subject to prior approval of the Departmental Representative. At a minimum the Contractor shall survey all features at 20 m station intervals (may be reduced to 10 m in locations with grade changes at the discretion of Departmental Representative) and the location of all treatment boundaries including changes in material type / placement, changes in surface treatment, and changes in the terrain.

.4 A survey of the existing ground surfaces, ditches, stream channels, and other topographic features shall be undertaken by the Contractor prior to initiation of construction, but in areas designated for Tree Clearing after the Tree Clearing has been completed to the satisfaction of the Departmental Representative. The survey shall be provided to the Departmental Representative for review and acceptance. During construction, no excavation shall be undertaken or material placed unless the applicable surveys on the completed surfaces have been carried out and the data accepted by the Departmental Representative, and the completed surface has been inspected and accepted by the Departmental Representative. At the Departmental Representative's sole discretion, payment for work completed and measured by survey may not be made should the Contractor fail to complete necessary surveys, or the surveys be of insufficient quality or detail.

.5 Survey data shall be collected at an accuracy of +/- 0.02 m horizontal and +/- 0.02 m vertical or better and shall be referenced / tie into the PSPC's monument / coordinate system as shown on the Contract Drawings.

.6 Survey data for each payment line item in the Unit Price Table and area of work shall be provided to the Departmental Representative as follows:

.1 Digital csv files with the xyz data and an appropriate descriptor code as to the type of material surface or feature being surveyed.

.2 Breaklines for all survey data in DXF file formation or another format pre-approved by the Departmental Representative.

.3 A list of all point descriptors used in the survey data.

.7 Whenever survey data is provided, provide to the Departmental Representative the completed "Measurement for Payment Survey Details Form" (Appendix F) for each payment line item in the unit price table and area of work.

.8 Where surveys of an item of work or location of work have been completed multiple times (e.g. multiple progress payments), compile individual survey point files into one complete survey file free of overlapping points and other inconsistencies resulting from the completion of individual surveys.

.9 The Contractor shall complete detailed volume calculations using average end area determination or electronic surface to surface comparisons. Details of volume calculations shall be provided to the Departmental Representative for review upon request.

.10 Surveys may be subject to verification by the Departmental Representative. In case of discrepancy, the Departmental Representative's survey will govern.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Pre-Construction Meeting.

1.2 On-Site Documents.

1.3 Schedules.

1.4 Construction Progress Meetings.

1.5 Written Communication / Document Management.

1.6 Submittals.

1.7 Close-Out Procedures.

PART 1 – GENERAL

1.1 Pre-Construction Meeting

.1 Following tender closing and prior to the construction start, attend in person or via teleconference a pre-construction meeting organized by the Departmental Representative.

.2 Departmental Representatives and senior representatives of the Contractor, including but not necessarily limited to the Project Superintendent, Deputy Project Superintendent, Health and Safety Coordinator, Surveyor, Quality Control Manager, and Environmental Monitor, and major Subcontractors shall attend in person or via teleconference.

.3 The Departmental Representative shall establish a time, location, and teleconference number for the meeting and notify the Contractor a minimum of three (3) days prior to the meeting. The Contractor shall notify all concerned parties of the meeting.

.4 The agenda is to include but is not limited to the following:

.1 Appointment of the official representative of participants in the work and lines of communication.

.2 Project schedule.

.3 Contractor submissions (requirements and submissions schedule).

.4 Requirements for temporary facilities, site signage, offices, construction camp, storage sheds, utilities, and fences.

.5 Permitting and environmental requirements.

.6 Site security in accordance with Section 01 52 00 – Construction Facilities and Equipment.

.7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.8 As-built drawings in accordance with Section 01 78 00 – Closeout Submittals.

.9 Take-over procedures, acceptance, and warranties in accordance with Section 01 77 00 – Closeout Procedures.

.10 Monthly progress claims, administrative procedures, photographs, and holdbacks.

.11 Contractor's Quality Management and Quality Assurance undertaken by the Departmental Representative.

.12 Insurances and transcript of policies.

.13 Contractor's Project Specific Health and Safety Plan.

.14 Maintenance in accordance with Section 01 78 00 – Closeout Submittals.

.15 Other business as required by the Departmental Representative or Contractor.

.5 Within 14 days of the pre-construction meeting, the Departmental Representative shall distribute meeting minutes to the Contractor. The Contractor shall review the meeting minutes and provide any comments within five (5) working days.

1.2 On-Site Documents

.1 Maintain at job site, one copy each of the following:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed and accepted submittals.

.5 Change Orders.

.6 Other modifications to Contract.

.7 Copy of approved work schedule.

.8 Manufacturer's installation and application instructions (if applicable).

.9 All permits (FLNRORD, MoE, DFO, NWPA, and/or others as required for the project).

.10 Meeting minutes.

.11 Contractor's Project Specific Health and Safety Plan.

.12 Contractor's Environmental Protection Plan (EPP).

.13 Contractor's Traffic Management Plan.

.14 Current construction standards of workmanship listed in the Contract Specifications.

.15 One set of "Issued for Construction" Contract Drawings (or "Issued for Tender" if being used for construction), and Contract Specifications for as-built purposes.

1.3 Schedules

.1 Submit preliminary construction progress schedule in accordance with Section 01 32 16 – Construction Progress Schedules – Bar (Gantt) Chart to the Departmental Representative.

.2 After review by Departmental Representative, revise project schedule to comply with comments given.

.3 During progress of work, provide schedule with original tasks shown as the baseline and actual work progress updated with each submission (see Section 01 32 16 – Construction Progress Schedules – Bar (Gantt) Chart, subsection 1.4).

1.4 Construction Progress Meetings

.1 During the course of work the Departmental Representative may schedule construction progress meetings approximately every week or every two (2) weeks.

.2 Departmental Representatives and senior representatives of the Contractor, including but not necessarily limited to the Project Superintendent and major subcontractors shall attend in person. Other contractor representatives including the Deputy Project Superintendent, Health and Safety Coordinator, Quality Control Manager, Surveyor, and Environmental Monitor shall attend in person or via teleconference.

.3 The Departmental Representative shall establish a time, location, and teleconference number for the meeting and notify the Contractor a minimum of three (3) days prior to the meeting. The Contractor shall notify all concerned parties of the meeting.

.4 The meetings may be held onsite provided teleconference capabilities are available or at PSPC's office in Fort Nelson. If held on site, the Contractor shall provide physical space and make arrangements for the meetings.

.5 Agenda to include the following:

.1 Review and approval of minutes of previous minutes.

.2 Health and Safety incidents and concerns.

.3 Review of work progress since previous meeting.

.4 Field observations, problems and conflicts.

.5 Problems which impede the construction schedule.

.6 Review of off-site fabrication delivery schedules (if applicable).

.7 Corrective measures and procedures to regain projected schedule.

.8 Revision to construction schedule and project submittals.

.9 Progress schedule, during succeeding work period.

.10 Review submittal schedules expedited as required.

.11 Maintenance of quality standards.

.12 Review proposed changes for effect on construction schedule and on completion date.

.13 Other business.

.6 Within 14 days of the construction progress meeting, the Departmental Representative shall distribute meeting minutes to the Contractor. The Contractor shall review the meeting minutes and provide any comments within five (5) working days.

1.5 Written Communication / Document Management	.1	Written communication and document management shall be completed per the Written Communication / Document Management Protocol prepared by the Departmental Representative following award of the contract. The "Written Communication / Document Management Protocol" will resemble the template provided in Appendix A.
1.6 Submittals	.1	Provide submittals, product data and samples in accordance with Section 01 33 00 – Submittal Procedures for review for compliance with Contract Documents, field dimensions and clearances, compatibility and available space, and for relation to work of other contracts. If requested, after receipt of Departmental Representative comments, revise and resubmit.
	.2	Submit requests for payment through the Departmental Representative via email or, if requested by the Departmental Representative or if desired by the Contractor, PSPC's cloud-based document filing system "CentralCollab". Support claims for payment with survey data and other evidence as required by the Departmental Representative.
	.3	Submit Requests for Information (RFI) of Contract Documents and obtain instructions through Departmental Representative via PSPC's cloud-based document filling system "CentralCollab". If required by the Departmental Representative, provide supporting documents for proposed substitutions via PSPC's cloud-based document filing system "CentralCollab".
	.4	Process substitutions through Departmental Representative. If required by the Departmental Representative, provide supporting documents for proposed substitutions via PSPC's cloud-based document filing system "CentralCollab".
	.5	Process Change Orders through the Departmental Representative via PSPC's cloud-based document filing system "CentralCollab".
	.6	Deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative via PSPC's cloud-based document filing system "CentralCollab".
1.7 Close-Out Procedures	.1	Close-out procedures as per Section 01 77 00 – Closeout Procedures.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Project Schedule.

1.2 Schedule Format.

1.3 Submission of Schedules.

1.4 Project Schedule Reporting During the Work.

PART 1 – GENERAL

1.1 Project Schedule

.1 Develop detailed Project Schedule conforming to the project completion dates found in Section 01 11 10 – Summary of Work and the Construction Staging requirements outlined in Section 01 14 00 – Work Restrictions, Access Development, Construction Staging, and Restoration.

.2 Ensure detailed Project Schedule includes as a minimum, all relevant milestone activity types as follows:

.1 Project Award.

.2 Receipt of Necessary Permits.

.3 Submittal Schedule:

.1 Pre-construction survey

.2 Environmental Protection Plan (EPP).

.3 Traffic Management Plan.

.4 Project Specific Health and Safety Plan, including MSDS sheets.

.5 Hazardous Materials Management Plan (if requested by the Departmental Representative).

.6 As-built Survey and As-Built Drawing Mark-ups.

.4 Mobilization.

.5 Work activities and material purchases by segment / locations (unless accepted otherwise, at a minimum each line item of work identified in the unit price table shall be identified separately on the project schedule).

.6 Interim inspections.

.7 Site Clean-up / Demobilization.

.8 Project Substantial Completion and Project Completion dates.

.3 Indicate dates for submitting, review time, resubmission time, and last date for meeting fabrication schedule.

.4 Include dates when reviewed submittals will be required from the Departmental Representative.

1.2 Schedule Format

.1 Prepare schedule in form of a horizontal Gantt bar chart.

.2 Provide a separate bar for each item of work identified on the unit price table or, if acceptable to the Departmental Representative, each operation.

.3 Provide horizontal time scale identifying first workday of each week.

.4 Format for listings: the chronological order of start of each item of work.

.5 Include complete sequence of construction activities and identify critical path and critical path work items in identifying colour.

.6 Include dates for commencement and completion of each major element of construction.

1.3 Submission of Schedules

.1 Submit initial format of schedules within 15 days after award of Contract, but in all cases prior to starting onsite work.

.2 Submit schedules in electronic format via PSPC's cloud-based document filing system "CentralCollab" (login details to be provided by Departmental Representative at time of submission following contract award). Provide schedules as a single PDF file format document (multiple files will not be accepted) and native file format (e.g. Microsoft Project format) if requested by the Departmental Representative.

.3 If requested submit two (2) hardcopies to be retained by the Departmental Representative.

.4 The Departmental Representative will review the schedule and return any comments within ten (10) days after receipt.

.5 Resubmit finalized schedule within seven (7) days after return of review copy. Once accepted by the Departmental Representative, the accepted schedule shall form a baseline which all schedule updates shall be compared against.

.6 Distribute copies of revised schedule to:

.1 The Contractor's team including Project Superintendent, Deputy Project Superintendent, and others as required.

.2 Subcontractors.

.3 Other concerned parties.

.7 Instruct recipients to report to Contractor within seven (7) days any problems anticipated by timetable shown in the schedule.

1.4 Project Schedule Reporting During the Work

.1 Update project schedule on a monthly basis or with each progress payment (whichever is more frequent) reflecting activity changes and completions, as well as activities in progress.

.2 Show changes occurring since previous submission of schedule:

.1 Major changes in scope.

.2 Activities modified since previous submission.

.3 Revised projections of progress and completion.

.4 Other identifiable changes.

.3 Provide a narrative report to define:

.1 Problem areas, anticipated delays, and impact on schedule.

.2 Corrective action recommended and its effect.

.3 Effect of changes on schedules of other Contractors.

.4 Discuss project schedule at Construction Progress Meetings, identify activities that are behind schedule and provide measures to regain slippage. If requested by the Departmental Representative, provide a schedule recovery plan with details of the approach and changes the Contractor is planning on implementing to bring the project back on schedule.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 General Requirements.

1.2 Shop Drawings and Product Data.

1.3 Samples.

PART 1 – GENERAL

1.1 General Requirements

.1 Submit to the Departmental Representative submittals listed for review. Submit with reasonable promptness (per the timelines indicated, if applicable) and in an orderly sequence so as to not cause delay in the work. Failure to submit in ample time is not considered sufficient reason for an extension of contract Substantial Completion Date, and no claim for extension by reason of such default will be allowed.

.2 Unless specified otherwise or requested by the Departmental Representative, submittals shall be submitted to the Departmental Representative in electronic format via PSPC's cloud-based document filing system "CentralCollab" (login details to be provided by Departmental Representative at time of submission following contract award). Submittals shall be named and filed on "CentralCollab" in accordance with the "Written Communication / Document Management Protocol" (see template Appendix A). Each submittal shall be compiled into a single PDF document (multiple files will not be accepted).

.3 The Departmental Representative will review the project submittals for accuracy against the appropriate project specifications and contract requirements, and endeavor to complete the reviews within the review time specified for each particular submittal. However, a longer review period may be required. If a longer review period is required, the Contractor will be notified prior to the passing of the specified review period. Upon completion of the submittal reviews by the Departmental Representative, comments and or acceptance of the submittals will be given. Upon review by the Departmental Representative, should comments be provided, the Contractor shall revise the submittal as required and re-submit the complete revised submittal back to the Departmental Representative for review within one (1) week (or within a time pre-approved by the Departmental Representative). The submittals will not be accepted until all comments from all reviews have been addressed to the satisfaction of the Departmental Representative. Despite acceptance of a particular submittal, the Departmental Representative reserves

the right to provide additional comments to ensure the correction of any deficiencies with particular submittals at any time during the project.

.4 Work affected by a submittal shall not proceed until the submittal is completed, reviewed, and accepted by the Departmental Representative.

.5 Present all necessary drawings, product data, samples, and mock-ups in SI Metric units.

.6 Where items or information is not produced in SI Metric units, converted values are acceptable.

.7 Review submittals prior to submission to the Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of work and Contract Documents. Submittals not stamped, signed, dated, and identified as to a specific project will be returned without being examined and shall be considered rejected.

.8 Notify the Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents and stating reasons for deviations.

.9 Prior to any submission, verify field measurements and affected adjacent work included on the submission are coordinated.

.10 Contractor's responsibility for errors and omissions in submission is not relieved by the Departmental Representative's review of submittals.

.11 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.12 Keep one (1) reviewed copy of each submission on site.

.13 Comments made from review of submittals are intended to ensure conformance with contract requirements and not intended to change contract price. If the Contractor feels the comments include requirements not required by the Contract, the Contractor shall respond in writing to the Departmental Representative prior to undertaking the work.

1.2 Shop Drawings and Product Data

.1 The term "Shop Drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data that are to be provided by the Contractor to illustrate details of a portion of work.

.2 Indicate materials, methods of construction, and attachment or anchorage, erection diagrams, connections, explanatory notes, and other information necessary for completion of work or as indicated elsewhere in the specifications. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the section under which adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications.

.3 Adjustments made on Shop Drawings by the Departmental Representative are not intended to change the Contract Price. Should the Contractor feel that the adjustments affect the value of work and are outside the contract requirements, the Contractor shall state such in writing to the Departmental Representative prior to proceeding with the work.

.4 Make changes in Shop Drawings as the Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify the Departmental Representative in writing of any revisions other than those requested.

.5 Accompany submissions with a transmittal letter, in duplicate, containing:

.1 Date.

.2 Project title and number.

.3 Contractor's name and address.

.4 Identification and quantity of each Shop Drawing, product data, and sample.

.5 Other pertinent data.

.6 Submissions shall include:

.1 Date and revision dates.

.2 Project title and number.

.3 Name and address of:

.1 Subcontractor.

.2 Supplier.

.3 Manufacturer.

.4 Contractor's stamp, signed by the Contractor's authorized representative certifying approval of submissions, verification of field measurements, and compliance with Contract Documents and requirements.

.5 Details of appropriate portions of work as applicable:

.1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.

.3 Setting or erection details.

.4 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Single line and schematic diagrams.

.9 Relationship to adjacent work.

.6 Professional seal and signature of the engineer certifying approval of the work (if required).

.7 After the Departmental Representative's review and acceptance, distribute copies.

.8 Submit an electronic copy of the Shop Drawing for each requested within the specification sections. Submit hard copies as requested by the Departmental Representative.

.9 Submit electronic copies of product data sheets or brochures for requirements requested in specification sections and as requested by the Departmental Representative where Shop Drawings will not be prepared due to standardized manufacture of product.

.10 Delete information not applicable to project.

.11 Supplement standard information to provide details applicable to the project.

.12 If upon review by the Departmental Representative no errors or omissions are discovered or if only minor corrections are made, copies will be returned, and fabrication and installation of work may proceed. If Shop Drawings are rejected, noted copy will be returned. Resubmission of corrected Shop Drawings, through same procedure indicated above, must be performed before fabrication and installation of work may proceed.

.13 The review of Shop Drawings by the Departmental Representative is for the sole purpose of ascertaining conformance with general concept. This review shall not mean the Departmental Representative approves the detail design inherent in Shop Drawings. Responsibility for detail design in Shop Drawings shall remain with the Contractor, and as such, reviews by the Departmental Representative shall not relieve the Contractor of responsibility for errors or omissions in Shop Drawings, or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for coordination of work of all sub-trades.

.14 Work affected by Shop Drawing shall not proceed until the Shop Drawing is reviewed and accepted by the Departmental Representative.

1.3 Samples

.1 Submit for review samples in duplicate, as requested in respective specification sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's site office or to a location as directed by the Departmental Representative.

.3 Notify Departmental Representative in writing, at time of submission, of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of work, state such in writing to Departmental Representative prior to proceeding with work.

.6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

.8 Work affected by the sample shall not proceed until the sample is reviewed and accepted by the Departmental Representative.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 References.

1.3 General.

1.4 Definitions.

1.5 Submittals.

PART 2 – PRODUCTS:

2.1 Temporary Traffic Control Devices.

PART 3 – EXECUTION:

3.1 General.

3.2 Traffic Management.

3.3 Protection of Public Traffic.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Payment for Traffic Management and Access Development will be made on the basis of the Price per Unit Bid for Traffic Management and Access Development in the Bid and Acceptance Form. The Price per Unit Bid shall include the completion of the Traffic Management Plan, construction signage, traffic flaggers, automated traffic control devices (if required), pilot vehicles (if required), clearing of construction debris from the highway driving surface (as required to provide a clean driving surface) and all other items necessary for the successful completion of the task. The Price per Unit Bid shall further include the costs for access development (including construction of access points, roads, pads, etc.), and restoration of all access development areas.

.2 Measurement for Payment for completion of Traffic Management and Access Development will be made by Lump Sum based on the percentage of the work completed and accepted by the Departmental Representative.

.3 Payment for Traffic Management and Access Development (Optional Work) will be made on the basis of the Price per Unit Bid for Traffic Management and Access Development (Optional Work) in the Bid and Acceptance Form. The Price per Unit Bid shall include the completion of the Traffic

Management Plan, construction signage, traffic flaggers, automated traffic control devices (if required), pilot vehicles (if required), clearing of construction debris from the highway driving surface (if required) and all other items necessary for the successful completion of the task. The Price per Unit Bid shall further include the costs for access development (including construction of access points, roads, pads, etc.), and restoration of all access development areas.

.4 Measurement for Payment for completion of Traffic Management and Access Development (Optional Work) will be made by Lump Sum based on the percentage of the Optional Work (Item Number 9, 10, 11, and 12 of the Unit Price Table) completed and accepted by the Departmental Representative.

1.2 References

.1 British Columbia Ministry of Transportation and Infrastructure.

.1 Traffic Management Manual for Work on Roadways – 2020.

.2 B.C. Supplement to TAC Geometric Design Guide for Canadian Roads (latest edition).

.2 Transportation Association Canada.

.1 Geometric Design Guide for Canadian Roads (latest edition).

1.3 General

.1 The traffic management standards and requirements included in these Contract Specifications shall be considered the minimum requirements which shall be achieved to create a safe working environment for workers and the public to travel through the work site. The Contractor, in conjunction with the Professional Engineer whom seals the Traffic Management Plan, shall be responsible for ensuring the traffic management used on the project achieves the Traffic Management requirements of these specifications, is appropriate for the project requirements, and achieves the requirements of WorkSafeBC OHS Regulation Part 18: Traffic Control.

1.4 Definitions

.1 Delay: The total amount of time vehicles are stopped by all flaggers or automated traffic control devices due to the Contractor's operations while driving through the limits of the work. The delay time includes the time for a vehicle to come to a stopped position behind a queue of vehicles and then start moving again following a long queue of vehicles. The maximum allowable delay on this project is defined below in Item 3.2.1.8 – Traffic Management (15 minutes).

.2 Limits of Work: The limits of work for this project are defined in the Contract Drawings.

.3 Drop-off: An abrupt change in elevation created by construction activity such as milling, paving, or excavation that is steeper than 3H:1V.

.4 Long-Duration Work: For Traffic Management purposes and applicable signage requirements, all work on the project shall be considered Long Duration as defined by the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020.

1.5 Submittals

.1 Traffic Management Plan

.1 Submit to the Departmental Representative for review and acceptance a Traffic Management Plan. The Traffic Management Plan shall function as a standalone document, be signed / sealed by a P.Eng. and provide a complete and unambiguous plan of the traffic accommodation strategies proposed for use during the work and incorporate the below listed requirements. Additional measures may be necessary in certain circumstances and under particular conditions. For situations not specifically addressed in this specification, a modified traffic control procedure(s) shall be proposed by the Contractor in the Traffic Management Plan. All costs for implementing any and all traffic control shall be borne by the Contractor.

.1 Fully integrated with the Contactor's plan, schedule.

.2 Shall provide a complete and unambiguous plan for the traffic accommodation strategies proposed for use during the work using the allowed products, strategies, layouts, and management techniques as described in Part 2 – Products and Part 3 – Execution of this Contract Specification to create a safe working environment for workers and provides safe passage for the travelling public through the work zone

.3 Shall be in accordance with Section 3: Traffic Management Plans of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, excluding Section 3.4.1 and 3.4.3.

.4 Developed to conform with the standards for Category 2 Traffic Management Plans as defined in Section 3: Traffic Management Plans of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020. As defined by Section 3.4.2, the Category 2 Traffic Management Plan shall be signed and sealed by a Professional Engineer who is licensed in British Columbia and qualified and experienced in traffic management. The customized drawings shall further include the sign size used for each individual sign (see Item 2.1 – Temporary Traffic Control Devices, subsection .2 of this specification), the sign support used (see Item 2.1 – Temporary Traffic Control Devices, subsection .1.4 of this specification), and the use of flags (if applicable, see Item 2.1 – Temporary Traffic Control Device, subsection .1.5 of this specification).

.5 Shall, at a minimum, include all headings, sub-headings, details, and presentation format as provided in the "Category 2 Traffic Management Plan Template" found in Appendix C (provided to the Contractor as a Word file upon award of Contract). The Contractor shall add additional headings and content to the Traffic Management Plan as deemed necessary. PSPC has the right to reject the Traffic Management Plan if the headings from the template document are not used in the Contractor's Traffic Management Plan.

.6 Shall include procedures for the review and analysis of work zone incidents and near misses per the requirements of Section 3.6.1 – Analysis of Work Zone Incidents and Near Misses and for the documentation of traffic control records per the requirements of Section 3.6.2 – Traffic Control Records as provided in the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020.

.7 Shall include traffic signage to be used on side access roads within the limits of the work.

.8 If Dynamic Message Signs (DMS) are required or used by the Contractor, include a list of DMS messages which will be displayed on the DMS throughout the project (see appendices of the "Category 2 Traffic Management Plan Template" provided in Appendix C). Messages used on the DMS shall be per Section 4 – Temporary Traffic Control Devices (Table 4.2 and Table 4.5) of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, plus other messages required or anticipated to be required on the project.

.9 Shall include details of the procedures, processes, and sequencing used to determine the layout of the signs in the field and the order of installation and order of removal of the signs in the field. Refer to Section 6: Traffic Control Layouts – General Instructions of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 for further details. At a minimum the text and figures included in Item 6.7.4 – Two-Lane, Two-Way Roadways shall be included in the Contractor's Traffic Management Plan for reference during the work (in main body of the plan or in Appendices of the plan with reference to the applicable Appendix in the main body of the Traffic Management Plan). The Contractor shall customize the details of the steps for the project as required.

.10 Shall include a table or list of each element of work on the project and the applicable traffic accommodation strategies and layout drawing(s) which will be used during that element of work throughout all project locations. Example elements of work are to include but are not limited to unloading of equipment, clearing and grubbing, excavation off highway, etc. The table or list of each element of work on the project shall also include the applicable traffic accommodation strategies and layout drawing(s) to be used during non-work hours.

.11 If using Traffic Control Persons (TCP) during non-daylight hours (before sunrise after sunset), the Contractor's Traffic Management Plan shall include details of the overhead lighting which will be used at each TCP location. Details shall include the location, direction, height, brightness, and use of shields on the lights to suitably illuminate the TCP but not obstruct the visibility of drivers approaching the TCP.

.12 Shall include graphical representation of the sign supports planned for use on the project; Post Mounted Supports found in Figure 01 35 00 – 01 and or the Wind Resistant Sign Stand found in Figure 01 35 00 – 02.

.13 Shall include a copy of the "Daily Sign Check Form" as found in the appendices of the "Category 2 Traffic Management Plan Template" (Appendix C of these Specifications).

.14 Shall include the locations of the traffic control personnel / vehicle stoppages which may be used during adverse weather conditions to ensure vehicles are not needing to start or stop on steep inclines.

.2 The Contractor's Traffic Management Plan shall be submitted to the Departmental Representative as a single PDF document (multiple files will not be accepted) for review and acceptance in accordance with the procedures outlined in Section 01 33 00 – Submittal Procedures. The Departmental Representative will review the plan (first submission and if required all subsequent re-submissions) within 14 days of submission. Upon review of the plan the Departmental Representative will do one of the following:

.1 Accept the plan.

.2 Accept portions of the plan and provide comments outlining required changes or additional information in other sections. Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan for review.

.3 Reject the plan and provide comments outlining required changes or additional information needed before the plan will be reviewed in detail. Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan for review.

.3 The Contractor shall allow time in the schedule for the reviews, and subsequent edits / re-submission.

.4 Work affected by the Traffic Management Plan (as determined by the Departmental Representative) shall not proceed until acceptance of the Traffic Management Plan by the Departmental Representative.

.5 The review of the Traffic Management Plan by the Departmental Representative shall not relieve the Contractor of responsibility for errors or omissions in the accepted Traffic Management Plan or of responsibility for meeting all requirements of construction and Contract Documents, or for ensuring safe and appropriate traffic management.

.6 Should deficiencies in the Contractor's Traffic Management Plan be noted following acceptance of the submittal by the Departmental Representative but during the project work, the Departmental Representative reserves the right to provide additional comments to the Contractor and require re-submission of the Traffic Management Plan to ensure the correction of any deficiencies.

.2 Daily Sign Check Form

.1 Submit to the Departmental Representative for review the "Daily Sign Check Form" as found in the appendices of the "Category 2 Traffic Management Plan Template" found in Appendix C of these specifications. Submit via PSPC's cloud-based document filing system "CentralCollab" in accordance with the procedures outlined in Section 01 33 00 – Submittal Procedures.

.3 Other Submittals:

.1 Any other traffic control related documents such as incident reports, daily check sheets, daily reports, etc. shall be distributed to the Departmental Representative in electronic format via "CentralCollab" as discussed in Section 01 33 00 – Submittal Procedures of these specifications.

PART 2 – PRODUCTS

2.1 Temporary Traffic Control Devices

.1 Temporary Traffic Control Devices shall be in accordance with Section 4: Temporary Traffic Control Devices of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 and the following requirements.

.1 The use of portable dynamic message signs (DMS) for the duration of the work shall be at the Contractor's discretion.

.2 Unless pre-approved by the Departmental Representative, where 45 cm, 70 cm, or 90 cm cones are called for by the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, 100 cm tubular markers shall be used.

.3 Automated Flagger Assistance Devices (AFADs) shall not be used on the project.

.4 All sign supports shall either be a post-mounted support per the requirements of Figure 01 35 00 – 01 or Wind Resistance Sign Stands per the requirements of Figure 01 35 00 – 02.

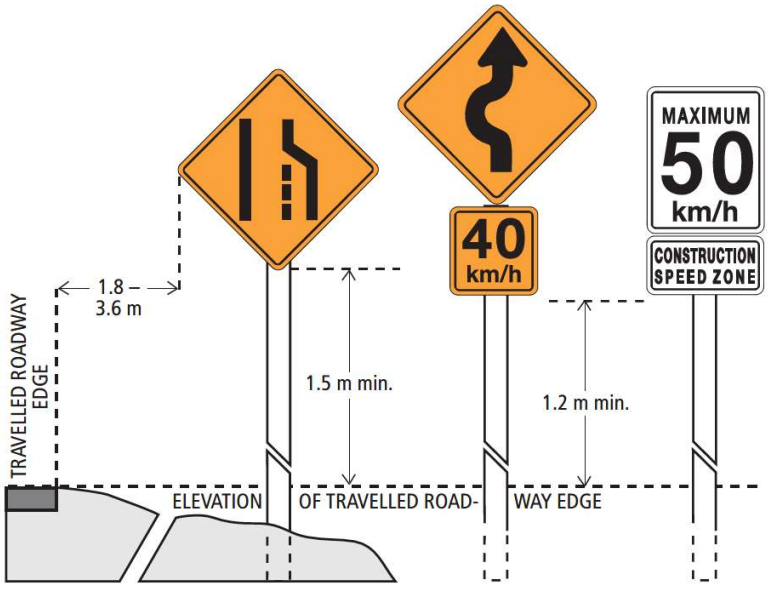


Figure 01 35 00 – 01: Post Mounted Supports

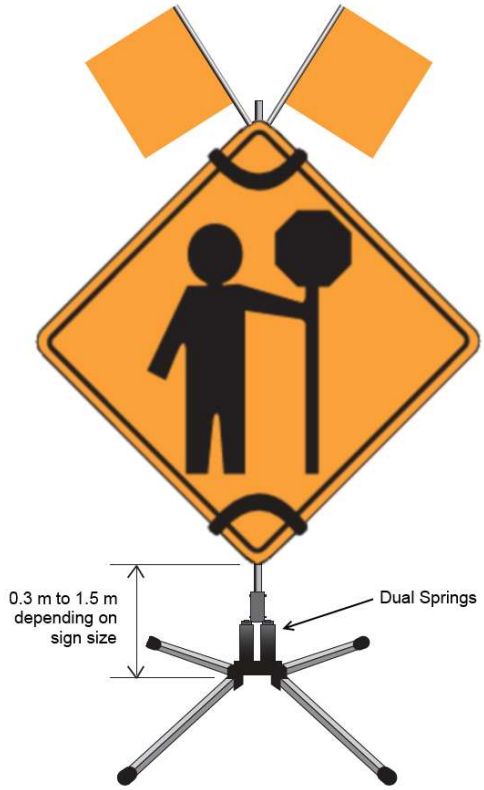


Figure 01 35 00 – 02: Wind Resistance Sign Stand

.5 Flags shall be used on the following signs:

.1 Traffic Control Person Ahead (C-001-1).

.2 Survey Crew Ahead (C-003).

.3 Crew Working Ahead (C-004).

.4 Accident Scene (C-058).

.6 Unless pre-approved by the Departmental Representative, one or more sandbags or weights shall be used at all times to further stabilize all Wind Resistance Sign Stands.

.2 Where an option for a sign size is available, the sign size used shall be the larger dimension sign as listed in Appendix B.2: Sizes and Applications of Individual Signs of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020.

PART 3 – EXECUTION

3.1 General

.1 All traffic control on the project shall be undertaken in accordance with Section 1.1.3 – Applying the Principles in the Manual as defined in the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020.

.2 Responsibilities for traffic control shall be undertaken in accordance with Section 1.2.3 – Traffic Control Responsibilities of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 and as follows.

.1 Road Authority shall be Public Services and Procurement Canada (PSPC).

.2 Prime Contractor shall be the Contractor as defined by GC1.1.2 – Terminology.

.3 Management and site supervision shall be the responsibility of the Contractor including the:

.1 Site Supervisor / Foreman / Superintendent.

.2 Traffic Control Manager.

.3 Traffic Control Supervisors and Traffic Control Persons.

.3 PSPC will assist the Contractor with the Public Information Plan by notifying DriveBC of the work and posting notice of the project on PSPC's permanent variable message signs along the highway. All other requirements of the Public Information Plan (Section 3.2.3 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 shall be included in the Traffic Management Plan and by undertaken / implemented by the Contractor prior to commencing work.

.4 PSPC through their maintenance contractor will maintain "typical" snow plowing and sanding operations through the length of the project worksite for the duration of the project. "Typical" snow plowing, and sanding will be completed to the level and standard that would be undertaken in this area should there not be an active ongoing construction project. Any additional snow clearing and sanding desired by the Contractor for safety or other reasons shall be the responsibility of the Contractor to undertake.

3.2 Traffic Management .1 Traffic management shall be undertaken in accordance with the requirements listed below. Additional measures may be necessary in certain circumstances and under particular conditions. For situations not specifically addressed in this specification, a modified traffic control procedure(s) shall be proposed by the Contractor, and if accepted by the Departmental Representative, be applied in the field. All costs for implementing any and all traffic control shall be borne by the Contractor.

.1 The reviewed and accepted Traffic Management Plan prepared by the Contractor (see Section 1.5 – Submittals).

.2 Section 2: Fundamentals of Traffic Management and Control of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 and as follows.

.1 Section 2.5.3 – Road Authority Acceptance shall be replaced with the requirements of Section 1.5 – Submittals within this specification.

.2 References to Ministry shall be replaced with PSPC.

.3 Section 5: Traffic Control Persons (TCPs) of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020.

.4 Section 6: Traffic Control Layouts – General Instructions of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 and as follows:

.1 Per section 6.3 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, traffic management shall be managed as one continuous work zone where work is 1 km apart (or less).

.2 Drop-offs shall be treated in accordance with Section 6.5 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 whenever the drop-off is within 1.5 m of the edge of the travel lane. Additionally, the following requirements shall be achieved.

.1 Drop-offs ≥ 150 mm between 1.5 m and 3.0 m of the travel lane shall be signed with Low Shoulder (C-013) signs at least once every 1 km for as long as the condition persists.

.2 A lane width of 3.7 m shall be used at all times.

.5 Section 7: Traffic Control Layouts – Two-Lane, Two-Way Roadways of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020. The traffic control layouts, revisions, and details as listed below shall be used in conjunction with 7.2 Typical Construction Speed Zone Signing – Two Lane, Two-Way Roadway (see Item 3.2 – Traffic Management, subsection .1.6 of these specifications) within the Limits of Construction.

.1 Section 7: Legend, Table A, and Table B.

.2 The requirements of 7.1 General Information – Two-Lane, Two-Way Roadways shall apply subject to the following:

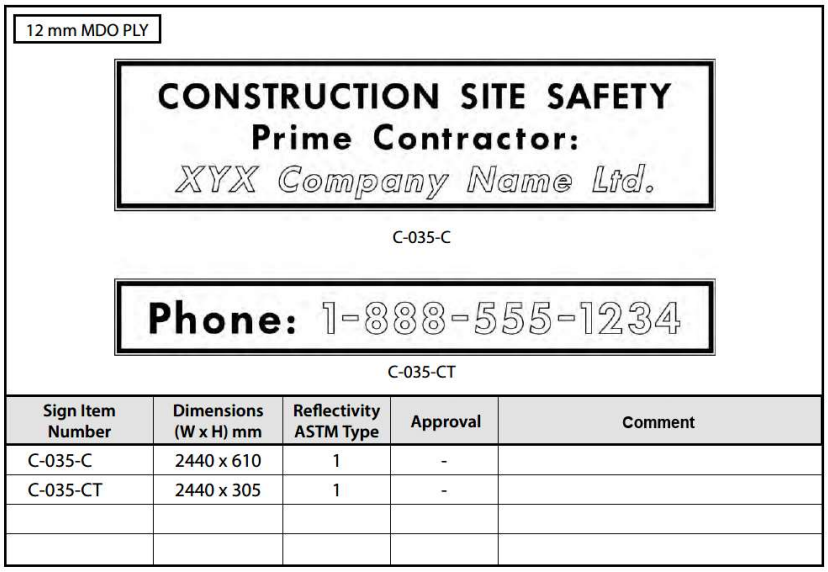
.1 A buffer space shall be used for all traffic control layouts.

.2 The use of a buffer vehicle when workers are present shall be at the Contractor's discretion.

.3 7.2 Typical Construction Speed Zone Signing – Two-Lane, Two-Way Roadway shall be used subject to the following:

.1 If used by the Contractor, the portable Dynamic Message Signs (DMS) shall be positioned approximately 300 m prior to the sign C-018-2A.

.2 The sign C-035 shall be replaced with signs C-035-C and C-035-CT with the Contractor's name and phone number. Signs C-035-C and C-035-CT shall be in accordance with Figure 01 35 00 – 3.



Sign Item Number	Dimensions (W x H) mm	Reflectivity ASTM Type	Approval	Comment
C-035-C	2440 x 610	1	-	
C-035-CT	2440 x 305	1	-	

Figure 01 35 00– 03: Sign C-035-C and C-035-CT Details

.3 Any duplicate signage resulting from the use of Section 7.2 Typical Speed Zone Signing – Two-Lane, Two-Way Roadway and other Section 7 traffic control layouts shall be removed.

.4 7.5 Work on Shoulder – Short and Long Duration can be used during the following:

- When work activities on part or all of the shoulder area (including parked vehicles, equipment, and equipment with components within reach of the shoulder) are on one side of the highway and do not encroach onto the driving lane.

- When work activities do not include unloading or loading of equipment or supplies on part or all of the shoulder area.

The use of 7.5 Work on Shoulder – Short and Long Duration is subject to the following:

.1 Advanced warning signs (Men Working (C-004) and Construction Ahead (C-018-1A)) shall be installed in the opposing direction of travel.

.2 Tubular markers shall replace cones and tubular markers can be used as a replacement for drums.

.3 The traffic control signage layout shall include the Men Working (C-004) sign in advance of the Construction Ahead (C-018-1A) sign using the applicable Construction Sign Spacing (Dimension A as defined in Table B of Section 7 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020) for the applicable speed (adjust all other sign spacing as required).

.5 7.8 Lane Closure with Traffic Control Persons – Single Lane Alternating Traffic – Short and Long Duration can be used when the length of the single lane alternating traffic does not exceed 300 m and access through the work area is not dangerous thus not requiring a pilot vehicle. The traffic control signage layout shall include the Men Working (C-004) sign in advance of the Construction Ahead (C-018-1A) sign using the applicable Construction Sign Spacing (Dimension A as defined in Table B of Section 7 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020) for the applicable speed (adjust all other sign spacing as required). The location of the traffic control personnel / vehicle stoppages shall be pre-approved by the Departmental Representative such that they are positioned appropriately for the weather conditions and ensure vehicles are not required to start or stop on steep inclines.

.6 7.16 Pilot Cars can be used subject to the following:

.1 During active onsite work only when the length of the single lane alternating traffic exceeds 300 m or where access through the work would be otherwise dangerous.

.2 The traffic control signage layout shall include the Prepare to Stop (C-029) sign (sign spacing shall be adjusted to suit).

.3 The traffic control signage layout shall include the Men Working (C-004) sign in advance of the Construction Ahead (C-018-1A) sign. The spacing shall be per applicable Construction Sign Spacing (Dimension A as defined in Table B of Section 7 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020) for the applicable speed (adjust all other sign spacing as required).

.6 C-172-L/R signs shall be installed in advance of any stockpile site accesses, gravel pit accesses, laydown area access, or other access roads where long or slow-moving trucks frequently enter or leave the highway and the access is located outside the "Limits of Construction" signage.

.7 Maintain existing conditions for traffic throughout the period of the Contract except that, when required for Contract construction and when measures have been taken as specified herein and reviewed by the Departmental Representative to protect and control public traffic. Existing conditions for traffic may be restricted to single lane (minimum 3.7 m lane width with 1.0 m shoulder on both sides) alternating traffic during completion of on-highway work as pre-approved by the Departmental Representative. Speed limit during these times shall be reduced to 30 km/h (or 50 km/h, at the Contractor's discretion).

.8 The maximum allowable delay to any individual motorist travelling through the project limits as a result of the Contractor's operations is 15 minutes.

.9 Load limit restrictions will be in accordance with British Columbia Highway Traffic Act pertaining to registered weight limits and vehicle size both within and outside Contract Limits.

3.3 Protection of Public Traffic

.1 Ensure traffic control and other measures as necessary are in place for the duration of the works to protect and accommodate public traffic as follows:

.1 Contractor to complete and document checks of the signage using the "Daily Sign Check Form" found in the appendices of the "Category 2 Traffic Management Plan Template" found in Appendix C of these specifications. Complete checks a minimum of three (3) times a day (at the start of the workday, midday and at completion of the workday). Documentation / sign-off shall be completed by the person who did the checks. Submit completed "Daily Sign Check Form" to the Departmental Representative weekly or more frequently as required by the Departmental Representative.

.2 During non-work hours the highway shall be open to two lanes of traffic at the non-construction regulatory speed limit. All equipment shall be parked outside the highway clear zone (6 m from the white line).

.3 Ensure that all vehicles can safely travel and traverse the entire length of the project (including detours) without damage to vehicles regardless of the material type placed and used as a driving surface.

.4 Protect passing vehicles from damage caused by extraneous materials from construction activities at the site.

.5 Provide dust control, (if necessary).

.6 Provide and maintain reasonable access to property in the vicinity of the work under contract and in other area as indicated, unless other reasonable means of road access exist that meet approval of Departmental Representative.

.7 All existing signage that conflicts with the Contractor's temporary construction signage shall be covered over by the Contractor.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 References.

1.2 Workers' Compensation Coverage.

1.3 Compliance with Regulations.

1.4 Definitions.

1.5 Submittals.

1.6 Project Specific Health and Safety Plan.

1.7 Contractor's Responsibility.

1.8 Health and Safety Coordinator.

1.9 General.

1.10 Project / Site Conditions.

1.11 Regulatory Requirements.

1.12 Work Permits.

1.13 Filing of Notice.

1.14 Emergency Procedures.

1.15 Hazardous Products.

1.16 Overloading.

1.17 Fire Safety Requirements.

1.18 Unforeseen Hazards.

1.19 Posted Documents.

1.20 Correction of Non-Compliance.

1.21 Medical.

1.22 Accidents and Accident Reports.

1.23 COVID-19 Protocols and Precautions.

PART 1 – GENERAL

1.1 References

.1 Government of Canada:

.1 Canada Labour Code – Part II

.2 Canada Occupational Health and Safety Regulations.

.2 National Building Code of Canada (NBC):

.1 Part 8, Safety Measures at Construction and Demolition Sites.

.3 Canadian Standards Association (CSA) as amended:

.1 CSA Z797-2009 Code of Practice for Access Scaffold.

.2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes.

.3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.

.4 Fire Protection Engineering Services, HOURSDC:

.1 FCC No. 301, Standard for Construction Operations.

.2 FCC No. 302, Standard for Welding and Cutting.

.5 American National Standards Institute (ANSI):

.1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.

.6 Province of British Columbia:

.1 Workers Compensation Act Part 3 – Occupational Health and Safety.

.2 Occupational Health and Safety Regulation.

.7 "Project Specific Health and Safety Plan Template" (Appendix B).

.8 Canadian Construction Association:

.1 COVID-19 – Standardized Protocols for All Canadian Construction Sites, Version 4, April 16, 2020.

.9 WorkSafeBC:

.1 Construction and COVID-19 Safety.

1.2 Workers' Compensation Coverage	.1	Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
	.2	Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.
1.3 Compliance with Regulations	.1	PSPC may terminate the Contract without liability to PSPC where the Contractor, in the opinion of PSPC, does not comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
	.2	It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.
1.4 Definitions	.1	Workplace: As defined by WorkSafeBC Occupational Health and Safety Guidelines. The project shall be considered as having separate workplaces should the WorkSafeBC Occupational Health and Safety Guidelines – Location Factors provide "Yes" to "Indication of Separate Workplaces" including but not limited to "Locations of one employer are more than 20 minutes apart from each other".
1.5 Submittals	.1	The Contractor's Project Specific Health and Safety Plan shall be submitted to the Departmental Representative as a single PDF document (multiple files will not be accepted) for review and acceptance in accordance with the procedures outlined in Section 01 33 00 – Submittal Procedures. The Departmental Representative will review the plan (first submission and if required all subsequent re-submissions) within 14 days of submission. Upon review of the plan the Departmental Representative will do one of the following:
		.1 Accept the plan.
		.2 Accept portions of the plan and provide comments outlining required changes or additional information in other sections. Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan for review.
		.3 Reject the plan and provide comments outlining required changes or additional information needed before the plan will be reviewed in detail.

Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan for review.

.2 Submit the following to the Departmental Representative in accordance with the procedures outlined in Section 01 33 00 – Submittal Procedures:

.1 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.

.2 Copies of incident and accident reports.

.3 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.

.4 Emergency Procedures.

.5 Medical surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.

.6 If requested, complete versions of the Contractor's corporate Health and Safety Policies / Procedures manual.

.3 The Contractor shall allow time in the schedule for the reviews, and subsequent edits / re-submission.

.4 Work affected by the submittal (as determined by the Departmental Representative) shall not proceed until acceptance of the submittal by the Departmental Representative.

.5 Submission of the Project Specific Health and Safety Plan, and any revised version, to the Departmental Representative are for information and reference purposes only. It shall not:

.1 Be construed to imply approval by the Departmental Representative.

.2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.

.3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

.6 Should deficiencies in the Contractor's Project Specific Health and Safety Plan be noted following acceptance of the submittal by the Departmental Representative but during the project work, the Departmental Representative reserves the right to provide additional comments to the Contractor and require re-submission of the Project Specific Health and Safety Plan to ensure the correction of any deficiencies.

1.6 Project Specific Health and Safety Plan

.1 The Contractor shall prepare and comply with the Project Specific Health and Safety Plan. The preparation and details of the Project Specific Health and Safety Plan shall include conducting a site-specific hazard assessment based on review of Contract Documents, required work, and project site(s). The Project Specific Health and Safety Plan shall address all concerns / requirements identified in the Contract Documents and identify any known and potential health risks and safety hazards.

.2 The Project Specific Health and Safety Plan shall, at a minimum include all headings, sub-headings, details, and presentation format as provided in the template found in Appendix B (provided to the Contractor as a Word file upon award of the Contract). The Contractor shall add additional headings and content to the Project Specific Health and Safety Plan as deemed necessary. PSPC has the right to reject the Project Specific Health and Safety Plan if the headings from this document are not used in the Contractor's Project Specific Health and Safety Plan. Minimum requirements for the Project Specific Health and Safety Plan includes:

.1 Contractor's safety policy / statement.

.2 Identification of applicable compliance obligations.

.3 Identify personnel and alternates responsible for project site safety and health. List of health and safety responsibilities for all personnel listed.

.4 General safety rules for project and actions which will be taken by the Contractor should these safety rules be broken by the any workers on the project (includes workers employed by the General Contractor, sub-contractor, or sub-consultants).

.5 Identify health and safety risks / hazards and engineering and administrative control measures to be implemented at each "workplace" for managing identified risks / hazards, including:

.1 Summary of health risks and safety hazards resulting from hazard assessment analysis, with respect to site tasks and operations which must be performed as part of the work and hazard rating assignment (low, moderate, or high) for each "workplace", as defined by WorkSafeBC and applicable to the application of G3.16 of WorkSafeBC Occupational Health and Safety Regulations.

.2 List hazardous materials to be brought on site as required by the work.

.3 Job-specific safe work procedures that are not already included in the Contractor's corporate Health and Safety Polices / Procedures manual.

.4 Identify personal protective equipment (PPE) to be used by workers.

.5 Identify personnel training requirements and training plan, including site orientation for new workers and personnel designated by the Departmental Representative as needing to visit the site.

.6 Identification of the first aid requirements for each "workplace" on the project including:

.1 Estimated travel time from the "workplace" to the nearest hospital.

.2 Maximum numbers of workers at any time per "workplace".

.3 The first aid supplies, equipment, and facilities which will be available at each "workplace".

.4 The first aid attendant certificate level onsite at each "workplace".

.5 The first aid transportation which will be used on the project (i.e. emergency transport vehicle [ETV]), if required by Contractor or WorkSafeBC requirements. Details of where the ETV will be located / parked relative to the location of the first aid attendant(s) during the work.

.6 Inspection policy and procedures.

.7 Incident reporting and investigation policy and procedures.

.8 Occupational Health and Safety Committee/Representative procedures.

.9 Occupational Health and Safety meetings.

.10 Occupational Health and Safety communications and record keeping procedures.

.11 Emergency contact information, including PSPC project personnel (including Consultants), Contractor office and field staff, fire, police, ambulance, air ambulance, and forest fire reporting.

.12 Identify employee training plans for wildlife encounters and prevention.

.13 Identify fire safety, fire reporting, and fire evacuation procedures.

.14 Confirmation through the review and signatures from the Contractor's Project Manager, Superintendent, Health and Safety Manager, Quality Control Manager, representatives from all major Sub-Contractor's, and other project roles that may be applicable, that they have reviewed the Project Specific Health and Safety plan, agree with its contents, and will be enforced by them for the duration of the project.

.15 Completed "Preliminary Hazard Assessment Form" (see Appendix 1 of the "Project Specific Health and Safety Plan Template", Appendix B of these Specifications).

.16 Completed "Confirmation of Prime Contractor's Main Responsibilities Under the WorkSafeBC Occupational Health and Safety Regulations and Worker's Compensation Act" form (see Appendix 2 of the "Project Specific Health and Safety Plan Template", Appendix B of these Specifications).

.17 Contractor's COVID-19 Safe Work Plan, describing the protocols and procedures the Contractor shall implement throughout the duration of the work to mitigate the spread and risk of exposure to COVID-19, in accordance with Federal and Provincial guidelines, WorkSafeBC and the Canadian Construction Association (see Appendix 3 of the "Project Specific Health and Safety Plan Template", Appendix B of these Specifications).

Should Federal and/or Provincial guidelines change during the project, the Contractor shall update the Project Specific Health and Safety Plan and the Contractor's COVID-19 Safe Work Plan accordingly, and resubmit to the Departmental Representative for review and acceptance.

.18 Blank copy of Contractor's daily toolbox meeting form.

.19 Blank copy of the Contractor's Site Safety Orientation Form.

.20 Blank copy of the Contractor's Incident / Accident Report template.

.21 Resume(s) or certification(s) of Health and Safety Coordinator(s) responsible for site safety and onsite First Aid Attendants.

.22 Maps identifying the location of the nearest hospital(s) to the project site. The maps shall be of appropriate scale and sufficient detail allowing for their use to navigate to the hospital(s) in the event of an emergency.

.3 Develop the plan in collaboration with all Sub-Contractors. Ensure that work / activities of Sub-Contractors are included in the hazard assessment and are reflected in the plan.

.4 Should health and safety requirements change throughout the project and require information not included in the Project Specific Health and Safety Plan, revise and update Project Specific Health and Safety Plan as required and re-submit to the Departmental Representative.

.5 The Departmental Representative's review of the Project Specific Health and Safety Plan by Public Services and Procurement Canada (PSPC) shall not relieve the Contractor of responsibility for errors or omissions in final Project Specific Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract Documents.

1.7 Contractor's Responsibility

.1 Be responsible for health and safety of persons on site, safety of property on site, and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial, Territorial and local statutes, regulations, and ordinances, and with Project Specific Health and Safety Plan.

.3 The protection of persons off-site and the environment such that they may be affected by the conduct of the work.

1.8 Health and Safety Coordinator

.1 Employ and assign to work, a competent and authorized representative as Health and Safety Coordinator. The Health and Safety Coordinator shall:

.1 Be responsible for completing all health and safety training, site orientations, and ensuring personnel who do not successfully complete the required training are not permitted to enter the site to perform work.

.2 Be responsible for implementing, enforcing, and monitoring the Project Specific Health and Safety Plan.

.3 Be on site during execution of critical elements of the work or as required by the Contractor.

.4 Have a minimum of two (2) years site-related working experience specific to activities associated with Construction.

.5 Have working knowledge of occupational safety and health regulations.

.6 Attend pre-construction and construction progress meetings as required, or as requested by the Departmental Representative.

1.9 General

.1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.

.2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.

.1 Provide appropriate means by use of barricades, fences, warning signs, traffic control persons, and temporary lighting as required.

.2 Secure site during non-work hours at nighttime or provide security guards as deemed necessary to protect site against entry.

.3 Conduct daily safety meetings and task specific meetings (toolbox) as required by special work. At a minimum, meetings shall include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Keep records of meetings and post to PSPC's cloud-based document filing system "CentralCollab" on a weekly or more frequent basis.

1.10 Project / Site Conditions

.1 Work at the site will at a minimum involve contact with:

.1 Utilities.

.2 General public (including large transport trucks) and PSPC maintenance personnel travelling the highway.

.3 Local wildlife.

.4 Unpredictable and adverse weather conditions.

1.11 Regulatory Requirements

.1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.

.2 In the event of conflict between any provisions of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

1.12 Work Permits

.1 Obtain specialty permit(s) related to project before start of work.

1.13 Filing of Notice

.1 The Contractor is to complete and submit an Advance Notice of Project as required by the Worker's Compensation Board and any other authority in effect at the place or work.

.2 Provide copies of all notices to the Departmental Representative.

1.14 Emergency Procedures

.1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names / telephone numbers) of:

.1 Designated personnel from Contractor's company.

.2 Regulatory agencies applicable to work and as per legislated regulations.

.3 Local emergency resources.

.4 Departmental Representative.

.2 Include the following provisions in the emergency procedures:

.1 Notify workers and the first-aid attendant of the nature and location of the emergency.

.2 Evacuate all workers safely.

.3 Check and confirm the safe evacuation of all workers.

.4 Notify the fire department or other emergency responders.

.5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.

.6 Notify Departmental Representative.

.3 Provide written rescue / evacuation procedures as required for, but not limited to:

.1 Work at high angles.

.2 Work in confined spaces or where there is a risk of entrapment.

.3 Work with hazardous substances.

.4 Underground work.

.5 Work on, over, under and adjacent to water.

.6 Workplaces where there are persons who require physical assistance to be moved.

.7 Work in areas where sudden movement of native or placed materials may occur.

.4 Design and mark emergency exit routes to provide quick and unimpeded exit.

.5 Emergency drills must be held at least once each year for all projects lasting longer than one year. The purpose of these drills is to ensure awareness and effectiveness of emergency exit routes and procedures. A record of the drills must be kept by the Contractor.

.6 Revise and update emergency procedures as required and re-submit to the Departmental Representative.

1.15 Hazardous Products

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canadian Labour Code.

.2 Where use of hazardous and toxic products cannot be avoided:

.1 Advise Departmental Representative beforehand of the product(s) intended for use. If requested, submit applicable MSDS and WHMIS documents as per Section 01 33 00 – Submittal Procedures. Keep documents available for review on the project site as close as practical to where the hazardous and toxic product is being used.

.2 Provide adequate means of ventilation acceptable to the Departmental Representative and suitable for the hazard.

1.16 Overloading

.1 Ensure no part of the work is subject to a load which will endanger its safety or will cause permanent deformation. No off-road construction equipment shall cross the Bougie Creek River Bridge unless being trailered.

1.17 Fire Safety Requirements

.1 Store oily / paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.18 Unforeseen Hazards

.1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

.2 Should contaminated site conditions be encountered when completing the work, notify the Departmental Representative and refer to GC4.4 – Contaminated Site Conditions for procedures which the Contractor shall undertake.

1.19 Posted Documents

.1 Post legible versions of the following documents on site:

.1 Project Specific Health and Safety Plan.

.2 Sequence of work.

.3 Emergency procedures.

.4 Corporate Health and Safety Policies and Procedures manual(s).

.5 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshaling station, and the emergency transportation provisions.

.6 Notice of Project.

.7 Site plans.

.8 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.

.9 Workplace Hazardous Materials Information System (WHMIS) documents.

.10 Material Safety Data Sheets (MSDS).

.11 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.

.2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.

.3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

1.20 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.

.3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor / subcontractors will be responsible for any costs arising from such a "stop work order".

1.21 Medical

.1 Provide and maintain first aid facilities for all workers as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

.2 Provide the appropriate first aid kit, based on the number of workers, in accordance with the Workers' Compensation Act or the Occupational Health and Safety Regulations.

.3 Establish an emergency response plan acceptable to Departmental Representative, for the removal of any injured person to medical facilities or a doctor's care in accordance with applicable legislative and regulatory requirements.

.4 Provide proof of First Aid credentials to Departmental Representative prior to the start of construction. Provide the appropriate number of first aid attendants on site in accordance with Workers' Compensation Act or the Occupational Health and Safety Regulations.

.5 Emergency and First Aid Equipment:

.1 Locate and maintain emergency and first aid equipment in appropriate location on site including first aid kit to accommodate number of site personnel; portable emergency eye wash; fire protection equipment as required by legislation.

.2 Locate sufficient blankets and towels, stretcher, and one handheld emergency siren in all confined access locations.

.3 Provide a minimum of one qualified first aid attendant as per Workers' Compensation Act or the Occupational Health and Safety Regulations on site at all times when Work activities are in progress; duties of first aid attendant may be shared with other light duty Work related activities.

1.22 Accidents and Accident Reports

.1 Immediately report to the Departmental Representative verbally, followed by a written report within 24 hours, all accidents of any sort arising out of or in connection with the performance of the Work, giving full details and statements of witnesses. If death or serious injuries or damages are caused, report the accident promptly to Departmental Representative by telephone in addition to any report required under federal and territorial laws and regulations.

.2 If a claim is made by anyone against Contractor or Sub-Contractor on account of any accident, promptly report the facts in writing to Departmental Representative, giving full details of the claim.

1.23 COVID-19 Protocols and Precautions

.1 The Contractor shall keep informed with the latest Federal and Provincial protocols and precautions regarding COVID-19 at all times during construction and shall modify their construction approach accordingly to ensure adherence to these protocols and precautions.

.2 Should Federal and/or Provincial protocols and precautions change during the project, the Contractor shall update the Contractor's COVID-19 Safe Work Plan accordingly, and resubmit to the Departmental Representative for review and acceptance.

.3 If Federal and/or Provincial recommendations require that the project work be stopped, the Contractor shall consult with the Departmental Representative and the Departmental Representative will advise as to the course of action the Contractor shall take.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 Definitions.

1.3 References.

1.4 Regulatory Overview.

1.5 Submittals.

1.6 Environmental Protection Plan (EPP).

1.7 Breeding Bird and Bird Nest Survey.

1.8 Environmental Site Inspection Memo.

1.9 Notification.

PART 2 – PRODUCTS:

2.1 Products.

PART 3 – EXECUTION:

3.1 Environmental Monitoring.

3.2 Site Access and Parking.

3.3 Protection of Work Limits.

3.4 Erosion Control.

3.5 Pollution Control.

3.6 Equipment Maintenance, Fueling and Operation.

3.7 Operation of Equipment.

3.8 Managing Invasive Plant Vegetation.

3.9 Fires and Fire Prevention and Control.

3.10 Wildlife.

3.11 Relics and Antiquities.

3.12 Waste Materials Storage and Removal.

3.13 Wastewater Discharge Criteria.

3.14 Drainage.

3.15 Site Clearing, Plant Protection, and Nesting Bird Protection.

3.16 Environmental Protection Supplies.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Payment for the cost of Environmental Monitoring shall not be made and shall be considered incidental to the work.

1.2 Definitions

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention / control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

.3 Wetted Perimeter: area of stream where water is currently running or pooled.

.4 In-stream Work: any work performed below the high-water mark, either within or above the Wetted Perimeter of any Fisheries Sensitive Zone.

.5 Fisheries Sensitive Zone: in-stream aquatic habitats and out of stream habitat features such as side channels, wetlands, and riparian areas.

.6 Invasive plants: are any alien plant species that have the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on both disturbed and un-disturbed sites, and can cause widespread negative economic, social and environmental impacts.

.7 Noxious weeds: are invasive plants that have been designated under the BC Weed Control Act. This legislation imposes a duty on all land occupiers to control a set list of identified invasive plants.
https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species

.8 Heritage material: are objects, sites or locations of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people as determined by an Archaeologist registered to practice in British Columbia.

1.3 References

.1 Standards and Best Practices for Instream Works, British Columbia Ministry of Land and Air Protection Ecosystem Standards and Planning Biodiversity Branch – March 2004 (See Reference Documentation – Table of Contents).

.2 Land Development Guidelines for the Protection of Aquatic Habitat, Fisheries and Oceans – September 1993 (See Reference Documentation – Table of Contents).

.3 Environmental Protection Plan (EPP) – Checklist (Appendix H).

.4 Responsibility Checklist for Authorizations / Approvals / Notifications / Permitting (Appendix I).

.5 Relevant Environmental Publications (Appendix J).

1.4 Regulatory Overview

.1 Comply with all applicable environmental laws, regulations and requirements of Federal, Provincial, and other regional authorities, and acquire and comply with such permits, approvals and authorizations as may be required.

.2 Comply with and be subject to those permits and approvals obtained from the Departmental Representative to conduct the Work.

.3 Pay specific attention to the provincial BC Land Use Permit, Water License and Quarry Permit.

.4 Pay specific attention to the Migratory Birds Convention Act, as amended in 1994.

.5 Pay specific attention to the provincial BC guidelines under Peace Region Least Risk Timing Windows: Biological Rational (2009).

1.5 Submittals

.1 The Contractor's EPP, Breeding Bird and Bird Nest Survey Memo (if required), and Environmental Site Inspection Memos (if required) shall be submitted to the Departmental Representative. Each report / memo shall be submitted as a single PDF documents (multiple files will not be accepted) for review and acceptance in accordance with the procedures outlined in Section 01 33 00 – Submittal Procedures. The Departmental Representative will review the EPP, and Environmental Site Inspection Memos (first submission and if required all subsequent re-submissions) within 14 days of submission and the Breeding Bird and Bird Nest Survey (first submission and if required all subsequent re-submissions) within three (3) weekdays of submission. Upon review of the plan / report / memo the Departmental Representative will do one of the following:

.1 Accept the plan / report / memo.

.2 Accept portions of the plan / report / memo and provide comments outlining required changes or additional information in other sections. Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan / report / memo for review.

.3 Reject the plan / report / memo and provide comments outlining required changes or additional information needed before the plan / report / memo will be reviewed in detail. Following completion of edits by the Contractor, the Contractor shall re-submit the complete plan / report / memo for review.

.2 The Contractor shall allow time in the schedule for the reviews, and subsequent edits / re-submission.

.3 Work affected by the submittal (as determined by the Departmental Representative) shall not proceed until acceptance of the EPP and Breeding Bird and Bird Nest Survey by the Departmental Representative.

.4 The review of the EPP, Breeding Bird and Bird Nest Survey memo, and Environmental Site Inspection Memos by the Departmental Representative shall not relieve the Contractor of responsibility for errors or omissions in the accepted submittals or of responsibility for meeting all requirements of the Contract Documents.

.5 Should deficiencies in the Contractor's EPP or Breeding Bird and Bird Nest Survey be noted following acceptance of the submittal by the Departmental Representative but during the project work, the Departmental Representative reserves the right to provide additional comments to the Contractor and require re-submission of the EPP or Breeding Bird and Bird Nest Survey to ensure the correction of any deficiencies.

1.6 Environmental Protection Plan (EPP)

.1 The Contractor is required to prepare an EPP. The EPP should include and address all relevant environmental impacts / issues at the site as indicated by the Environmental Protection Plan (EPP) – Checklist (Appendix H), and as identified in this Section of the specifications. The EPP will require the Contractor to carefully think through the entire project, including identifying what activities and works will be occurring, both generally and at specific sites, and by what methods. The EPP shall be completed by a P.Biol or RPBio, or other qualified professional, and shall, at a minimum include the following:

.1 The specifics of an environmental monitoring program to be completed by the Contractor. This includes identification of the person(s) who will be carrying out monitoring of environmental concerns or violations during the work and returning to site if called upon (see section 3.1 Environmental Monitoring, subsection .1 of this specifications section). Include resumes of the proposed environmental monitor(s) and personnel responsible for the preparation of the EPP. See Item 3.1 – Environmental Monitoring of this specification for further details of the required environmental monitoring.

.2 The process and protocol for ensuring that supervisors and individual staff employed by the Contractor are very clear on which environmental standards need to be achieved, how they will be achieved, and establishing how the Contractor will ensure that this is successfully occurring.

.3 Erosion, drainage, and sediment control plan which identifies type and location of erosion and sediment controls to be provided, including monitoring and reporting requirements, to ensure that control measures are in compliance with the requirements of the applicable provincial regulatory requirements under FLNRORD / MoE guidelines, and all other applicable regulations including the requirements of these specifications. The Contractor may utilize marked-up contract drawings within the EPP to show the locations of the proposed activities.

.4 Typical drawings showing the locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of any excess or spoil materials including methods to control runoff and to contain materials on site. The Contractor may utilize marked-up Contract Drawings within the EPP to show the locations of the proposed activities.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan is to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.

.6 Spill Control Plan: including procedures, instructions, and reports to be used in the event of unforeseen spill of regulated substance.

.7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.8 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.9 Outline the avoidance and mitigate measures which the Contractor will undertake and implement to ensure compliance with the environmental regulations applicable to the project (which may include requirements provided in FLNRORD, and DFO Fisheries Act requirements, etc.) and these specifications.

.10 The procedures for stopping the work and implementing changes to the construction methods should the Contractor not be achieving the environmental requirements as outlined in these specifications.

.11 The procedures for stopping work should the Contractor encounter archaeological anomalies or human remains.

1.7 Breeding Bird and Bird Nest Survey

.1 The Contractor is required to complete a Breeding Bird and Bird Nest Survey prior to the completion of Tree Clearing operations conducted during the breeding bird nesting period (April 24 to August 29). If Tree Clearing operations are conducted outside of the breeding bird nesting period, no surveys are required. The results of the Breeding Bird and Bird Nest Survey shall be compiled in a memo. The Breeding Bird and Bird Nest Survey and memo shall achieve the following:

.1 Be completed by P.Biol, RPBio, or Qualified Environmental Professional (QEP). If a QEP completes the field component of the Breeding Bird and Bird Nest Survey and/or memo, the memo must be signed off by a P.Biol or RPBio.

.2 Be completed within seven (7) days of the commencement of the Tree Clearing. Should the Tree Clearing work stop for any reason longer than 24 hours, a new Breeding Bird and Bird Nest Survey shall be completed.

.3 Be conducted in accordance with the Active Migratory Bird Nest Survey Program outlined by CWS (2008) and the Inventory Methods for Forest and Grassland Birds (RISC 1999).

.2 The Contractor shall contact the Departmental Representative for further instruction should a concern be identified during the Breeding Bird and Bird Nest Survey that would, in the opinion of the QEP, P.Biol, or RPBio, give cause for the delay or cancellation of the Tree Clearing. Details of the concerns shall be described and itemized in a memo by the QEP, P.Biol, or RPBio and submitted to the Departmental Representative in accordance with Section 01 33 00 – Submittal Procedures.

1.8 Environmental Site Inspection Memo

.1 The Contractor shall submit an Environmental Site Inspection Memo within three (3) weekdays of each site visit by the P.Biol, RPBio, or other Qualified Professional. The Environmental Site Inspection Memo shall include the following:

.1 Date and times when environmental monitor was onsite.

.2 General site conditions / construction activities ongoing at the time of the inspection.

.3 Findings, non-conformances with EPP, and items requiring correction by the Contractor from the environmental monitors review and inspection of environmentally sensitive activities including but not limited to:

.1 Fuel and Oil Storage and Fueling Practices.

.2 Care and Maintenance of Construction Equipment.

.3 Spill Response Preparedness.

.4 Construction Activities and Construction Site Management.

.5 Erosion and Sediment Issues.

.6 Wildlife Observations / Mitigation and Sensitive Habitat.

.7 Camp management.

.8 Other comments.

.4 Photos of any concerns, non-conformances with EPP, or items requiring attention.

1.9 Notification

.1 The Departmental Representative will notify the Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, etc.

.2 The Contractor, after receipt of such notice, shall inform the Departmental Representative of the proposed corrective action and take such action for approval by Departmental Representative.

.3 The Departmental Representative will issue a stop order of Work until the Contractor undertakes satisfactory corrective action.

.4 No time extensions shall be granted, or equitable adjustments allowed, to Contractor for such suspensions.

PART 2 – PRODUCTS

2.1 Products

.1 Not Used.

PART 3 – EXECUTION

3.1 Environmental Monitoring

.1 At a minimum the Contractor's site superintendent and or other onsite personnel shall be responsible for monitoring of environmental concerns or violations. The P.Biol or RPBio or other qualified professional whom prepared the Contractor's EPP shall be available to respond to queries from the Contractor, Departmental Representative, or environmental regulators and make revisions to the EPP throughout the project as needed. Should the Contractor, Departmental Representative, environmental regulators, or P.Biol or RPBio or other qualified professional whom prepared the Contractor's EPP determine that the Contractor is in violation of applicable regulatory requirements or these environmental specifications, the P.Biol or RPBio or other qualified professional whom prepared the Contractor's EPP shall visit the site (unless accepted otherwise by the Departmental Representative) at the Contractor's expense to oversee the implementation of the corrective measures to bring the work back into compliance with applicable regulatory requirements or these environmental specifications.

.2 The monitoring program must be anticipatory and responsive to construction practices or environmental changes, reflecting the site-specific conditions, level of sensitivity of the receiving environment, potential adverse effects, and level of environmental risk. Submitted documents regarding the proposed monitoring program should clearly identify how monitoring will adhere to this approach.

.3 The monitoring program shall satisfy all regulatory requirements and terms of these specifications. The onus is on the Contractor to monitor and ensure compliance, to identify arising problems, and to subsequently take responsibility and all necessary measures in response. At a minimum, the environmental monitor shall be onsite during all instream works and all works within 30 m of a waterway.

3.2 Site Access and Parking

.1 The Contractor shall review both short-term and long-term access requirements with the Departmental Representative, both at project start-up and on an on-going basis. In consultation with the Departmental Representative, the Contractor shall formulate an agreement for worker transportation to and from the work site and where workers shall park their private vehicles. Generally, personal vehicles shall be parked the maximum practical distance from any watercourse. If less than a distance of 10 m, the location shall be preapproved by the Departmental Representative.

.2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.

3.3 Protection of Work Limits

.1 The Contractor shall include in the EPP details on the work limits, how these shall be marked and what procedures will be employed to ensure trespass outside these limits does not occur, to the satisfaction of the Departmental Representative.

3.4 Erosion Control

.1 Erosion control measures that prevent sediment from entering any waterway, waterbody or wetland in the vicinity of the construction site are a critical element of the project and shall be implemented by the Contractor.

.2 On site sediment control measures shall be constructed and functional prior to initiating activities associated with the construction activities. The Contractor shall prepare an Erosion Control Plan, to be part of the EPP, to the satisfaction of the Departmental Representative.

.3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively, they are to be repaired. The Departmental Representative will monitor the Contractor's erosion control performance.

.4 Erosion control measures must be in compliance with both Federal and Provincial legislation, where required. Contractors should be referencing the provincial MoE Standards and Best Practices for Instream Works (2004).

3.5 Pollution Control

.1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, waterbodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 m to any surface water.

.2 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative, and in accordance with all applicable Federal and Provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement and sand blasting agents.

.3 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous products shall be stored no closer than 100 m from any surface water.

.4 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berms shall be capable of holding 110% of tank storage volumes and shall be to the satisfaction of the Departmental Representative. Measures such as collection / drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double lined fuel tanks can prevent spills into the environment.

.5 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads and on-site work such as rock drilling and blasting by methods

that are accepted by the Departmental Representative.

.6 The Contractor shall provide spill kits, to the satisfaction of the Departmental Representative, at refueling, lubrication and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in their use.

.7 Timely and effective actions shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative shall be notified immediately of any spill as well as the provincial authorities. Basic instructions and phone numbers shall be part of the Contractor's EPP.

.8 In the event of a major spill, the Contractor shall prioritize the cleanup and all other work shall be stopped, where appropriate, and personnel devoted to spill containment and cleanup.

.9 The costs involved in a major spill incident (control, clean up, disposal of contaminants, and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the pre-spill condition to the satisfaction of the Departmental Representative.

3.6 Equipment Maintenance, Fueling and Operation

.1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) before delivery to the work site.

.2 Equipment fueling sites will be identified by the Contractor to the satisfaction of the Departmental Representative. Except for chain saws, any fueling closer than 100 m to any surface water (streams, wetlands, waterbodies or watercourses) shall require discussion with the Departmental Representative. Regardless of fueling location, personnel shall maintain a presence during refueling with immediate attention to the fueling operations.

.3 Diesel and gasoline delivery vehicles, including bulk tankers shall be not be parked within 100 m from any surface water unless actively being used for refueling. Immediately following refueling, bulk tankers shall be moved to a location 100 m or greater from any surface water. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used.

.4 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in Item 3.6 – Pollution Control, subsection .4 of these specifications.

.5 Equipment used on the project shall be fueled with E10, and low Sulphur diesel fuels where available, and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of the vehicles is avoided.

.6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations satisfactory to the Departmental Representative. Waste lubrication products (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc. or anywhere within the work area.

.7 The Contractor shall ensure that all equipment is inspected daily for fluid / fuel leaks and maintained in good working condition. Maintenance certificates or maintenance logs for all equipment shall be available on site during work.

.8 Fuel containers and lubricant products shall be stored only in secure locations to the satisfaction of the Departmental Representative. Fuel tanks or other potential deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight. Alternatively, the Contractor may employ a security person to prevent vandalism.

.9 Equipment shall use environmentally sensitive / bio-degradable hydraulic fluid in case of accidental loss.

3.7 Operation of Equipment

.1 Equipment movements shall be restricted to the “footprint” of the construction area. The work limits shall be identified by stake and ribbon or other methods to the satisfaction of the Departmental Representative. No machinery will enter, work in or cross over streams, rivers, wetlands, waterbodies or watercourse, nor damage aquatic and riparian habitat or trees and plant communities outside the identified work limits. Where construction activities require working close to surface water, the Contractor is required to stage the work, employ mitigation measures and undertake other measures as deemed necessary by the Contractor to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) does not enter any surface water areas.

	.2	The Contractor shall instruct workers to prevent pushing, placement, raveling, storage or stockpiling of any materials (e.g. slash, rock, fill or topsoil) in the trees bordering the right-of-way or into surface water.
	.3	When, in the opinion of PSPC, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at their expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative.
	.4	Restrict vehicle movements to the work limits.
	.5	Workers vehicles are to remain within the construction footprint.
3.8 Managing Invasive Plant Vegetation	.1	Keep equipment clean and avoid parking, turning around or staging equipment in known invasive species infested areas, or mow prior to use.
	.2	Wash equipment prior to mobilization to site.
	.3	Minimize unnecessary disturbance of roadside aggregates or soil and retain desirable roadside vegetation whenever possible.
	.4	Where possible, begin mowing or brushing in “invasive plant free” areas and end in infested areas.
	.5	Where possible, use only clean fill material from an “invasive plant free” source.
	.6	Whenever possible, re-seed with grass mixtures that are free of weeds, locally adapted, non-invasive, and quick to establish. Spread seed in the early spring or late fall to ensure successful establishment.
3.9 Fires and Fire Prevention and Control	.1	Fires or burning of waste materials is not permitted.
	.2	Fire extinguishers shall be carried and available for use on each of the Contractor’s construction equipment in the event of a fire.
	.3	Construction equipment shall be operated in a manner and with all original manufacturers’ safety devices to prevent ignition of flammable materials in the area.
	.4	Care shall be taken while smoking on the construction site to

ensure that the accidental ignition of any flammable material is prevented.

.5 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire, provided it is safe to do so. The Departmental Representative shall be notified of any fire immediately as well as the applicable Provincial Authorities. Basic instruction and phone numbers will be provided on site by the Contractor and will be discussed in the project pre-construction meeting.

.6 Provide supervision, attendance and fire protection measures as directed by the Departmental Representative or other authorities.

3.10 Wildlife

.1 Avoid or terminate activities on site that attract or disturb wildlife. Stay away from bears, cougars, wolves, elk, moose, or bison, or other animals that display aggressive behavior or persistent intrusion. Exercise at all times extra care to control materials that might attract wildlife (e.g. lunches and food scraps).

.2 Notify the Departmental Representative immediately about dens, litters, nests, carcasses (road kills), bear activity or encounters on or around the site or crew accommodations. Other wildlife related encounters are to be reported within 24 hours.

3.11 Relics and Antiquities

.1 Artifacts, relics, antiquities, and items of historical interest such as cornerstones, commemorative plaques, inscribed tablets and any objects found on the work site that may be considered artifacts as defined by GC6.3 shall be reported to the Departmental Representative immediately. The Contractor and workers shall wait for instruction before proceeding with their work as per GC6.3.

.2 All historical or archaeological objects found in the project site are protected under Federal and Provincial Acts and regulations. The Contractor and workers shall protect any articles found and request direction from the Departmental Representative as per GC6.3.

.3 Human remains must be reported immediately to the local RCMP and Departmental Representative per GC6.3.

3.12 Waste Materials Storage and Removal

.1 The Contractor and workers shall dispose of hazardous wastes in conformance with the applicable Federal and Provincial regulations which should be part of the EPP. All waste materials shall be disposed of at a disposal facility acceptable to the Departmental Representative. No waste materials shall be buried onsite.

.2 All waste originating from construction, trade, hazardous and domestic sources, shall not be mixed, but will be kept separate.

.3 Construction, trade, hazardous waste and domestic waste materials shall not be burned, buried, or discarded at the construction site. These wastes shall be contained and removed in a timely by the Contractor and workers, acceptable to the Departmental Representative, and disposed of at an appropriate waste landfill site located outside the work area.

.4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials where possible.

.5 Sanitary facilities, such as portable container toilets, shall be provided by the Contractor and maintained in a clean condition.

3.13 Wastewater Discharge Criteria

.1 Wash water, meltwater collection, rinse water resulting from the cleaning of fuel tanks and pipelines, contaminated groundwater, and/or any other liquid effluent stream shall be released onto the ground at locations no closer than 30 m from natural drainage courses and 100 m from fish bearing waters. The Contractor shall conform to the discharge requirements set out in Provincial regulations.

.2 Contractor must obtain approval from the provincial Water Act Officer prior to discharging any treated wastewater.

3.14 Drainage

.1 Stage the work and complete excavation work and placement of all erosion protection materials in the dry. Provide temporary drainage, pumping, and construct berms as necessary to keep excavations and the work area free from water. Drainage plans shall be part of the EPP.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements such as the Provincial Water Act.

.4 Provide an erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan to include monitoring and reporting requirements to assure that control measures comply with the Erosion and Sediment Control plan, and Federal, Provincial, and Municipal laws and regulations.

.5 As part of the EPP, submit details of proposed erosion, sediment and drainage control to the Departmental Representative for review and acceptance prior to commencing work in fisheries sensitive areas or in areas that may affect fisheries sensitive areas and specifically address the protection of waterbodies, watercourses, and the following:

.1 Details of grading work to prevent surface drainage into or out of Work areas.

.2 Details of erosion control works and materials to be used, including the deployment of coir logs, floating silt curtains and containment booms during construction and excavation activities.

.3 Work schedule including the sequence and duration of all related Work activities.

.4 The treatment of site runoff to prevent siltation of watercourses.

.5 Dewatering procedures for excavated materials including silt removal procedures prior to discharge.

.6 Stabilizing procedures during excavation.

.7 Maintenance of filters and sedimentation traps.

.6 Any dewatering activities will be released onto the ground at a location that is a minimum of 30 m from natural drainage courses and 100 m from fish bearing waters.

.7 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment.

3.15 Site Clearing, Plant Protection, and Nesting Bird Protection

.1 Prior to Tree Clearing during the breeding bird nesting period (April 24 to August 29), the Contractor shall complete a Breeding Bird and Bird Nest survey per the requirements of Item 1.8 Breeding Bird and Bird Nest Survey. No surveys are required if clearing is performed outside of the nesting period.

.2 Protect Geotechnical Monitoring Instruments, trees and plants on site and adjacent properties where indicated (see Section 31 23 33 – Excavation and Backfill for further details).

.3 Wrap in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.

.4 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.5 Minimize stripping of topsoil.

.6 Restrict tree removal to areas indicated or designated by Departmental Representative and shown on the Contract Drawings.

3.16 Environment Protection Supplies

.1 Comply with Federal and Provincial fisheries and environmental protection legislation, including preventing the loss or destruction of fish habitat, and minimizing the impact of sedimentation, siltation or otherwise causing a degradation in water quality.

.2 Provide a minimum of 30 m (or more and as required) of biodegradable coir logs, sized accordingly for use (minimum diameter of 0.3 m) and the necessary stakes (minimum 1 stake per 1 m of coir log) and material required by the manufacture's installation specification. Prior to purchase of coir logs, submit manufacturer's product data and installation instructions to the Departmental Representative for review and acceptance. Store and handle in strict compliance with the manufacturer's instructions and recommendations. Install as necessary to prevent sediment transport into water bodies.

.3 Provide a minimum of 50 lineal metres (or more and as required) of 200 mm diameter hydrophobic, sorbent booms. Use as necessary to prevent the migration of hydrocarbons.

.4 Supply, transport, install and maintain erosion, sediment and drainage controls necessary to complete the Work in accordance with the requirements of Federal and Provincial legislation, the EPP and to the satisfaction of the Departmental Representative.

.5 At the completion of construction, leave coir log(s) in place if requested by the Departmental Representative.

.6 Unused Erosion, Sediment and Drainage Control supplies will remain the property of Departmental Representative until the completion of the Contract.

.7 Provide inventory of environmental protection supplies prior to mobilization.

.8 Silt fencing shall not be used without pre-acceptance in writing by the Departmental Representative.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 Definitions.

1.3 Responsibilities.

1.4 General.

1.5 Submittals.

1.6 Non-Conformance Reports.

1.7 Departmental Representative Inspection and Audits.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Payment for Quality Management will not be made and shall be considered incidental to the applicable payment item of work.

1.2 Definitions

.1 Quality Control (QC): The process of checking specific product or services to determine if they comply with the contract documents and relevant quality standards and identifying ways to eliminate causes of unsatisfactory product or service performance.

.2 Quality Assurance (QA): The process of checking the Contractor's work for adhesion to the project quality requirements (including correction of non-conformances). The results of the QA are provided back to the Contractor when required. Where required the Contractor shall implement changes to the project based on the feedback received from the QA process.

.3 Deficiency / Non-conformance: Work or product failing to meet the conditions or requirements of the Contract (general conditions, specifications, drawings, or other section(s) forming the project contract).

1.3 Responsibilities

.1 The quality management responsibilities for this project are as follows:

.1 Quality Control: The Contractor's responsibility.

.2 Quality Assurance: The Departmental Representative's responsibility.

.3 Non-conformance Report: Prepared by the Contractor or the Departmental Representative.

1.4 General	.1	The Contractor shall be responsible for ensuring the product meets the contractual quality requirements. This may include monitoring, inspecting, testing, and documenting the means, methods, materials, workmanship, processes and products of all aspects of the work as necessary to ensure conformance with the Contract.
	.2	The Contractor shall provide unrestricted access to all Quality Control operations and documentation produced by or on behalf of the Contractor and shall allow the Departmental Representative full access at any time during working hours.
	.3	The Departmental Representative will review the Contractor's performance of the work and determine the acceptability of the work based on the Departmental Representative's Quality Assurance results and, where deemed appropriate by the Departmental Representative, supplemented by the Contractor's Quality Control results. If needed, the Departmental Representative may request further testing.
	.4	Work failing to meet the conditions of the Contract shall be considered a non-conformance. A Non-Conformance Report (NCR) may then be issued by the Contractor if requested by the Departmental Representative. Regardless of an issuance of an NCR, non-conforming work shall be removed / replaced from the work unless an exception to the contract documents is accepted by the Departmental Representative.
	.5	The Contractor shall not be entitled to payment for non-conforming work.
	.6	The Contractor shall implement a well-coordinated approach to all operations related to the work and will organize its team and operations in keeping with the goal of doing things right the first time.
1.5 Submittals	.1	Check sheets, NCR, test results, and other documents and forms prepared by the Contractor and completed throughout the project to verify conformance with the contract requirements shall be distributed to the Departmental Representative in electronic format via PSPC's cloud-based document filing system "CentralCollab" within 24 hours of the completion. Submit to the Departmental Representative hardcopies of the same documents, forms, and test results, if requested.

1.6 Non-Conformance Reports

.1 The Contractor shall, and the Departmental Representative may, review the work to determine conformance with the Contract requirements.

.2 Should the Contractor's Quality Control reporting indicate that the work, product, or methodology is not in conformance with the Contract requirements (including the Contractor's submitted plans [Project Specific Health and Safety Plan, Traffic Management Plan, Environmental Protection Plan, Quality Control Plan, etc.]), the Contractor shall:

.1 Prepare an NCR, if requested by the Departmental Representative, to document the deficiency and outline the appropriate action required to correct the deficiency and prevent reoccurrence.

.2 Undertake appropriate corrective action to correct the deficiency in the work and prevent reoccurrence.

.3 Should the Departmental Representative Quality Assurance reporting indicate that the work is not in conformance, the Departmental Representative may issue to the Contractor an NCR with a required response time or direct the Contractor to prepare an NCR.

The Contractor shall then respond to that NCR, within the specified response time, with proposed resolutions and corrective actions. The Departmental Representative will accept or reject the proposed resolution and corrective action proposal. If the proposed resolution is rejected by the Departmental Representative, the Contractor shall resubmit with an alternative response until a solution acceptable to the Departmental Representative is found. Quality Assurance testing and inspection may be performed by the Departmental Representative to determine if the corrective action has provided an acceptable product. Acceptance and rejection will continue until the Departmental Representative determines that a quality product has been achieved.

.4 Should the Departmental Representative find that any component of the Contractor's submitted plans (Project Specific Health and Safety Plan, Traffic Management Plan, Environmental Protection Plan, Quality Control Plan, etc.) are not being adhered to by the Contractor or any member of the Contractor's team, the Departmental Representative may issue an NCR to the Contractor.

.5 If in the opinion of the Departmental Representative it is not viable to correct non-conforming work or work not performed in accordance with Contract Documents, the Departmental Representative may deduct from the Contract Price the difference in value between work performed and that called for by Contract Documents, the amount of which shall be determined by the Departmental Representative.

.6 Payment for the work for which the NCR has been used may be withheld until the NCR issue is resolved.

1.7 Departmental Representative Inspection and Audits

.1 The Departmental Representative may perform quality assurance audits as desired. Such audits will not relax the responsibility of the Contractor to perform work in accordance with Contract Documents.

.2 Allow the Departmental Representative access to the work. If part of the work is in preparation at locations other than the place of work, allow access to such work whenever it is in progress.

.3 If the Contractor covers, or permits to be covered, work that has been designated for Quality Assurance testing, inspections, or approvals before such is made, uncover such work, have inspections or tests satisfactorily completed, and make good such work.

.4 Independent Inspection / Testing Agencies may be engaged by the Departmental Representative for the purpose of Quality Assurance inspection and/or testing of portions of the work. Costs of such services will be borne by the Departmental Representative.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Installation and Removal.

1.2 Scaffolding.

1.3 Hoisting.

1.4 Site Storage / Loading.

1.5 Security.

1.6 Equipment, Tool, and Materials Storage.

1.7 Sanitary Facilities.

1.8 Construction Signage.

1.9 Construction Laydown Area, Construction Parking, and Site Office.

1.10 Power.

1.11 Communications.

1.12 Temporary Heating, Ventilation, and Lighting.

1.13 Fire Protection.

1.14 Construction Equipment.

PART 1 – GENERAL

1.1 Installation and Removal

.1 Provide construction facilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.2 Scaffolding

.1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs as necessary to carry out the Work.

1.3 Hoisting

.1 Provide, operate, and maintain hoists and cranes as necessary for moving of workers, materials, and equipment.

.2 Hoists and cranes shall be operated by qualified operators.

1.4 Site Storage / Loading

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of work with a weight or force that will endanger the work or existing infrastructure.

1.5 Security .1 Provide and pay for responsible security personnel as required.

1.6 Equipment, Tool, and Materials Storage .1 If required by the Contractor, provide and maintain in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with public.

1.7 Sanitary Facilities .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8 Construction Signage .1 No other signs or advertisements, other than those required by Section 01 35 00 – Traffic Management, are permitted on site.

1.9 Construction Laydown Area, Construction Parking, and Site Office .1 Confine construction laydown areas, site office locations, and construction parking to the locations identified below in compliance with Section 01 35 43 – Environmental Protection and acceptable to the Departmental Representative.

.1 Within highway right of way, in areas previously disturbed, off the traveled potion of the highway, off travel portions of all nearby side roads such that access is not impeded, and outside the highway clear zone.

.2 The gravel pit as identified in the figure attached to Appendix K.

.3 Other areas as pre-approved by the Departmental Representative.

1.10 Power .1 Provide and pay for power as required for the completion of the works and operations of construction offices.

1.11 Communications .1 Ensure Contractor's onsite representatives have suitable onsite phone communications allowing the Departmental Representative reliable communication to the Contractors onsite representative when onsite.

1.12 Temporary Heating, Ventilation, and Lighting .1 Provide temporary heating, ventilation, and lighting as required during construction period to facilitate construction of the works.

1.13 Fire Protection

.1 Provide and maintain temporary fire protection equipment during performance of work.

1.14 Construction Equipment

.1 Prior to commencement of construction and periodically throughout the work and whenever requested by the Departmental Representative, provide a detailed list of all construction equipment used on the project (including by sub-contractors). The list shall be as per the format of the "General Contractor & Sub-Contractor Construction Equipment List" found in Appendix G of these specifications and include the size, make, model, and year of manufacture of all equipment. This document should include all equipment used on the project site, including trucks for hauling material.

.2 The Departmental Representative has the right to request additional equipment and/or qualified operators be brought to site should the work appear to be delayed due to lack of equipment or qualified operators.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Installation and Removal.

1.2 Hoarding.

1.3 Guiderails and Barricades.

1.4 Access to Site.

1.5 Public Traffic Flow.

1.6 Fire Routes.

1.7 Protection for Off-site and Public Property.

1.8 Protection of Structure Finishes.

PART 1 – GENERAL

1.1 Installation and Removal	.1	Provide temporary controls in order to execute Work expeditiously.
	.2	Remove from site all such work after use.
1.2 Hoarding	.1	Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures (see Section 01 35 43 – Environmental Protection for more information).
1.3 Guiderails and Barricades	.1	Provide secure, rigid guiderails and barricades around deep excavations and open shafts.
	.2	Provide as required by governing authorities.
1.4 Access to Site	.1	Provide and maintain access roads, ramps and construction runways as may be required for access to Work.
1.5 Public Traffic Flow	.1	Provide and maintain competent signal flag persons, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the Public.
1.6 Fire Routes	.1	Maintain access to property for use by emergency response vehicles.
1.7 Protection for Off-site and Public Property	.1	Protect surrounding private and public property from damage during performance of Work.
	.2	Be responsible for damage incurred.

1.8 Protection of Structure Finishes	.1	Provide protection for finished and partially finished structure finishes and equipment during performance of Work.
	.2	Provide necessary screens, covers and hoardings.
	.3	Confirm with Departmental Representative locations and installation schedule three (3) days prior to installation.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 General Requirements.

1.2 Requirements of Regulatory Agencies.

PART 2 – PRODUCTS:

2.1 Products.

PART 3 – EXECUTION:

3.1 Mobilization.

3.2 Maintenance.

3.3 Demobilization.

PART 1 – GENERAL

1.1 General Requirements

.1 The Contractor shall provide its own construction camp as necessary. Obtain approval from landowner should Contractor choose to setup construction camp. The construction camp shall not be located within PSPC's right-of-way, PSPC's maintenance yards, PSPC's gravel pits / quarries, or on any other land owned or leased by PSPC.

.2 The Contractor shall be responsible for all utility services to the construction camp. The construction camp to be established and operated in accordance with local regulations.

1.2 Requirements of Regulatory Agencies

.1 Obtain necessary licenses and approvals required by Authority having Jurisdiction for authorized use of water and disposal of domestic sewage and other waste.

.2 Comply with Environmental regulations.

PART 2 – PRODUCTS

2.1 Products

.1 Not Used.

PART 3 – EXECUTION

3.1 Mobilization

.1 Mobilize equipment, personnel, and materials as necessary to establish temporary construction camp and offices. Obtain necessary licenses and approvals from authorities having jurisdiction prior to mobilization. Camp and service area location and layout plan to be submitted to Departmental Representative for review and acceptance.

	.2	Temporary construction camps to be established and operated in accordance with local regulations.
3.2 Maintenance	.1	Maintain construction camp and offices in a neat and tidy condition.
3.3 Demobilization	.1	Upon vacating the construction camp, offices and temporary services, clean-up and leave site in a condition satisfactory to the Departmental Representative and the authorities having jurisdiction.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Project Cleanliness.

1.2 Final Cleaning.

PART 1 – GENERAL

1.1 Project Cleanliness

.1 Maintain work in a tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by the Departmental Representative.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide wildlife resistant containers for collection of waste materials and debris.

.5 Dispose of waste materials and debris off site.

.6 Clear snow and ice from areas of work.

.7 Ensure work site cleaning and worker hygiene practices are in accordance with the Federal and Provincial recommendations and the Contractor's COVID-19 Safe Work Plan.

1.2 Final Cleaning

.1 When work is substantially performed, remove surplus products, tools, construction machinery, and equipment not required for performance of remaining work.

.2 Remove waste products, debris, and materials used in construction. Reinstate the work site to the conditions pre-existing and to the satisfaction of the Departmental Representative.

.3 Prior to final review, remove surplus products, tools, construction machinery, and equipment.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Inspect finishes and fitments and ensure specified workmanship and operation.

.6 Remove dirt and other disfiguration from exterior surfaces.

.7 Sweep and wash clean Bituminous Surface Treatment (BST) finished areas.

.8 Clean drainage systems.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Substantial Performance.

1.2 Completion.

PART 1 – GENERAL

1.1 Substantial Performance

.1 Project "Substantial Performance" shall be attained through the following process:

.1 When the project work has achieved Substantial Performance as defined by GC1.1.4, the Contractor and all subcontractors shall conduct an inspection of work, identify deficiencies and defects and repairs as required to conform to Contract Documents. Correct deficiencies and defects and complete repairs identified.

.2 Notify the Departmental Representative in writing of completion of the Contractor's Inspection, correction of deficiencies, defects, and repairs, and request the Departmental Representative's Substantial Performance inspection.

.3 Upon request from the Contractor, the Departmental Representative will complete a Substantial Performance inspection. If requested by the Departmental Representative, the Contractor shall accompany Departmental Representative during the Substantial Performance inspection.

.4 Unless stated otherwise by the Departmental Representative, the Contractor shall correct all deficiencies, defects, and repairs identified during the Substantial Performance inspection by the Departmental Representative prior to the preparation of the "Certificate of Substantial Performance".

.5 Should the Departmental Representative determine that Substantial Performance as defined by GC1.1.4 has been achieved, the Contractor shall prepare a "Request for Progress Payment" with the final project quantities and all Progress Payment submissions as outlined in Section 01 29 00 – Payment Procedures. The Departmental Representative will use the submitted "Request for Progress Payment" to prepare a "Certificate of Substantial Performance" in accordance with GC 5.5.

.6 Should the "Certificate of Substantial Performance" include remaining defects, faults, and incomplete work, the Contractor shall provide to the Departmental Representative a schedule for the completion / correction of each remaining defects, faults, and incomplete work. The "Certificate of Substantial Performance" will not be processed for payment until the Contractor's schedule has been provided, reviewed and accepted by the Departmental Representative. The Contractor's schedule shall be provided in writing as follows:

.1 Include the completion / correction dates for all items of defects, faults, incomplete work. identified by the Departmental Representative.

.2 Be provided in a letter with Contractor's company letterhead and be signed by an authorized representative of the Contractor.

1.2 Completion

.1 The project shall be deemed to have reached "Completion" when all requirements of GC1.1.5 have been achieved. The "Certificate of Completion" shall then be prepared by the Departmental Representative in accordance with GC5.6.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Submissions.

1.2 Recording As-built Conditions (As-Built Drawings).

1.3 As-Built Survey.

PART 1 – GENERAL

1.1 Submissions

.1 Submit to the Departmental Representative submissions for review. Following each review, the submission will be returned with the Departmental Representative's comments. Revise and re-submit submission per the comments provided.

.2 Provide the following submissions to the Departmental Representative within two (2) weeks of substantial performance:

.1 As-built drawing mark-ups.

.2 As-built survey.

1.2 Recording As-built Conditions (As-built Drawings)

.1 The Departmental Representative will provide one set of "Issued for Construction" drawings (or "Issued for Tender" drawings if being used for construction) for use by the Contractor to record as-built conditions and submit at the completion of the project as the "As-built Drawings".

.2 Record information concurrently with construction progress on the "Issued for Construction" (or "Issued for Tender") drawings. Do not conceal work until the required information is recorded.

.3 Legibly mark each item on the "Issued for Construction" (or "Issued for Tender") drawings in red ink to record actual construction conditions and any changes made by addenda and/or Change Orders.

.4 Maintain record documents in clean, dry, and legible condition.

.5 Keep record documents available for inspection by the Departmental Representative.

.6 Submit to the Departmental Representative one copy of "Issued for Construction" (or "Issued for Tender") drawings which have been marked up by the Contractor to include all "as-built" conditions.

1.3 As-Built Survey

.1 At the completion of the work, complete an as-built survey of the works. At a minimum the survey shall include.

.1 Topo of all areas disturbed and modified during construction (between limits of clearing including cut and fill slopes).

.2 Any other feature or elements of work incorporated into the project.

.2 The survey to include sufficient point density to adequately characterize the work. Survey methods and point density is subject to prior approval of the Departmental Representative. At a minimum the Contractor shall survey all features at 20 m station intervals and the location of all treatment boundaries including changes in material type, and changes in terrain.

.3 Survey data shall be collected at an accuracy of +/- 0.020 m horizontal and +/- 0.020 m vertical or better and shall be referenced / tie into PSPC's monument / coordinate system as shown on the Contract Drawings.

.4 The following files shall comprise the as-built survey provided to the Departmental Representative:

.1 Digital csv file with the xyz data and an appropriate descriptor code as to the type of material surface or feature being surveyed.

.2 Breaklines for all survey data in DXF file formation or another format pre-approved by the Departmental Representative.

.3 A list of all point descriptors used in the survey data.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL

1.1 Definitions

.1 Dangerous Goods: Product, substance, or organism that is specifically listed or meets the hazard criteria established in Transportation of Dangerous Goods Regulations.

.2 Hazardous Material: Product, substance, or organism that is used for its original purpose and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

.3 Hazardous Waste: Any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment, or disposal.

.4 Workplace Hazardous Materials Information System (WHMIS): A Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, information on hazardous materials is to be provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by a combination of federal and provincial laws.

1.2 Submittals

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

.2 If requested by the Departmental Representative, submit to the Departmental Representative a current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.

.3 If requested by the Departmental Representative, submit Hazardous Materials Management Plan to the Departmental Representative that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.3 Storage and Handling

.1 Abide by internal requirements for labeling and storage of materials and wastes. If required coordinate storage of hazardous materials with the Departmental Representative.

.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

.4 Store all flammable and combustible liquids in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval.

.5 Transfer of flammable and combustible liquids is prohibited within buildings.

.6 Transfer of flammable and combustible liquids will not be carried out in the vicinity of open flames or any type of heat-producing devices.

.7 Flammable liquids having a flash point below 38°C, such as naphtha or gasoline, will not be used as solvents or cleaning agents.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in a safe, ventilated area. Keep quantities to a minimum.

.9 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.

.10 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 L for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers that are in good condition.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are not mixed.

.6 Store hazardous materials and wastes in a secure storage area with controlled access.

.7 Maintain a clear egress from storage area.

.8 Store hazardous materials and wastes in a manner and location which will prevent them from spilling into the environment.

.9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.

.10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 Ensure personnel have been trained in accordance with WHMIS requirements.

.12 Report spills or accidents involving hazardous materials immediately to the Provincial Emergency Program 24-hour phone line at 1-800-663-3456, other local authority having jurisdiction, and the Departmental Representative. Submit a written spill report to the Departmental Representative within 24 hours of any incident.

.13 Store and handle all hazardous materials away from any watercourse as outlined in Section 01 35 43 – Environmental Protection.

1.4 Transportation

.1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.

PART 2 – PRODUCTS

2.1 Materials

.1 Only bring on site the quantity of hazardous materials required to perform the work.

.2 Maintain MSDS in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 – EXECUTION

3.1 Disposal

.1 Dispose of hazardous waste materials in accordance with applicable Federal and Provincial acts, regulations, and guidelines. Costs for disposal to be considered incidental to the work.

.2 Recycle hazardous wastes for which there is an approved, cost-effective recycling process available.

.3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in a timely fashion in accordance with applicable provincial regulations.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 Definitions.

1.3 Protection.

PART 2 – PRODUCTS:

2.1 Products.

PART 3 – EXECUTION:

3.1 Preparation.

3.2 Tree Clearing.

3.3 Removal and Disposal.

3.4 Finished Surfaces.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Payment for Tree Clearing will be made on the basis of the Price per Unit Bid for Tree Clearing in the Bid and Acceptance Form. The Price per Unit Bid shall include all costs for clearing/chipping of trees and brush, offsite disposal, and all other items necessary for successful completion of the work.

.2 Measurement for Payment for completion of Tree Clearing will be made on the total area within the limits of Tree Clearing shown on the Contract Drawings, surveyed in Hectares, incorporated in the works, and accepted by the Departmental Representative.

.3 Payment for Grubbing shall not be made and shall be considered incidental to Section 31 23 33 – Excavation and Backfill.

1.2 Definitions

.1 Tree Clearing: cutting off trees, brushing vegetative growth to ground level leaving the root structure undisturbed and disposing of felled trees, previously uprooted trees and stumps, and surface debris via chipping.

.2 License to Cut: License required under Province of British Columbia's Forest Act that authorizes a Contractor to salvage and remove timber from Crown Land.

1.3 Protection	.1	Prevent damage to natural features and man-made structures which are to remain.
	.2	Repair any damage caused by Tree Clearing operations and if damaged, replace any trees designated to remain.

PART 2 – PRODUCTS

2.1 Products	.1	Not used.

PART 3 – EXECUTION

3.1 Preparation	.1	Inspect the site and verify with the Departmental Representative the limits of Tree Clearing, the location of Geotechnical Monitoring Instruments to be protected during the works, and any other items designated to remain.
	.2	Unless advised otherwise, receive from the Departmental Representative the License to Cut prior to undertaking the work.
3.2 Tree Clearing	.1	Clear trees, uprooted stumps, vegetative growth, and surface debris within the limits of Tree Clearing as shown on the Contract Drawings and as directed by the Departmental Representative.
	.2	Cut off branches and cut down trees overhanging area to be cleared.
3.3 Removal and Disposal	.1	Dispose of cleared materials by chipping, mulching or removal offsite. Burning of cleared materials shall not be permitted.
3.4 Finished Surfaces	.1	Following completion of Tree Clearing, but prior to commencement of Excavation activities, submit to the Departmental Representative for review and acceptance survey of the existing ground surface (see Section 01 29 00 – Payment Procedures, Item 1.3 – Survey for further details).
	.2	Leave ground surface in a condition suitable for excavation of existing ground.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 References.

1.3 Definitions.

PART 2 – PRODUCTS:

2.1 Riprap.

2.2 Nonwoven Geotextile.

PART 3 – EXECUTION:

3.1 Geotechnical Monitoring Instruments.

3.2 Excavation – General.

3.3 Excavation – Interceptor Ditches and Lateral Swales.

3.4 Stockpiling of Excavation Materials.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Payment for Excavation will be made on the basis of the Price per Unit Bid for Excavation in the Bid and Acceptance Form. The Price per Unit Bid shall include all costs for excavation of natural ground as shown on the Contract Drawings (including stumps, roots and frozen ground located within the limits of excavation), snow and ice removal prior to excavation of natural ground (if required), dewatering (if required), loading, transport (including any maintenance required to gain access) and stockpiling of excavated material at the gravel pit identified in Appendix K (turn-off from the highway at Km 366.3 of the Alaska Highway) or at an alternative stockpile location selected by the Contractor outside of PSPC's ROW, and clearing of construction debris from the highway driving surface (as required to provide a clean driving surface), and all other items necessary for successful completion of the work.

.2 Measurement for Payment for completion of Excavation will be made on the in-situ volume of material surveyed in cubic metres (i.e. volume prior to excavation), excavated from the limits of the work, transported offsite, and accepted by the Departmental Representative. Any areas within the excavation limits with existing ground below bottom of proposed excavation shall be filled with material excavated

from other areas of the excavation. This excavated material used as fill and remaining onsite shall not be measured for payment. The surveyed quantity shall include material excavated for the Offtake Ditch. The surveyed quantity shall exclude material excavated for the Interceptor Ditches, Lateral Swales, and snow or ice removed from the cut slopes to facilitate the work. No separate measurement or payment for hauling the material will be made.

.3 Payment for Lateral Swale and Interceptor Ditch will be made on the basis of the Price per Unit Bid for Lateral Swale and Interceptor Ditch in the Bid and Acceptance Form. The Price per Unit Bid shall include all costs for excavation of natural ground as shown on the Contract Drawings (including stumps, roots and frozen ground located within limits excavation limits), dewatering (if required), loading, transport and stockpiling of excavated material at the gravel pit identified in Appendix K (turn-off from the highway at Km 366.3 of the Alaska Highway) or at an alternative offsite stockpile location selected by the Contractor outside of PSPC's ROW, and all other items necessary for successful completion of the work. The price per unit bid of Lateral Swale shall further include the supply, transport, and placement of nonwoven geotextile and riprap in the locations, grades, and thicknesses shown on the Contract Drawings.

.4 Measurement for Payment for completion of Lateral Swale and Interceptor Ditch will be made on the length of Lateral Swale and Interceptor Ditch constructed and surveyed in linear metres, measured parallel to the direction of the Interceptor Ditch along the invert, completed in accordance with the Contract Drawings and to the satisfaction of the Departmental Representative. The length of Lateral Swale measured for payment shall include the length of riprap placed in the bottom of the highway ditch.

1.2 References

.1 British Columbia Ministry of Transportation and Infrastructure (BC MoTI) – 2016 Standard Specifications for Highway Construction.

1.3 Definitions

.1 Excavation: excavation of materials that are not rock excavation.

.2 Rock excavation: Includes bedrock, boulder, or loose rock fragments larger than 1.5 m^3 and require blasting to facilitate excavation with a 20 tonne or larger excavator equipped with a rock bucket.

PART 2 – PRODUCTS

2.1 Riprap .1 Riprap shall be in accordance with Section 31 37 00 – Riprap.

2.2 Nonwoven Geotextile .1 Nonwoven Geotextile shall be in accordance with Section 31 37 00 – Riprap.

PART 3 – EXECUTION

3.1 Geotechnical Monitoring Instruments .1 Active geotechnical monitoring instruments (slope inclinometers, vibrating wire piezometers, and standpipe piezometers) are present within the limits of excavation listed in Table 31 23 33 – 01: Geotechnical Monitoring Instrument Locations. The Contractor is responsible to locate and adequately mark (e.g. using concrete lock blocks, flagging tape, or by other means proposed by the Contractor and acceptable to the Departmental Representative) the geotechnical monitoring instruments prior to undertaking work onsite.

Table 31 23 33 – 01: Geotechnical Monitoring Instrument Locations

Instrument #	UTM Zone 10 V	
	Easting (m)	Northing (m)
TH20-01	516,466	6,432,696
TH20-02	516,371	6,432,484

.2 The Contractor shall provide the Departmental Representative a minimum of two (2) days' notice prior to undertaking works within 5 m of the monitoring stations. The Contractor shall ensure all excavation work within 5 m of monitoring instruments is completed under direct supervision by a representative of the Contractor.

.3 Notify the Departmental Representative at the beginning of each day prior to commencing excavation within 5 m of the geotechnical monitoring instruments.

.1 The Departmental Representative will remove and set aside the geotechnical monitoring instrument protective casing, data logger, and associated cables when the Contractor is completing excavation works within 5 m of the geotechnical monitoring instruments. At the end of each day when the Contractor is completing excavation works within 5 m of the geotechnical monitoring instruments, the Departmental Representative will replace the geotechnical monitoring instrument protective casing, data loggers, and associated cables.

3.2 Excavation – General

.1 Following completion of Tree Clearing, but prior to commencement of Excavation activities, submit to the Departmental Representative for review and acceptance survey of the existing ground surface (see Section 01 29 00 – Payment Procedures, Item 1.3 – Survey for further details).

.2 Carry out excavations in compliance with WorkSafeBC Workers' Compensation Act and / or the BC Occupational Health and Safety Regulations, as applicable.

.3 Commence Excavation following completion and acceptance of Tree Clearing by the Departmental Representative.

.4 Excavate native materials (including, if necessary, frozen ground, stumps, and other remaining debris from tree clearing) within +/- 50 mm of the lines and grades as indicated on the Contract Drawings but not uniformly high or low. Any areas within the excavation limits with existing ground below the bottom of proposed excavation shall be filled with material excavated from other areas of the excavation.

.5 During excavation maintain profiles, crowns and cross slopes to ensure good surface drainage. Provide ditches as work progresses to ensure sufficient surface drainage of work area (i.e. no low spots which would lead to potential ponding of water).

.6 Maintain and protect geotechnical monitoring instruments from damage as shown on the Contract Drawings. See Item 3.1 – Geotechnical Monitoring Instruments of this Specification Section for further details.

.7 Complete all work within the project limits in accordance with the Contractor's EPP prepared for this work. See Section 01 35 43 – Environmental Protection for more details.

.8 Use care during Excavation activities to prevent destabilization, deformation or overloading of the existing cut slopes and highway embankment. To achieve this requirement, the Contractor may need to immediately load for offsite disposal all excavated material (no onsite stockpiles).

.9 Rock excavation is not anticipated on this project. If during excavation, material appearing to conform to the definition for Rock Excavation is encountered, notify Departmental Representative and await instructions from the Departmental Representative before proceeding.

.10 Complete Optional Work as directed by the Departmental Representative. Should not all of the Optional Work be completed, transition the excavation undertaken to match to the existing ground over a minimum of 10 meter or longer length as directed by the Departmental Representative. Ensure positive drainage within the area of transition.

3.3 Excavation – Interceptor Ditches and Lateral Swales

.1 Excavate the Interceptor Ditches and Lateral Swales starting at the downstream end and working upgrade. Complete excavations to the depths, lines, and grades indicated on the Contract Drawings. The extents and locations of the Interceptor Ditch and Lateral Swale excavations will be verified in the field by the Departmental Representative and may be relocated or adjusted at any time during the work to suit field conditions. Dispose offsite all excavated materials (no excavated materials shall remain onsite).

.2 Complete excavations to within + 50 mm / - 100 mm (but not uniformly high or low) of the depths, lines, grades, and dimensions as indicated on the Contract Drawings or as directed by the Departmental Representative. Ensure positive drainage with the minimum slope as indicated on the Contract Drawings along the entire length of the Interceptor Ditches and Lateral Swales.

.3 The ground surface next to the Interceptor Ditch and Lateral Swale excavations shall not be unnecessarily loaded by equipment, supplies, or stockpiles of material. To prevent destabilization, deformation, or overloading of the existing cut slopes the Contractor may need to immediately load for offsite disposal all excavated material (no onsite stockpiles). The unnecessary use of vibratory equipment around the Interceptor Ditch and Lateral Swale excavation shall not be permitted.

.4 Dewater excavations by sumps and pumps, if required, to limit sloughing of material.

.5 Install Nonwoven Geotextile and Riprap in the Lateral Swales to the lines and grades shown on the Contract Drawings and in accordance with Section 31 37 00 – Riprap.

.6 Complete Optional Work as directed by the Departmental Representative. Should not all of the Optional Work be completed, transition the excavation, geotextile and Riprap installed to match to the existing ground over a length as directed by the Departmental Representative. Ensure positive drainage within the area of transition.

3.4 Stockpiling of Excavation Materials

.1 Stockpile excavated material at the gravel pit identified in Appendix K (turn-off from the highway at Km 366.3 of the Alaska Highway) as directed by the Departmental Representative, or at an alternative stockpile location outside of PSPC's ROW selected by the Contractor, permitted to accept the excavated material, and acceptable to the Departmental Representative.

.2 Should the Contractor elect to dispose of the excavated material at the gravel pit identified in Appendix K, the Contractor shall ensure the following is achieved:

.1 Stockpile excavated material in uniform layers no greater than 1 m in thickness. Ensure excavated material is not placed in ditches or interferes with the established drainage patterns. During stockpiling operations, prevent snow and ice from becoming intermixed with excavated material.

.2 Ensure ready run-off of surface water following stockpiling of excavated material, to the satisfaction of the Departmental Representative.

.3 Ensure that both during and at the completion of the project PSPC's gravel pit and access road to the gravel pit is maintained in an equal or improved condition than prior to work commencing.

END OF SECTION

SECTION INCLUDES

PART 1 – GENERAL:

1.1 Measurement and Payment Procedures.

1.2 References.

1.3 Submittals.

1.4 Quality Management.

PART 2 – PRODUCTS:

2.1 Riprap.

2.2 Nonwoven Geotextile.

PART 3 – EXECUTION:

3.1 Placement of Nonwoven Geotextile.

3.2 Placement of Riprap.

PART 1 – GENERAL

1.1 Measurement and Payment Procedures

.1 Measurement and Payment for Riprap shall be per the applicable work included in Section 31 23 33 – Excavation and Backfill, and any other section as required by these Contract Specifications.

1.2 References

.1 British Columbia MoT – 2016 Standard Specifications for Highway Construction.

.2 American Society for Testing and Materials (ASTM), latest edition.

.1 ASTM C127, Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.

.2 ASTM D5519, Standard Test Methods for Particle Size Analysis of Natural and Man-Made Riprap Materials.

.3 ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

.4 ASTM D6241, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.

.5 ASTM D4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

.6 ASTM D4751, Standard Test Methods for Determining Apparent Opening Size of a Geotextile.

.7 ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.8 ASTM D4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc-Type Apparatus.

1.3 Submittals

.1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.4 Quality Management

.1 Quality Control and Quality Assurance in accordance with Section 01 45 00 – Quality Management.

.2 Complete Quality Control as necessary to ensure the gradation and material properties of the Riprap is in conformance with the Contract requirements.

.3 In addition to the Quality Control undertaken by the Contractor, the Departmental Representative may undertake, through an independent testing firm, random sampling, inspection, and testing for the purpose of Quality Assurance.

.4 Provide access to all portions of the work for sampling by the Departmental Representative.

.5 Riprap that does not meet specified tolerance or quality for intended use are subject to rejection.

PART 2 – PRODUCTS

2.1 Riprap

.1 The Contractor shall source Riprap for the project from the following options:

.1 The gravel pit identified in Appendix K (turn-off from the highway at Km 366.3 of the Alaska Highway). Various sizes of Riprap may be available for use by the Contractor as Riprap or the Contractor may have to manufacture Riprap from the in-situ materials. The Contractor will be responsible for sorting through and stockpiling rock and selecting appropriate rock size or manufacturing the appropriate rock size. Should the Contractor choose to manufacture the rock using blasting, the Contractor shall be responsible to obtain all necessary permits.

.2 Alternative sources outside the highway Right-of-Way (no additional cost to the Contract).

.2 Regardless of the Riprap source, the Riprap shall conform with the following requirements:

.1 Stone consisting of hard durable particles free from clay lumps, frozen material and other deleterious materials, and free from splits, seams or defects likely to impair its soundness during handling or under action of water.

.2 Is a graded material conforming with the following gradation limits:

Table 31 37 00 – 01: 25 Kg Class Riprap

Mass (kg) *	Nominal Diameter @ 2640 kg/m^3 (mm)	Percent Greater Than
150	500	0
75	400	15
25	300	50
2.5	130	85
1	90	100

* Mass governs the gradation of Riprap. Nominal diameter is provided for informational purposes only. Nominal size is defined according to the following expression: Nominal Size (mm) = 1150 times the cube root of the mass (kg) divided by the density of the rock (kg/m^3).

.3 Neither the breadth nor the thickness of any individual piece of Riprap material is to be less than on third of its length. A maximum of 2.0 percent by weight of such pieces will be permitted.

.4 Have a relative density: to ASTM C127, not less than 2.65.

.3 The Riprap shall be stockpiled at the site for inspection by the Departmental Representative prior to placement. Stockpiles for inspection shall contain a minimum of 10 tonnes of material.

2.2 Nonwoven Geotextile

.1 The Nonwoven Geotextile shall achieve or exceed the following minimum requirements:

Table 31 37 00 – 02: Nonwoven Geotextile

Property	Test	Unit	Value
Grab Tensile Strength	ASTM-D4632	N (lb)	1335 (300)
Elongation	ASTM-D4632	%	50
CBR Puncture	ASTM-D6241	N (lb)	3671 (825)
Trapezoidal Tear	ASTM-D4533	195	512 (115)
Apparent Opening Size	ASTM-D4751	Mm (US Sieve)	0.150 (100)
Permittivity	ASTM-D4491	sec^{-1}	1.0
Water Flow Rate	ASTM-D4491	$l/m/m^2$ (gpm/ft^2)	3056 (75)
UV Resistance	ASTM-D4355	% retained at 500 hrs	70

PART 3 – EXECUTION

3.1 Placement of Nonwoven Geotextile

.1 Excavate the Lateral Swale in accordance with Section 31 23 33 – Excavation and Backfill to facilitate installation of Nonwoven Geotextile and Riprap to the lines and grades shown on the Contract Drawings.

.2 Place Nonwoven Geotextile on a clean surface, properly shaped per the lines and grades shown in the Contract Drawings and free from debris, snow and ice or other deleterious material.

.3 Place Nonwoven Geotextile material by unrolling onto excavated / graded surface in orientation, manner and locations indicated on Contract Drawings and retain in position with pins. All Nonwoven Geotextile placed on a slope shall at a minimum be secured with pins a minimum 300 mm long every 2 m² of Nonwoven Geotextile.

.4 Place Nonwoven Geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.5 Place Nonwoven Geotextile on sloping surfaces in one continuous length from toe of slope to upper extent of Nonwoven Geotextile.

.6 Overlap each successive strip of Nonwoven Geotextile 1000 mm over previously laid strip. When Nonwoven Geotextile are placed on a slope, ensure overlap is as follows:

.1 Nonwoven Geotextile placed higher on slope is placed above Nonwoven Geotextile placed lower on slope.

.7 Pin successive strips of Nonwoven Geotextile with securing pins at 1000 mm interval at midpoint of lap.

.8 Protect installed Nonwoven Geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.9 Replace damaged or deteriorated Nonwoven Geotextile to approval of the Departmental Representative.

.10 Construction equipment is not permitted on the Nonwoven Geotextile at any stage of construction.

.11 Upon acceptance by the Departmental Representative, place succeeding material as shown on the Contract Drawings.

3.2 Placement of Riprap

.1 The Riprap material shall be loaded, transported, and placed with care to ensure that material does not break or reduce in size smaller than the actual material size requirements when placed.

.2 Place Riprap materials on a clean surface, properly shaped per the lines and grades shown in the Contract Drawings and free from debris, snow and ice or other deleterious material.

.3 Riprap materials shall be placed to the lines and thickness shown on the Contract Drawings. The finished surface of the Riprap shall provide positive drainage at all times and be within +200 mm / -100 mm of the finished design grades but not uniformly high or low.

.4 Place Riprap material using methods that do not lead to segregation or degradation of aggregate. Do not place by end dumping from haul units.

.5 Do not drop Riprap from a height greater than 0.5 m vertically from its final position.

.6 Place Riprap commencing at the toe of the slope and proceeding up the slope. Material shall be densely placed and individual stones shall be worked with placement equipment to form a well-keyed surface.

.7 Riprap not conforming to the requirements of this Section shall be removed from the project site with the expense of the removal borne by the Contractor.

.8 The Contractor shall ensure that the construction methods adopted produces a finished surface that is comprised of the full spectrum of particle sizes continuously throughout its length and breadth.

.9 Dress all Riprap voids so that the final surface is well keyed, densely placed, and uniform. The Departmental Representative will require that all surface voids be filled into which a rock having a mass equal or greater than 25% of the maximum stone mass can be placed.

.10 Construction equipment is not permitted on the Riprap at any stage of construction.

.11 Maintain finished material surfaces in a condition conforming to these specifications until acceptance.

END OF SECTION

R.119901.003
Appendix A

Written Communication / Document Management Protocol

Km 357.2 to Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization Project: Written Communication / Document Management Protocol

Communication for the Km 357.2 to Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization Project (R.119901.003) will occur using CentraCollab, email, telephone, and through the delivery of hardcopy documents (if requested by PSPC). CentraCollab will act as the primary communication and document management tool throughout the project. It will act as the central file storage location for all project documents, allows for retrieval of these documents at any time during the project by group members and is capable of storing and sharing large electronic files.

Email and telephone may be used for general communication, transitory information and other communications where a record is not considered necessary (e.g. day-to-day coordination, in-depth discussion of project elements, etc.). Email shall not be used for the submission of deliverables or other project documentations. Email contact information for project members is provided in the project contact list.

Hardcopy documents are to only be provided if specifically requested by PSPC. The Departmental Representative will provide the Contractor with the necessary address information at the time of the request. Material samples shall be provided directly to the testing lab specified by the Departmental Representative for Quality Assurance purposes or be delivered to the project site.

CentralCollab

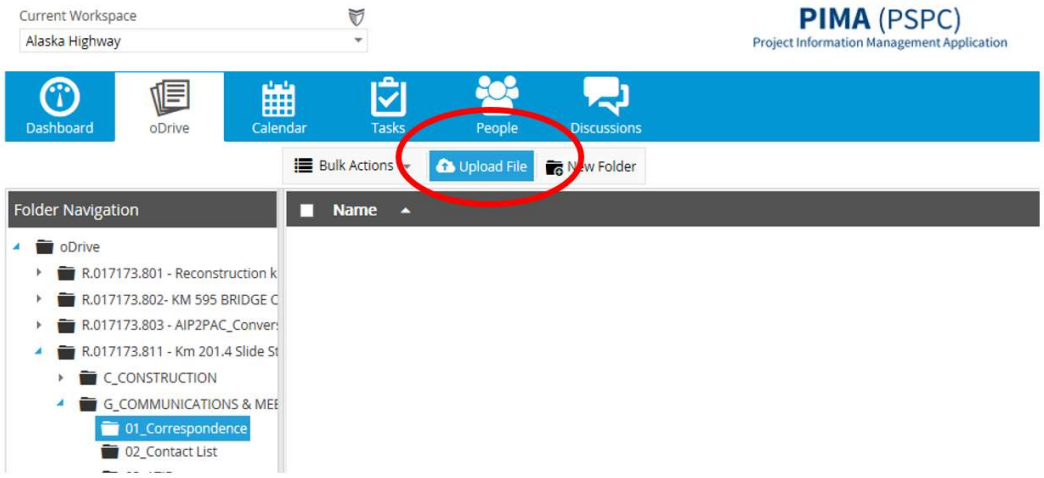
CentralCollab is a web-based collaborative platform that is used to submit and store project documentation. It is the responsibility of the submitting party to upload documents to CentralCollab in the correct folder and with the correct file naming convention.

CentralCollab can be accessed at the following address: https://app.centralcollab.com/
The contractor is encouraged to have CentralCollab accounts for project team members who are involved with accessing or posting project documentation. Accounts can be created by PSPC throughout the project by contacting the PSPC project team.

Project documentation includes but is not limited to submittals, deliverables, drawings, reports, meeting minutes, project schedules, notifications, contemplated change notices, change orders, etc.

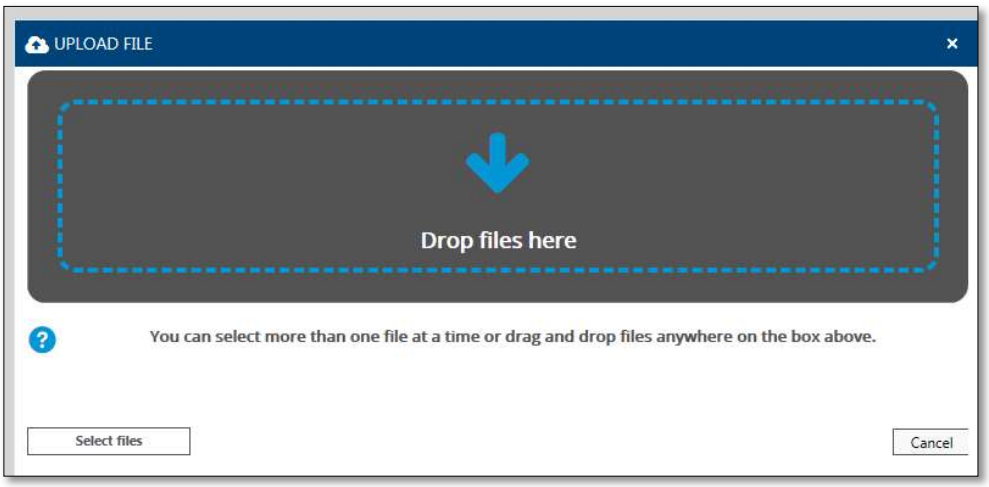
1 Uploading to CentralCollab

Upload individual documents to the appropriate folder on CentralCollab. For folder names, refer to Table 2 of this document. To add files, click on **Upload File**:

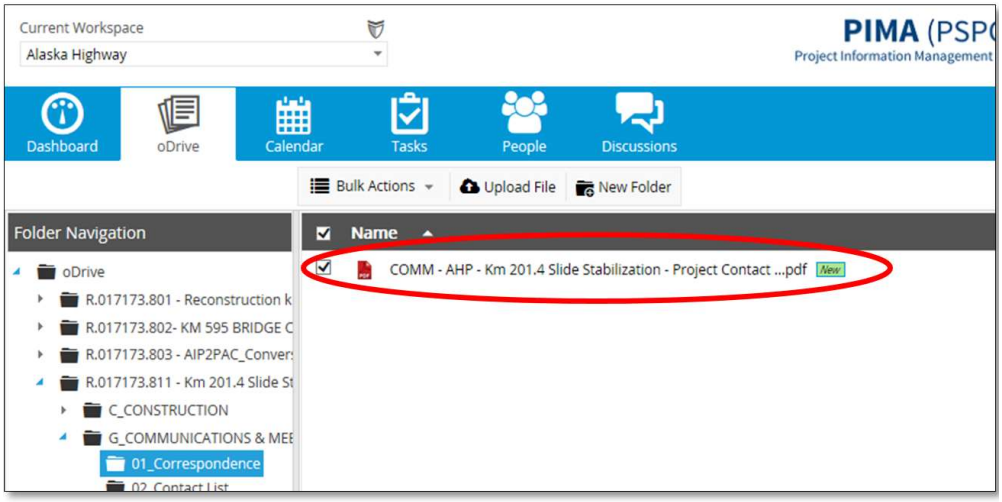


Drag and drop your document(s), then press Save.

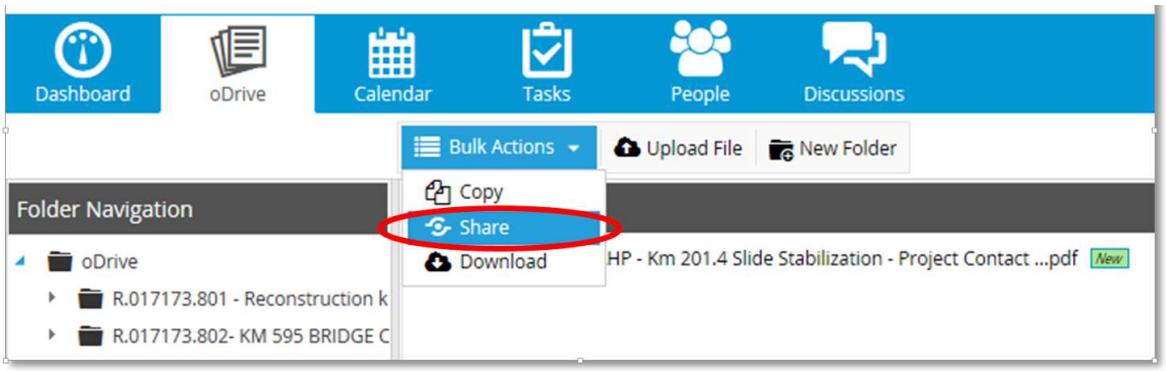
NOTE: Make sure you have named your document correctly, as explained in Section 2.2 CentralCollab File Naming Convention.



Once saved, you will see your new document (circled below), but no one else will be notified until you share it.

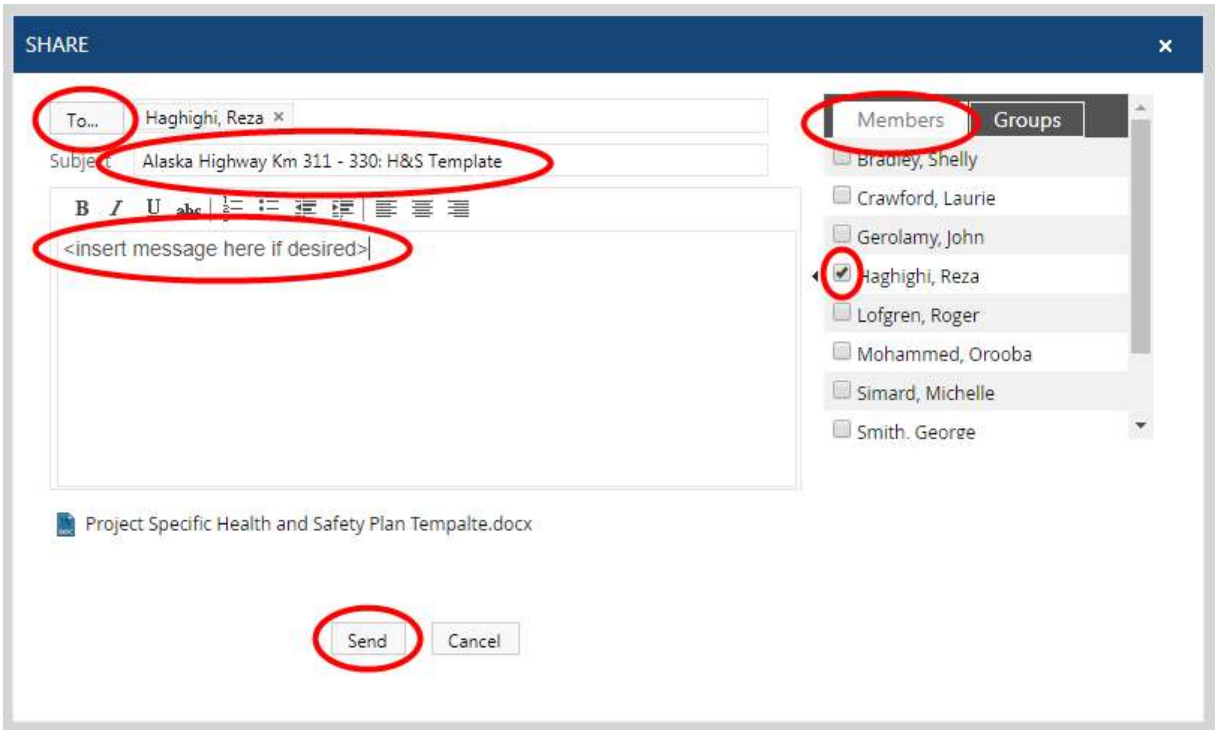


To **notify members** of the new document, check the box next to the document √ then click **Bulk Actions > Share** :

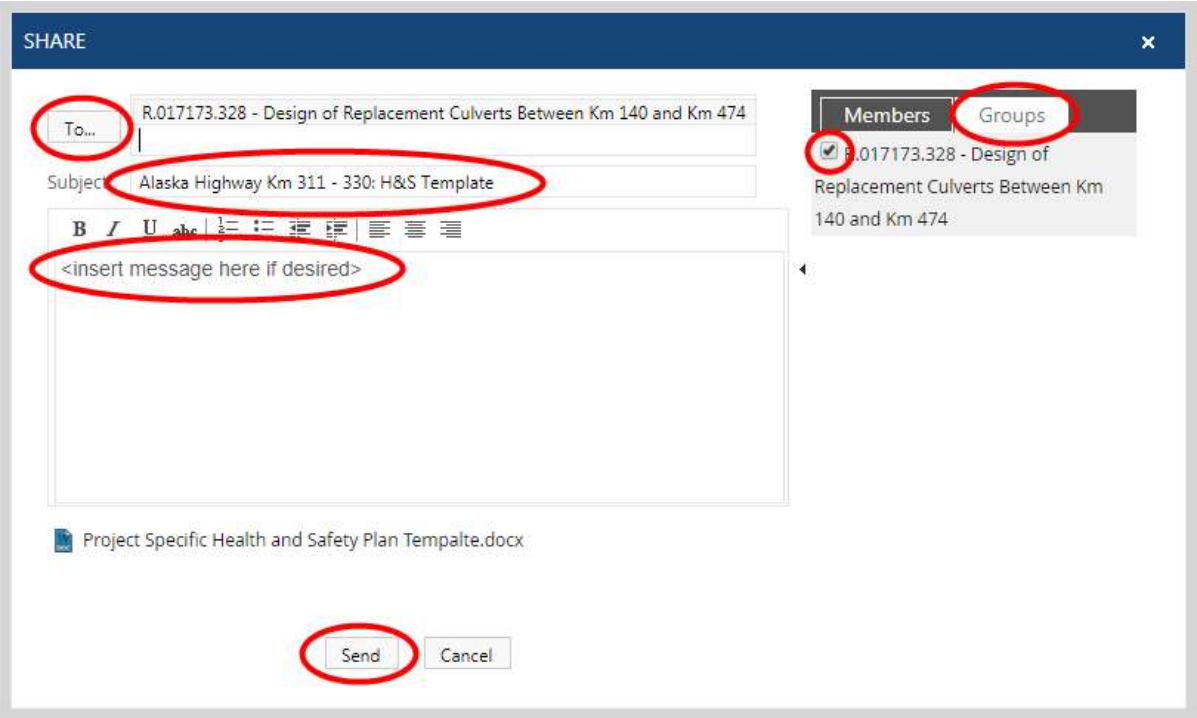


Once the new window opens, select **To,** and then select the **Members** tab and all Members from whom you wish to notify (as directed during the pre-constriction meeting or otherwise by PSPC) or select the **Groups** tab and select the pre-set group:

Example – Notification Members:


SHARE
To...
Haghighi, Reza
Subject
Alaska Highway Km 311 - 330: H&S Template
<insert message here if desired>
Members
Groups
Bradley, Shelly
Crawford, Laurie
Gerolamy, John
Haghighi, Reza
Lofgren, Roger
Mohammed, Orooba
Simard, Michelle
Smith, George
Project Specific Health and Safety Plan Tempalte.docx
Send
Cancel

Example – Notification Pre-set Group (if available):



Insert a message related to the uploaded submittal in the subject line and if desired in the form before sending. Then press **Send**. An email with the link to the document will then provide to all individuals notified with a copy of this email provided to the sender.

2. CentralCollab File Naming Convention:

All CentralCollab users shall upload files named according to the following convention:

Doc Type – AHP – Km 357.2 to Km 358.2 Project – File Description or Document Name – YYYY MM DD

Example file names:

- Plan – AHP – Km 357.2 to Km 358.2 Project – Traffic Management Plan – 2020 10 01
- Schedule – AHP – Km 357.2 to Km 358.2 Project – Project Schedule – 2020 10 01
- Finance – AHP – Km 357.2 to Km 358.2 Project – Progress Payment 01 – 2020 10 01

The file description should clearly identify the document. The Document type should be selected from the options provided in Table 1:

Table 1: Document Type Options	
Document Type Acronym	**Description**
Comm	Communication related docs; correspondence, letters, memos, briefing notes, contact lists
Contract	Request for Information (RFI), Contemplated Change Notices (CCN), Change Orders (CO)
Email	Emails
Draw	Drawings and site plans
Finance	Project financial documentation
Image	All non-drawing images, photos etc.
Minutes	Meeting minutes, agendas, and associated documents
Plan	Planning documents, BMPs, SOPs, workplans
Report	Reports of all types- most frequently used for consultant deliverables
Schedule	Any project related schedules
Specs	Specs and terms of references
Other	Other document types, project specific, one-off documents

3. CentralCollab Folder Arrangement:

All files must be uploaded to the correct folder in CentralCollab. To aid in the filing of documents, a listing of common filing / folder locations has been prepared as shown in Table 2.

Table 2: Common Document Filing / Folder Locations	
Folder Names	**Description of Typical Documents**
CentralCollab folder: R.119901.003 – Km 357.2 to Km 358.2 Project > C_CONSTRUCTION > Contract >	
01_Contract	Contract Documents (typically related to documents posted to Buyandsell.gc.ca)
02_Request for Information	Request for Information from Contractor
03_Permits	Permits obtained by Contactor or PSPC
04_Site Instructions	Site Instructions (typically generated by PSPC)
05_CCN	Contemplated Change Notice forms generated by PSPC and pricing responses from Contractor

Table 2: Common Document Filing / Folder Locations	
Folder Names	**Description of Typical Documents**
06_Change Orders	Change Orders (typically generated by PSPC)
07_Progress Payments	Progress Payment documents (as instructed by PSPC)
08_Field Reviews	Field Review forms (typically generated by PSPC)
09_Health & Safety	Health and Safety related documentation including Project Specific Health and Safety Plan, Tailgate Safety Meeting documentation, and other Health and safety related submittals.
10_Testing Services	Testing Reports completed by Contractor's QC
11_Environmental Plan	Environmental Protection Plan and other environmental related documents
12_Environmental Reporting	Environmental monitoring reports generated by the Contractor's environmental monitor
13_Shop Drawings	Shop drawing submissions provided by the Contractor as required by the contract specifications
14_Deliverables	Contractor Deliverables as required by the contract specifications throughout the project including such items as: • Project Schedule • Traffic Management Plan • Construction Staging Drawings • Culvert Mill Certificates • Other supplier information as needed
15_Deficiency List	Deficiency lists (typically generated by PSPC)
16_Certificate of Substantial Performance	Certificate of Substantial Performance as generated by PSPC
17_Certificate of Completion	Certificate of Completion as generated by PSPC
18_Claims	Documentation related to any claims on the project
19_Contract Close out	Documentation related to contract closeout including closeout submittals such as: • As-built Surveys • As-built Redline Drawing Mark-ups • Warranties • Instruction Manuals
20_Advisory	Advisories in response to RFIs or other notices as generated by PSPC.
21_Quality Management	Quality control and Quality Assurance documentation generated by the Contractor and PSPC • Quality Management Plan • Check Sheets • Daily Reports

Table 2: Common Document Filing / Folder Locations	
Folder Names	**Description of Typical Documents**
	• NCR's
CentralCollab folder: R.119901.003 – Km 357.2 to Km 358.2 Project > G_COMMUNICATIONS & MEETINGS >	
01_Correspondence	Emails and other correspondence requiring posting to CentralCollab, generated by the Contractor or PSPC
02_Contact List	Project contact list generated by PSPC
03_ATIP	
04_Communications Plan	Communication plan generated by PSPC
05_Supporting Documents	
06_Meeting Minutes	Meeting minutes as generated by PSPC
07_Inquiries	
08_Public Notices	
09_Other	
CentralCollab folder: R.119901.003 – Km 357.2 to Km 358.2 Project > Z_BASE DATA>	
01_Base Data	Digital drawings and other documentation required by the Contractor (typically generated by PSPC)

Typical folders Users are encouraged to create sub-folders and categorize documents of similar or related data.

Example sub-folders:

- 09_Health & Safety > **Tailgate Meetings > February**
- 14_Deliverables > **Project Schedule**
- 21_Quality Management > **Check Sheets > February**

R.119901.003
Appendix B

Project Specific Health and Safety Plan Template

Note: The Project Specific Health and Safety Plan Template is provided to assist the Contractor. PSPC takes no responsibility for the completeness of this template. The Contractor is responsible for verifying that all required information is provided in their Project Specific Health and Safety Plan.

<insert company logo/information>

PROJECT SPECIFIC HEALTH AND SAFETY PLAN

<Name of Project>
<PROJECT No.>

<Date>

<Rev. Number>

Prepared for:

Public Services and Procurement Canada
Services publics et Approvisionnement Canada

The Contractor shall ensure that this document is available on site for the project duration and available to all workers.

<This template is provided to aid the Contractor in preparing their project specific health and safety plan according to the contract requirements. It is the responsibility of the Contractor to ensure that all required information is presented in their project specific health and safety plan to meet the requirements of the project specifications and WorkSafeBC's health and safety obligations. The Contractor shall review all aspects of this template and make changes and additions as needed to suit the project requirements.>

Table of Contents

Appendix 7: Key Member Resumes and Safety Certifications

Appendix 8: Local Hospital Maps

Appendix 9: Safe Work Procedures

1. Contractor Safety Policy / Statement

<A statement about the Contracting company's policy regarding health and safety on the project site.>

2. Project Health and Safety Compliance Obligations

The submission of the Project Specific Health and Safety Plan indicates <*Contracting Company Name*> commitment to comply with all health and safety related obligations from the following:

- All procedures, rules and policies from this Project Specific Health and Safety Plan
- WorkSafeBC Requirements
- Project Specifications
- *<Other, add any other requirements that apply>*

3. Definition of Responsibilities

<A clear description of the health and safety related responsibilities for key members of the Contractor's project team. The table below is provided to assist with presenting this information.>

Position	Name(s)	Description of Health and Safety Responsibilities
Project Manager		
Project Superintendent		
Health and Safety Coordinator		
First Aid Attendant(s)		
Supervisors		
Workers		
Sub-Contractors		

4. General Project Safety Rules

<*A list of general construction safety rules and regulations that the company will adhere to. Additionally, a description of the disciplinary action procedure for disregard or negligence of the provide rules.****>***

5. Health and Safety Risks / Hazards and Engineering and Administrative Control Measures

5.1 Workplace Hazard Assessment – Health and Safety Risks Identified

<Summary of health risks and safety hazards resulting from hazard assessment analysis of the circumstances of each "workplace" including:

- *The number of workers who may require first aid at any time;*
- *The nature and extent of the risks and hazards in the workplace;*
- *The types of injuries likely to occur;*
- *Any barriers to first aid being provided to an injured worker or member of the public; and*
- *The time that may be required to obtain transportation and to transport an injured worker to medical treatment>*

<Statement from the Contractor indicating the hazard rating assignment (low, moderate, or high) for each "workplace" as defined by WorkSafeBC and applicable to the application of G3.16 of WorkSafeBC Occupational Health and Safety Regulations>

<The table below can be used as a template for the format of this section. Three workplaces are shown as an example, but the Contractor may extend or trim the table as applicable to the proposed work in the Contract.>

Workplace 1	
Number of Workers	
Risks / Hazards Descriptions	
Type of Injuries	
Barriers to First Aid	
Time to Obtain Transport	
WorkSafeBC Hazard Rating Assessment	*Low, Medium or High*
Workplace 2	
Number of Workers	
Risks / Hazards Descriptions	
Type of Injuries	
Barriers to First Aid	
Time to Obtain Transport	
WorkSafeBC Hazard Rating Assessment	*Low, Medium or High*
Workplace 3	
Number of Workers	
Risks / Hazards Descriptions	
Type of Injuries	
Barriers to First Aid	
Time to Obtain Transport	
WorkSafeBC Hazard Rating Assessment	*Low, Medium or High*

<WorkSafeBC Hazard Assessment Rating: The following links to the specific sections of the WorkSafeBC OHS regulations will assist in determining the Hazard Rating Assessment for each workplace.

https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-03#SectionNumber:G3.16

https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-regulation/part-03-rights-and-responsibilities#Schedule3A>

5.2 Hazards Materials

<List of hazardous materials to be brought onsite as required by the work>

5.3 Job Specific Safe Work Procedures

<Review your company safe work procedures to ensure that there are procedures for all tasks relevant to the project. In the case that your company does not have an existing safe work procedure for a specific task please provide this procedure in Appendix 8.>

All job specific safe work procedures are available in <*Contracting Company Name*> corporate Health and Safety Plan and are available to all employees on site and the PSPC team upon request. Procedures that are not available in <Contracting Company Name> corporate Health and Safety Plan can be found in Appendix 8. *<remove last sentence if not required>.*

5.4 Required PPE and Training

<Identification of the PPE and description of the training required for any members of the contractor's project team and PSPC's team visiting the site.>

5.5 First Aid Requirements

<Identification of the First Aid Requirements for each "workplace" in compliance with WorkSafeBC and project requirements as follows:

.1 Estimated travel time from the "workplace" to the nearest hospital.

.2 Maximum numbers of workers at any time per "workplace".

.3 The first aid supplies, equipment, and facilities which will be available at each "workplace".

.4 The first aid attendant certificate level onsite at each "workplace".

.5 The first aid transportation which will be used on the project (i.e. ETV), if required by Contractor or WorkSafeBC requirements. Details of where the ETV will be located / parked relative to the locations of the first aid attendant(s) during the work.>

6. Inspection Policy and Procedures

*<A description of the site inspection policy and procedure. The procedure should include identification of investigator, completion of a site inspection form and how the findings of the inspection will be presented to the remainder of the construction team.***>**

7. Incident Reporting and Investigation Policy

<*A description of the procedure completed following an incident occurring on site. The procedure should include the completion of an incident/accident report (template to be provided by the contractor in Appendix 5)***>**

8. Occupational Health and Safety

8.1 Representative/Committee Procedures

<*A description of the procedures that will be completed regularly throughout the project to keep the project site safe for all contractor's personnel, travelling public and PSPC's project team members.>*

8.2 Meetings

<*A description of the health and safety meetings that will be completed throughout the project. This section could include the frequency of meetings and the agenda that will be followed.***>**

8.3 Communications and Record Keeping Policies

<*A description of the policies related to health and safety communications and record keeping. This needs to include a description of the files that will be kept and how communication regarding health and safety will proceed with the entire project team, including the owner's team, the prime contractor's team and all sub-contractors.****>***

9. Emergency Contact Information

9.1 Key Project Contact Numbers

Contractor's Team			
Name and Position	**Office Number**	**Cell Phone Number**	**Sat Phone (If Used)**
Project Superintendent			
Health and Safety Coordinator			
First Aid Attendant(s)			
Key Sub-Contractor Representatives			
PSPC Team			
Name and Position	**Office Number**	**Cell Phone Number**	**Satellite Phone**
George Smith – Contract Asset Performance Manager, Alaska Highway	250.774.6956	250.321.0174	600.700.0131
XXX – Onsite Inspection and QA Representative			

9.2 Emergency Response Agencies/Assistance

<Note: The contractor is responsible for verifying that all the numbers listed below are correct and up to date and that all required numbers are presented. Please remove any emergency numbers that are not in the project vicinity. ***911*** *is not available in the Fort Nelson Northern Rockies Regional Municipality. Contractor shall confirm if* ***911*** *is available in the project location. If not available in project location, make note in table as not available at project site>*

Agency/Assistance	**Contact**
RCMP	911
Local Police – Fort Nelson (emergency)	250.774.2777
Local Police – Fort Nelson (non-emergency)	250.774.2700
Local Police – Fort St. John (emergency)	250.787.8100
Local Police – Fort St. John (non-emergency)	250.787.8140
Local Police – Watson Lake (emergency)	867.536.5555
Local Police – Watson Lake (non-emergency)	867.536.2677

BC Ambulance (BC Emergency Health Services)	911 / 1.800.461.9911 / 250.374.5937
Ambulance – Fort Nelson	250.774.2344
Ambulance – Fort St. John	250.785.5559
Ambulance – Watson Lake	867.536.4444
S.T.A.R.S Ambulance	1.888.888.4567
Hospitals	
Local Hospital – Fort Nelson	250.774.8100
Local Hospital – Fort St. John	250.262.5200
Local Hospital – Watson Lake	867.536.4444
Fire and Rescue	911
Fire and Rescue – Fort St. John	250.785.4333
Fire and Rescue – Fort Nelson (emergency)	250.774.2222
Fire and Rescue – Fort Nelson (non-emergency)	250.774.3955
Fire and Rescue – Watson Lake (emergency)	867.536.2222
Fire and Rescue – Watson Lake (non-emergency)	867.536.8008
BC Forest Fire Reporting	1.800.663.5555 / *5555 (Cell)
Yukon Forest Fire Reporting	1.888.798.3473
WorkSafeBC Work Site Emergency 24 hr.	1.888.621.7233
WorkSafeBC Regional Office	1.800.663.4630 / 250.785.1283
HazMat 24 hr.	1.800.663.3456
BC Environmental - PEP 24 hr.	1.800.663.3456
BC Environmental Regional Office	250.787.3411
BC Hydro – Power (emergency) 24 hr.	911
BC Hydro – Power (non-emergency)	1.800.224.9376
Fortis BC – Natural Gas Emergencies 24 hr.	1.800.663.9911
NorthwesTel – Corporate Office (Whitehorse)	867.668.5300
BC One Call	1.800.474.6886 / *6868 (Cell)
Poison Control	1.800.567.8911 / *311 (Cell)
Commercial Vehicle Inspection and Standards (CVSE)	
Reporting Safety Violations 24 hr.	1.888.775.8785
Peace River Regional Office	250.784.2363

10. Wildlife Management

<Identify any training and processes for project members regarding wildlife encounters and prevention.>

11. Fire Safety, Reporting and Evacuation

<Identify any fire safety policies, project specific reporting and evacuation procedures.>

12. Contractor's Team Review and Acceptance

This document has been prepared through discussions with the Contractor's entire project team *<including sub-contractors (if applicable)>* and will be enforced by the contractor for the duration of the project. By signing this document, the signee confirms that they have reviewed the document and agree with its contents.

Project Manager

Name	Signature	Date

Site Superintendent

Name	Signature	Date

Health and Safety Manager

Name	Signature	Date

Quality Control Manager

Name	Signature	Date

<Major Sub-Contractor Representatives>

Name	Signature	Date

<Major Sub-Contractor Representatives>

Name	Signature	Date

Appendix 1: Preliminary Hazard Assessment Form

PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	R.119901.003
Location:	Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization
Date:	
Name of Departmental Representative:	
Name of Client:	
Name of Client Project Co-ordinator	George Smith Ph: 250.774.6956

Site Specific Orientation Provided at Project Location Yes ☐ No ☐

Notice of Project Required Yes ☐ No ☐

NOTE:
PSPC REQUIRES A Notice of Project FOR ALL CONSTRUCTION WORK RELATED ACTIVITIES

NOTE:
OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

Important Notice: This hazard assessment has been prepared by PSPC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PSPC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
Examples: Chemical, Biological, Natural, Physical, and Ergonomic	PSPC, OGD's, or tenants		General Public or other contractors		Note: When thinking about this pre-construction hazard assessment, remember a **hazard** is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the **risk** is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.	**Yes**	**No**	**Yes**	**No**	

Typical Construction Hazards					
Concealed/Buried Services (electrical, gas, water, sewer etc.)					
Slip Hazards or Unsound Footing					
Working at Heights					
Working Over or Around Water					
Heavy overhead lifting operations, mobile cranes etc.					

Marine and/or Vehicular Traffic (site vehicles, public vehicles, etc.					
Fire and Explosion Hazards					
High Noise Levels					
Excavations					
Blasting					
Construction Equipment					
Pedestrian Traffic (site personnel, tenants, visitors, public)					
Multiple Employer Worksite					Example: Contractor working in an occupied Federal Employee space.

Electrical Hazards					**Comments**
Contact with Overhead Wires					
Live Electrical Systems or Equipment					
Other:					
Physical Hazards					
Equipment Slippage Due to Slopes / Ground Conditions					
Earthquake					
Tsunami					
Avalanche					
Forest Fires					
Fire and Explosion Hazards					
Working in Isolation					
Working Alone					
Violence in the Workplace					
High Noise Levels					
Inclement weather					
High Pressure Systems					
Other:					
Hazardous Work Environments					
Confined Spaces / Restricted Spaces					Review and provide confined space assessment(s) from PSPC or client confined space inventories. Refer to PSPC Standard on Entry into Confined Spaces. Contact the Regional Construction Safety Coordinator.
Suspended / Mobile Work Platforms					
Other:					
Biological Hazards					
Mould Proliferations					
Accumulation of Bird or Bat Guano					
Bacteria / Legionella in Cooling Towers / Process Water					
Rodent / Insect Infestation					
Poisonous Plants					
Sharp or Potentially Infectious Objects in Wastes					
Wildlife					

Chemical Hazards					
Asbestos Materials on Site					If "yes" a pre-project asbestos survey report is required. Provide Contractor with DP – 057 ELF Form 16 "Contractor Notification and Acknowledgement"
Designated Substance Present					If "yes" a pre-project designated substance survey report is required.
Chemicals Used in work					
Lead in paint					If "yes" a pre-project lead survey report is required.
Mercury in Thermostats or Switches					If "yes" a pre-project mercury survey report is required.
Application of Chemicals or Pesticides					
PCB Liquids in Electrical Equipment					
Radioactive Materials in Equipment					
Other:					
Contaminated Sites Hazards					
Hazardous Waste					
Hydrocarbons					
Metals					
Other:					

Security Hazards					**Comments**
Risk of Assault					
Other:					
Other Hazards					

Other Compliance and Permit Requirements[1]	**YES**	**NO**	**Notes / Comments**[2]
Is a Building Permit required?			
Is an Electrical permit required?			
Is a Plumbing Permit required?			
Is a Sewage Permit required?			
Is a Dumping Permit required?			
Is a Hot Work Permit required?			
Is a Permit to Work required?			Mandatory for ALL AFD managed work sites.
Is a Confined Space Entry Permit required?			Mandatory
Is a Confined Space Entry Log required			Mandatory for all Confined Spaces
Discharge Approval for treated water required			

Notes:

(1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.

(2) TBD means To Be Determined by Service Provider.

Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary protective measures (which may exceed those cited herein) for performance of the work.			
Service Provider Name			
Signatory for Service Provider		**Date Signed**	
RETURN EXECUTED DOCUMENT TO PSPC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING			

Appendix 2: Confirmation of Prime Contractor's Main Responsibilities Under WorkSafeBC Occupational Health and Safety Regulations and Worker's Compensation Act Form

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

Confirmation of Prime Contractor's Main Responsibilities Under the WorkSafeBC Occupational Health and Safety Regulations and *Worker's Compensation Act*

Name of Project: Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization

Owner: Public Services and Procurement Canada

Contractor: _____

Consulting Engineer: Tetra Tech

	YES	NO
1.The Contractor acknowledges appointment as Prime Contractor on the construction project noted below	☐	☐
2. The name of the Prime Contractor's Qualified Coordinator of occupational health and safety activities for this project has been submitted to the Owner and is as shown below.	☐	☐
3. The Prime Contractor understands that in any conflict of directions, WCB OH&S Regulations and/or the Worker's Compensation Act shall prevail.	☐	☐
4. The Prime Contractor understands and will direct that all supervisors/coordinators must immediately report any apparent conflict as described above.	☐	☐
5. The Prime Contractor agrees that their supervisor shall immediately notify the consulting Engineer's representative of any reported conflict.	☐	☐
6. The Prime Contractor has requested and received information from the Owner regarding any known hazards to the health and safety of persons pre-existing at the workplace.	☐	☐
7. The Prime Contractor has conducted an inspection of the workplace to verify the presence of any hazards.	☐	☐
8. The Prime Contractor will communicate hazards information to any persons who may be affected and ensure that appropriate measures are taken to effectively control or eliminate the hazards.	☐	☐
9. The Prime Contractor accepts that written documentation such as notes, records, inspections, meeting minutes, etc., on all health and safety issues must be available upon request to the PSPC departmental representatives and/or to a WCB officer at the workplace.	☐	☐
10. The Prime Contractor will confirm that all workers are suitably trained and competent to perform the duties for which they have been assigned.	☐	☐
11. The Prime Contractor confirms that safety orientation of all new workers will be conducted.	☐	☐
12. The Prime Contractor's written Safety Program has been provided to the Owner's representative.	☐	☐
13. The Prime Contractor confirms that meetings to exchange information on any safety issues, concerns, hazards or safety directives will be conducted weekly or more often if required.	☐	☐
14. The Prime Contractor confirms that before the commencement of work, crews will attend a daily crew safety meeting.	☐	☐
15. The Prime Contractor confirms that their supervisor has assessed and will coordinate the workplace first-aid requirements	☐	☐
16. The Prime Contractor confirms that the procedure to transport injured workers is established	☐	☐

Prime Contractor Representative's

Name:_____

Title:_____ Signature:_____

Date:_____

Prime Contractor's OH&S Coordinator

Name:_____

Title:_____ Signature:_____

Date:_____

Canada

Appendix 3: Contractor's COVID-19 Safe Work Plan

<provided by the Contractor>

Appendix 4: Contractor Daily Toolbox Meeting Form

<provided by the Contractor>

Appendix 5: Site Safety Orientation Form

<provided by the Contractor>

Appendix 6: Incident/Accident Report Template

<*provided by the Contractor*>

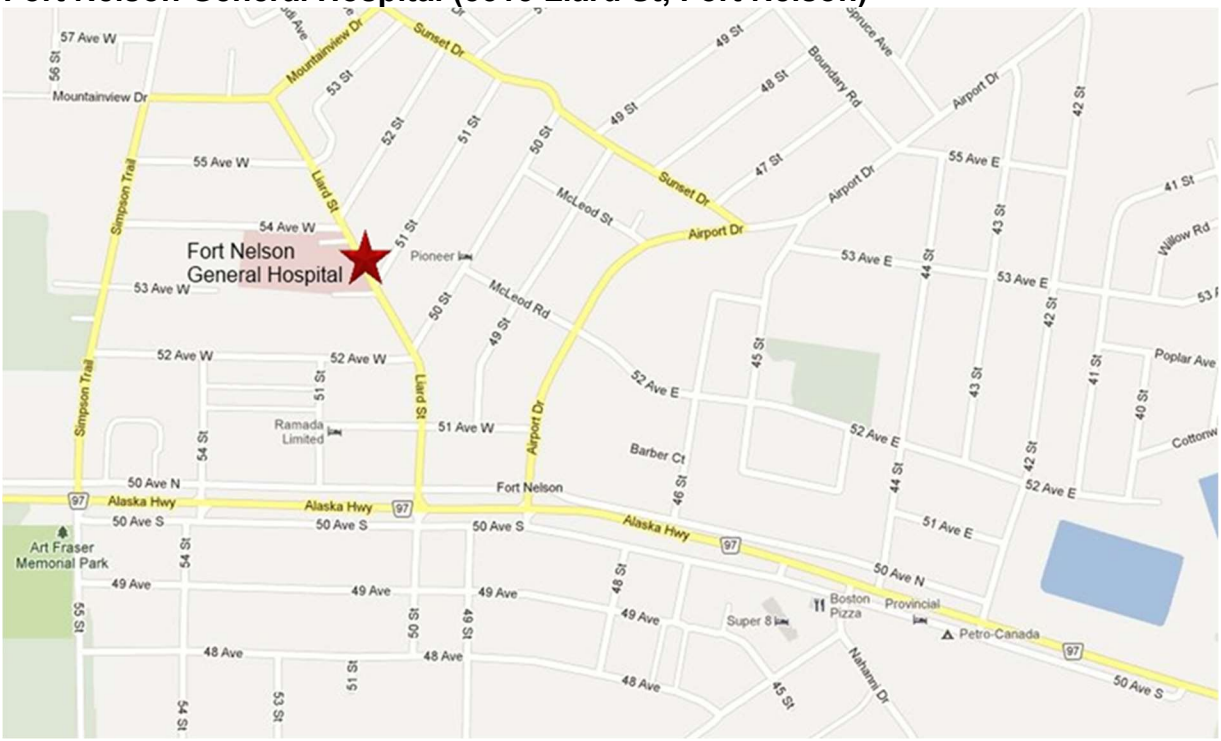
Appendix 7: Key Member Resumes and Safety Certifications

<*provided by the Contractor*>

Appendix 8: Local Hospital Maps

<remove unnecessary maps>

Fort Nelson General Hospital (5315 Liard St, Fort Nelson)



Directions

<If Project Site South of Fort Nelson>

<Head Northbound on the Alaska Highway

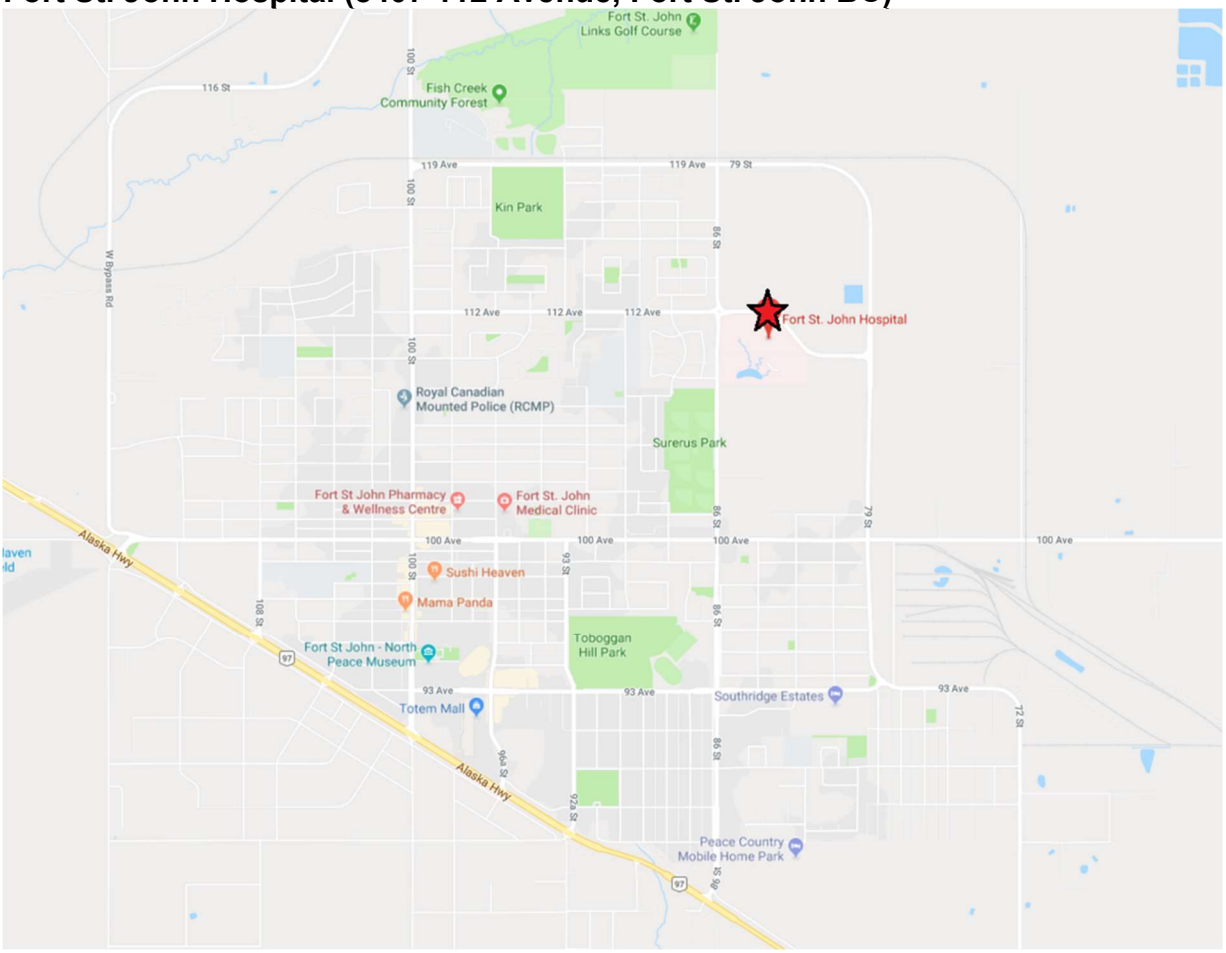
Turn Right onto Liard St.>

<If Project Site North of Fort Nelson>

<Head Southbound on the Alaska Highway

Turn Left onto Liard St.>

Fort St. John Hospital (8407 112 Avenue, Fort St. John BC)



Directions

Head Southbound on the Alaska Highway

Turn Left onto 100 Ave.

Turn Left onto 86 St.

At the roundabout, take the 1st exit onto 112 Avenue

Turn Right toward Drop-off Loop

Continue straight onto Drop-off Loop

Appendix 9: Safe Work Procedures *<if required>*

R.119901.003
Appendix C

Category 2
Traffic Management Plan Template

Note: The Category 2 Traffic Management Plan Template is provided to assist the Contractor. PSPC takes no responsibility for the completeness of this template. The Contractor is responsible for verifying that all required information is provided in their Traffic Management Plan.

<insert company logo / information>

Category 2
Traffic Management Plan

Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization
R.119901.003

<Date>

Rev. *<Number>*

Prepared for:

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

The Contractor shall ensure that this document is available on site to all workers for the project duration.

<This template is provided to aid the Contractor in preparing their traffic management plan according to the contract requirements. It is the responsibility of the Contractor to ensure that all required information is presented in their traffic management plan to meet the requirements of the project specifications and British Columbia Ministry of Transportation and Infrastructure's Traffic Management Manual for Work on Roadways – 2020. The Contractor shall review all aspects of this template and make changes and additions as needed to suit the project requirements.>

Table of Contents

1. Category Definition

Based on the steps outlined in Section 3.2: Project Category Determination in BC MoTI's Traffic Management Manual for Work on Roadways (2020), the Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization Project calls for at Category 2 Traffic Management Plan.

A Category 2 Traffic Management Plan is characterized by:

-
-
-
-

<Add as many points as deemed required for the project>

A Category 2 Traffic Management Plan consists of:

-
-
-
-

<Add as many points as deemed required for the project>

The aim of the Category 2 Traffic Management Plan is to minimize the site-specific risks that were identified for the project.

2. Traffic Control Plan

See also Appendix A: Traffic Control Plan Drawings in this Traffic Management Plan for the proposed layouts of the traffic control devices for the project. A list of the drawings is provided in Section 2.4 Drawing List.

Plan Date	<*Date when plan was initiated.*>
Latest Revision	<*Date of latest revision.*>
Site Name	<*Name of project.*>
Plan Developed By	<*Name of person who developed the plan.*>
Exact location, direction, and distance to nearest landmarks	<*Highway number and name of location, etc.*>
Project Supervisor	<*Name of Project Supervisor.*>
Prime Contractor	<*Name of Prime Contractor.*>
Traffic Control Manager	<*Name of Traffic Control Manager (if applicable).*>
Traffic Engineer	<*Name of Traffic Engineer (if applicable).*>
Traffic Control Supervisor	<*Name of Traffic Control Supervisor and company.*>
Traffic Control Persons	<*Names of TCP and company.*>
Project Start Date	<*Date*>
Project Completion Date	<*Date*>

2.1 Traffic Control Provisions

Traffic Control Supervisor	<*Name of Traffic Control Supervisor and company.*>
Traffic Control Persons	<*Name of TCP and company.*> Automated Flagger Assistance Devices will not be used on the project.
Off-Hours Traffic Control	<*Types of traffic control devices.*>
Illumination	Traffic Control Persons (TCP) will be used during non-daylight hours (before sunrise after sunset). Details of the overhead lighting to be used at each TCP location are included in <*Report Section / Appendix*>. Details shown include the location, direction, height, brightness, and use of shields on the lights to suitably illuminate the TCP but not obstruct the visibility of drivers approaching the TCP.
Means of Communication	<*How will TCP communicate?*>
Signage	<*Are signs installed for short-duration or long-duration work?*> <*Are the signs spaced in accordance with posted speed?*> <*Are details provided for the procedures, processes, and sequencing used to determine the layout of the signs in the field and the order of installation and order of removal of the signs in the field? Refer to Section 6: Traffic Control Layouts – General Instructions of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 for further details. At a minimum the text and figures included in Item 6.7.4 – Two-Lane, Two-Way Roadways shall be included within the Contractor's Traffic Management Plan for reference during the work (in main body of the plan or in Appendices of the plan with reference to applicable Appendix in main body of the plan). The Contractor shall customize the details of the steps for the project as required.*> <*Are graphical representation of the sign supports planned for use on the project shown; including Post Mounted Supports found in Figure 01 35 00 – 01 and or the Wind Resistant Sign Stand found in Figure 01 35 00 – 02 (both shown below)?*> All sign supports shall either be a post mounted support per the requirements of Figure 01 or Wind Resistance Sign Stand per the requirements of Figure 02.

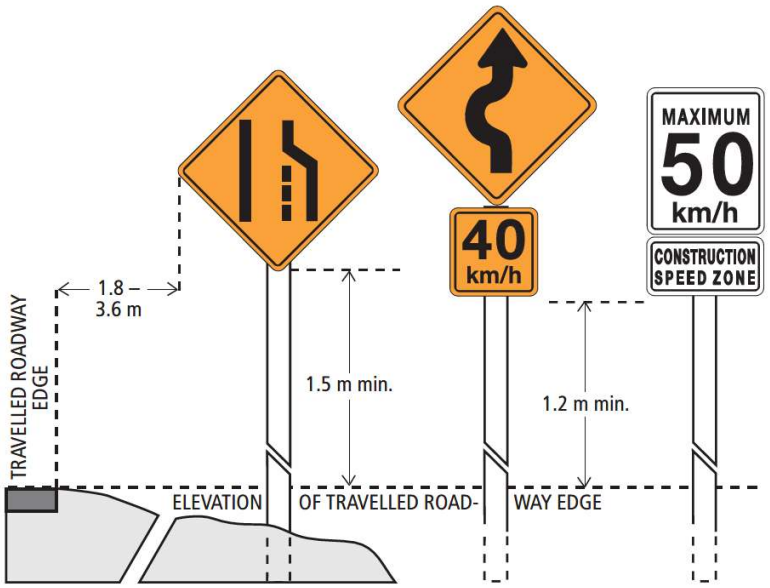


Figure 01: Post Mounted Supports

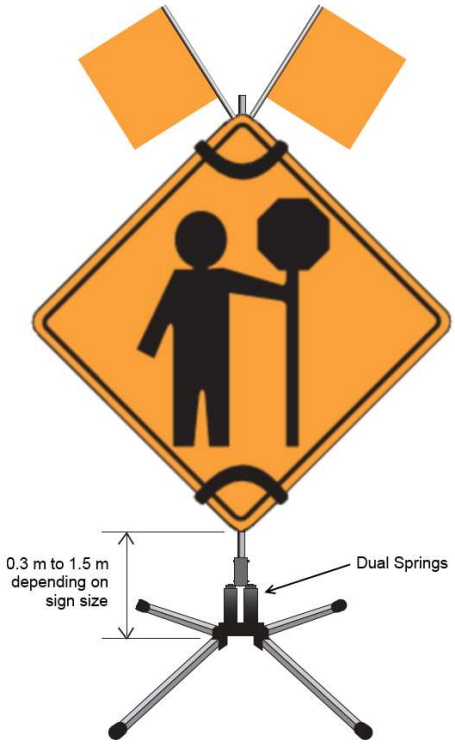


Figure 02: Wind Resistant Sign Stand

Flags will be used on the following signs:

.1 Traffic Control Person Ahead (C-001-1).
.2 Survey Crew Ahead (C-003).
.3 Crew Working Ahead (C-004).

	.4 Accident Scene (C-058). Unless pre-approved by the Departmental Representative, one or more sandbags or weights will be in used at all times to further stabilize all Wind Resistance Sign Stands. Where an option for a sign size is available, the sign size used will be the larger dimension sign as listed in Appendix B.2: Sizes and Applications of Individual Signs of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020. Signs will be positioned so that they do not block the sight lines of drivers entering a roadway from side roads or other access points.
Portable Dynamic Message Signs (DMS)	*<Are DMS required? Where will they be located?>* Two (2) portable dynamic message signs (DMS) will be used for the duration of the work. The DMS will have a minimum of 3 lines with 8 characters per line (minimum 450 mm character size) A portable dynamic message sign (DMS) will be used in the location identified in 7.2 Typical Construction Speed Zone Signing – Two-Lane, Two-way Roadway (Item 3.2 – Traffic Management, subsection .1.5.3 of the contract specification). A list of DMS messages which will be displayed on the DMS throughout the project is shown in Appendix D. Messages that will be used on the DMS are per Section 4 – Temporary Traffic Control Devices (Table 4.5 and Table 4.2) of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 plus other messages anticipated to be required on the project.
PSPC Permanent Variable Message Signs	PSPC will assist <*Name of Contractor*> with the Public Information Plan by notifying DriveBC of the work and posting notice of the project on PSPC's permanent variable message signs along the highway. <*Name of Contractor*> will inform PSPC a minimum seven (7) days in advance of any scheduled work to be posted. All other requirements of the Public Information Plan (Section 3.2.3 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 has been included in the Traffic Management Plan and will be undertaken / implemented <*Name of Contractor*> prior to commencing work.
Intersections affected by work zone or traffic control devices	*<Are intersections affected by the work zone or traffic control devices?>* *<If so, how will the intersections be controlled?>* *<Will additional traffic control devices be required?>*

Flexible Drums	*<Will flexible drums be used to delineate lane drops?>* *<Will they be used to identify construction accesses to the work activity area?>* Unless preapproved by the Departmental Representative, where 45 cm, 70 cm, or 90 cm cones are called for by the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, 100 cm tubular markers will be used.
Traffic Stoppages	*<Are there any anticipated traffic stoppages?>* *<If so, for how long?>* *<Will there be single lane alternating traffic?>*
Layout of Devices	*<Identify spacing between traffic control devices.>*
Emergency Vehicles	*<Will emergency vehicles have clear, unobstructed access to the site.>* *<What procedures will be in place to ensure that emergency vehicles are able to access the site without delay?>*
Pilot Cars	Pilot cars will not be used when the length of the single lane alternating traffic does not exceed 300 m. The traffic control signage layout used in conjunction with pilot cars will include the Prepare to Stop (C-029) sign (sign spacing shall be adjusted to suit). During non-work hours temporary traffic signals, controlled by the Pilot Car Driver may be used to replace the traffic control persons. If this traffic control arrangement is used, the traffic control signage layout plan will be revised to include applicable signage from 7.10 Lane Closure with Temporary Signals – Single Lane Alternating Traffic – Short and Long Duration and submitted as part of the Traffic Management Plan. .4 The traffic control signage layout shall include the Men Working (C-004) sign in advance of the Construction Ahead (C-018-1A) sign. The spacing shall be per applicable Construction Sign Spacing (Dimension A as defined in Table B of Section 7 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020) for the applicable speed (adjust all other sign spacing as required).

Drop-offs	Drop-off's are defined as an abrupt change in elevation created by construction activity such as milling, paving, or excavation that is steeper than 3H:1V. Drop-off's will be treated in accordance with Section 6.5 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 whenever the drop-off is within 1.5 m of the edge of the travel lane. Additionally, drop-offs ≥ 150 mm between 1.5 m and 3.0 m of the travel lane will be signed with Low Shoulder (C-013) signs at least once every 1 kilometer for as long as the condition persists.

2.2 Work Activity Specific Risk Assessment and Traffic Plan

<A separate table and traffic control plan drawing (Table in Section 2.4 and drawings in Appendix A) is required for each unique element of work. Example elements of work are to include but are not limited to unloading of equipment, paving, line painting, rumble strip installation, excavation on highway, excavation off highway, culvert installation, etc. The Contractor is to add additional tables as necessary.>

Work Activity	*<Type of work: stationary, slow-moving, emergency, brief, short-duration, or long-duration work?>*
Station / Location	
Traffic Control Drawing	Appendix A – Drawing *<Drawing number of associated traffic control set-up>*
Identified Risks	*<What potential risks associated with the work have been identified?>*
Work On / Off Roadway	*<Is the work on or off the roadway?>*
Site Access / Egress	*<How will equipment access and exit from the site?>*
Intersections affected by work zone or traffic control devices	
Delays, Closures, Diversions, and Detours	*<Will delays, closures, diversions, and/or detours be in place?>* *<If so, illustrate in Appendix B: Detour Traffic Control Plan Drawing.>* *<What is the design speed for the detour?>* *<Can it withstand the traffic that will be using the road?>* *<For what duration will these be in place?>*
Hours of Work	*<The hours during which the work will occur.>* *<The time period during which the work will affect traffic.>*
Dump Site	*<Location of dump site and access/exit requirements.>*
Construction Equipment	*<How will construction equipment be protected during working hours? During off-hours?>*

2.3 Drawing List

Below is a table summarizing the of drawing(s) showing the applicable traffic accommodation strategies which will be used during specific elements of the work.

<Include a table or list of each element of work on the project and the applicable traffic accommodation strategies and layout drawing(s) which will be used during that element of work throughout all project locations. The table or list of each element of work on the project shall also include the applicable traffic accommodation strategies and layout drawing(s) to be used during non-work hours.>

Traffic Control Drawing(s)	Corresponding Tender Drawing(s)	Project Location(s)	Construction Element(s)
<Drawing No.>	*<Drawing No.>*	*<Station Range, e.g.283+360 to 308+905>*	*<e.g. ACP Placement, Rest Stop, Culvert Installation, etc.>*

3. Incident Management Plan

The Incident Management Plan defines processes for responding to unplanned events or traffic incidents in the work zone so that incident response operations within the work site are managed effectively.

The Incident Management Plan requirements are partially determined by the project category (see Section 3.2: Traffic Management Plan Sub-Plans and Section 3.4: Traffic Management Plan Requirements by Category in the **Traffic Management Manual for Work on Roadways).**

Traffic Control Supervisor and Qualifications	*<Name and qualifications.>*
Traffic Control Manager and Qualifications	*<Name and qualifications.>*
Emergency Response Agencies and Contact Information	*<Name and contact information (may be listed in Section 6: Contact List).>*
Types of traffic incident that could occur within work zone	*<Motor vehicle incident, motor vehicle incident with injuries, vehicle stalls, emergency vehicle transit of work zone, dangerous goods incident, wide load passing, etc.>*
Procedures for responding to traffic incident that occurs within work zone	*<Will there be a radio announcement?>* *<Who will evaluate the incident?>* *<Who will call 911?>* *<Will traffic be stopped, or will there be single lane alternating traffic?>* *<Who will assist the emergency responders through the site, and how?>* *<Who will assist if it is necessary to clear vehicles, and how?>*
Procedures to restore traffic flow around incident site as quickly as possible	*<How will traffic movement be restored?>* *<Will traffic control devices be used?>* *<If so, how?>*
Procedures to clear incident and restore normal project traffic	*<How will the incident be cleared to restore traffic movement?>* *<How many TCP are required?>*

operations as soon as possible	
Procedure to inform and update PSPC regarding incident in work zone	*<What is the procedure for advising the PSPC that an incident occurred, what response measures are being taken, what clearance measures are required, and what the estimated clearance time will be?>*
Procedure to inform travelling public of estimated duration of delay and alternative routes (if applicable)	*<Will DMS be used to display information?>*
Incident Reporting	*<Who will provide details to the PSPC?>* *<What is the process for incident follow-up?>*
Investigation Process	*<Who will lead the incident investigation?>* *<What investigation process will be used to assess the incident and those involved?>*
Review and Continuous Improvement Process	*<How incidents will be reviewed and followed up to reduce the severity and frequency of future incidents?>*

4. Public Information Plan

The Public Information Plan identifies actions and procedures for informing the travelling public, project stakeholders, and the PSPC of current traffic operations and planned changes to traffic operations.

PSPC will assist the Contractor with the Public Information Plan by notifying DriveBC of the work and posting notice of the project on PSPC's permanent variable message signs along the highway. All other requirements of the Public Information Plan (Section 3.2: Traffic Management Plan Sub-Plans and Section 3.4: Traffic Management Plan Requirements by Category in the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020) shall be included in the Traffic Management Plan and by undertaken / implemented by the Contractor prior to commencing work.

Process for routinely notifying PSPC of changes to scheduled work plans	*<Who will be responsible for the changes?>* *<What is the person's title?>*
Process for notifying travelling public of scheduled traffic delays and project duration	*<Identify the forms of communication to be used [radio, project signs, Permanent Dynamic Message Signs), Portable Dynamic Message Signs, public meetings, etc.].>*
Process for notifying travelling public of unscheduled traffic delays	*<Identify the forms of communication to be used [project signs, Permanent Dynamic Message Signs, Portable Dynamic Message Signs, public meetings, etc.].>*
Major user groups for alternating lane closures or road closures	*<Identify the major user groups (BC Trucking Association, BC Transit, emergency response agencies, school districts, etc.).*

5. Implementation Plan

The Implementation Plan identifies responsibilities and procedures for ensuring that traffic management sub-plans are developed and implemented in a coordinated manner.

It identifies the qualifications, responsibilities, and duties of supervisory and management personnel responsible for implementing the Traffic Management Plan and includes the designation of a Traffic Control Manager and a Traffic Control Supervisor.

See also Section 3.2: Traffic Management Plan Sub-Plans and Section 3.4: Traffic Management Plan Requirements by Category in the Traffic Management Manual for Work on Roadways.

Traffic Control Manager and Responsibilities	*<Name, qualifications, responsibilities, and duties.>*
Traffic Control Supervisor and Responsibilities	*<Name, qualifications, responsibilities, and duties.>*
Person who will manage emergency traffic control operations	*<Name and title.>*
Person who will maintain daily traffic control logs	*<Name and title.>*
Person who will manage Incident Management Plan	*<Name and title.>*
Person who will manage Public Information Plan	*<Name and title.>*
Person who will monitor inactive work site	*<Name, title, and responsibilities.>*

6. Contact List

6.1 Emergency Response Agencies/Assistance

Agency/Assistance		Contact 1	Contact 2
RCMP		**911**	
Local Police – Fort Nelson (emergency)		250.774.2777	
Local Police – Fort Nelson (non-emergency)		250.774.2700	
Local Police – Fort St. John (emergency)		250.787.8100	
Local Police – Fort St. John (non-emergency)		250.787.8140	
Local Police – Watson Lake (emergency)		867.536.5555	
Local Police – Watson Lake (non-emergency)		867.536.2677	
BC Ambulance			
Ambulance – Fort Nelson		250.774.2344	
Ambulance – Fort St. John		250.785.5559	
Ambulance – Watson Lake		867.536.4444	
S.T.A.R.S Ambulance		1.888.888.4567	
Fire and Rescue			
Fire and Rescue – Fort St. John		250.785.4333	
Fire and Rescue – Fort Nelson (emergency)		250.774.2222	
Fire and Rescue – Fort Nelson (non-emergency)		250.774.3955	
Fire and Rescue – Watson Lake (emergency)		867.536.2222	
Fire and Rescue – Watson Lake (non-emergency)		867.536.8008	
BC Forest Fire Reporting		1.800.663.5555	*5555 (Cell)
Yukon Forest Fire Reporting		1.888.798.3473	
WorkSafeBC Work Site Emergency	**24 hr.**	1.888.621.7233	1.800.663.4630 250.785.1283 (Non-emergency)
HazMat	**24 hr.**	1.800.663.3456	
BC Environmental Provincial Emergency Program	**24 hr.**	1.800.663.3456	
BC Environmental Regional Office		250.787.3411	
BC Hydro – Power (Emergency)	**24 hr.**	911	1.800.224.9376 (Non-emergency)
Fortis BC – Natural Gas Emergencies	**24 hr.**	1.800.663.9911	
BC One Call		1.800.474.6886	*6868 (Cell)
NorthwesTel (Corporate Office Whitehorse)		1.867.668.5300	
Poison Control		1.800.567.8911	*311 (Cell)
Reporting Safety Violations	**24 hr.**	1.888.775.8785	
Peace River Regional Office		250.784.2363	
Provincial Emergency Program	**24 hr.**	**1.800.663.3456**	

(Ground Search & Rescue)		
Commercial Vehicle Inspection and Standards (CVSE)	1.888.775.8785	
Towing Company	<Contact #>	
Road Maintenance Contractor – White Bear Industries	250.635.3169	
Other		
Northern Rockies Regional Municipality	250.774.2541	
School District 60	250.262.6000	
School District 81	250.774.2591	
Media		
Peace Sun / 101.5 The Bear	250.787.0669 (Studio)	250.785.6334 (Reception)
1001. Moose FM	250.787.2222 (Control Room)	250.787.100 (Office)
Alaska Highway News	250.785.5631	

6.2 Prime Contactor's Contact Numbers

Name and Position	Office Number	Cell Phone Number
<*Name*>, Project Superintendent	<Contact #>	<Contact #>
<*Name*>, Health and Safety Coordinator	<Contact #>	<Contact #>
<*Name*>, First Aid Attendant(s)	<Contact #>	<Contact #>
<*Name*>, Traffic Control Supervisor	<Contact #>	<Contact #>
<*Name*>, Traffic Control Company	<Contact #>	<Contact #>
<*Name*>, Key Subcontractor Representatives	<Contact #>	<Contact #>

6.3 PSPC Contact Numbers

Name and Position	Office Number	Cell Phone Number
George Smith – Operations Manager, Alaska Highway	250.774.6956	250.321.0174 600.700.0131 (Satellite Phone)
<*Name*> – Onsite Inspection and QA Representative	<Contact #>	<Contact #>

Appendix A: Traffic Control Plan Drawings

Appendix A: Traffic Control Plan Drawings

Site Diagram
<Use additional pages as necessary>

<Show all site factors affecting traffic control, traffic control devices, spacing, signs (including sizes), explanatory notes, North arrow, etc.>

<Per section 6.3 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, traffic management shall be managed as one continuous work zone where the work is one kilometer apart or less.>

Appendix B: Detour Traffic Control Plan Drawings

Appendix B: Detour Traffic Control Plan Drawings

Site Diagram
<Use additional pages as necessary>

<Show all site factors affecting traffic control, traffic control devices, spacing, signs (including sizes), explanatory notes, North arrow, etc.>

<Per section 6.3 of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020, traffic management shall be managed as one continuous work zone where the work is one kilometer apart or less.>

Appendix C: Daily Sign Check Form

Daily Sign Check Form

Project Name and Number Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization (R.119901.003)			**Project Location** Km 357.2 – Km 358.2 of the Alaska Highway, BC	
Type of Work			**Highway Location**	
Date yyyy/mm/dd	**Time of Inspection**	**Location and Deficiency Type**	**Comments**	**Initials**

Date yyyy/mm/dd	Time of Inspection	Location and Deficiency Type	Comments	Initials

Appendix D: DMS Message Library

Appendix D: DMS Message Library

<Provide a list of DMS messages which will be displayed on the DMS throughout the project. Messages that will be used on the DMS shall be per Section 4 – Temporary Traffic Control Devices (Table 4.5 and Table 4.2) of the BC Ministry of Transportation Traffic Management Manual for Work on Roadways – 2020 plus other messages anticipated to be required on the project.>

R.119901.003
Appendix D

On-site Construction Start-up Form

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

On-site Construction Start-up Form

Project Name:	Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization
Project Number:	R.119901.003
Departmental Representative:	Ph:
Contractor:	
Contractor Representative:	Ph:

The Contractor or its subcontractors shall not perform any on-site work until they receive a completed version of this form which has been signed by PSPC's Departmental Representative.
PSPC reserves the right to refuse payment for any on-site work performed prior to the receipt of the completed and signed form.
The list below is meant to be a guide and is not intended to be a comprehensive list of required submittal items for the project. Refer to Contract Documents and Contract Specifications for a Complete List.

Submission Item	**Reviewed & Accepted by PSPC**	**Date** (yyyy-mm-dd)	**Comments / Exclusions**
Contract, Bonding and Insurance	☐		
Health & Safety Plan	☐		
Traffic Management Plan	☐		
Environmental Protection Plan	☐		
Project Construction Schedule	☐		
Construction Staging Plan	☐		
Construction Equipment List	☐		
Other:	☐		

Below to be completed by the Departmental Representative and returned to the Contractor

Has the Contractor submitted all required documents for construction work to commence? ☐ Yes ☐ No

Have all listed documents required prior to construction commencement been accepted by PSPC? ☐ Yes ☐ No

Comments: _____

_____

_____

_____

Name of Departmental Representative: _____

Signature: _____ Date: _____

R.119901.003
Appendix E

Progress Payment Submittal Form

Progress Payment Submittal Form

Project Name:	Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization
Progress Payment Number:	
Departmental Representative:	Ph:
Contractor:	
Contractor Representative:	Ph:

This form, completed and signed by the Contractor's Representative, shall be submitted with all documentation listed below for each progress payment request.
Upon receipt of this form and all documents, PSPC will commence review of the progress payment request in accordance with General Conditions 5 – Terms of Payment.
The list below is meant to be a guide and is not intended to be a comprehensive list of required submittal items for each progress payment. PSPC may request additional documentation not listed below.

Submission Item	Submitted	Comments
Progress Payment	☐	
Statutory Declaration	☐	
WorkSafeBC Clearance Letter	☐	
Project Schedule (with baseline tasks and updates showing completion dates and % complete)	☐	
Survey Details for each quantity claimed (see Appendix F – Measurement for Payment Survey Details Form)	☐	
Other:	☐	

Prime Contractor Representative:

Name:_____

Title:_____ Signature:_____

Date:_____

R.119901.003
Appendix F

Measurement for Payment Survey Details Form

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

Measurement for Payment Survey Details Form

Project Name:	Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization
Progress Payment Number:	

This form shall be submitted with the progress payment request form to identify how the surveyed quantities for specific line items were obtained.

<Note: remove the examples below and add lines as needed to provide details for every item included in the progress payment measured by survey. Provide individual entries for each task (e.g.: a line for gravel placed at rest stop A and a separate line for gravel placed at rest stop B). A progress payment line item may have more than one entry – the total entries for a particular line item shall equal the quantity shown on the progress payment)>

Progress Payment Line Item	Specification Defining Payment Requirements	Work Description	Claimed Quantity for Payment	File Name(s) (include point files and break line files names to be compared to compute quantity)	Additional Details
13	*31 24 14*	*Excavation at Km 356 Rest Stop Sta. 282+020 to Sta. 282+070*	*1400 m^3*	• *Km 282 Rest Stop – OG.csv* • *Km 282 Rest Stop – OG Breaklines.dxf* • *Km 282 Rest Stop – Bottom Excavation.csv* • *Km 282 Rest Stop – Bottom Excavation Breaklines.dxf*	*In the provided csv files the difference between the 2 surfaces "OG" and "As-built" is equal to 1400 m^3*
14	*32 11 19*	*Crushed Base Gravel at Km 282 Rest Stop Sta. 282+020 to Sta. 282+070*	*800 m^3*	• *Km 282 Rest Stop – Bottom Excavation.csv"* • *Km 282 Rest Stop – Bottom Excavation Breaklines.dxf* • *Km 282 Rest Stop – As-Built Survey Data.csv* • *Km 282 Rest Stop – As-Built Survey Breaklines.dxf*	*In the provided csv files the difference between the 2 surfaces "OG" and "As-built" is equal to 800 m^3*

Canada

R.119901.003
Appendix G

General Contractor & Sub-Contractor Construction Equipment List

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

General Contractor & Sub-Contractor Construction Equipment List

Project Name: ____Km 357.2 – Km 358.2 Bougie Creek Cut Slope and Highway Embankment Stabilization_____

Project Number: __R.119901.003_____

General Contractor: _____ Sub-Contractors: _____

Owner of Equipment (General Contractor / Sub-Contractor)	Equipment Model and Size	Quantity	Brand	Equipment Manufacture Year	Additional Comments

R.119901.003
Appendix H

Environmental Protection Plan (EPP) – Checklist

Environmental Protection Plan (EPP) — Checklist

Note: This checklist was developed to assist the Contractor in determining and mitigating environmental issues at site. It is considered a generic checklist and it is in the Contractor's best interest to review the PSPC Environmental Management Plan (EMP) or the Environmental Assessment (EA) as supporting documents in the completion of the site Environmental Protection Plan (EPP). This EPP Checklist does not need to be submitted for review by the Departmental Representative.

EPP Framework	Content Requirements	No	Yes	N/A
Project Setting and Site Activities				
Project Description	A brief description of the project and its location is provided.			
Environmental Sensitivities	Sensitive or protected features that could be impacted as a result of the Contractor's activities are described.			
Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.			
Project Schedule and Site Drawings				
Project Schedule	A project schedule is provided, including scheduled shut-downs and restricted work periods due to environmental requirements.			
Site Drawing	One or more site drawings(s) are provided, indicating the site location; site set-up and layout; erosion and sediment controls; in-stream work areas; and environmental sensitivities.			
Potential Environmental Impacts and Controls				
Potential Environmental Issues and Impacts	The potential environmental issues and impacts that may result from the construction activities are described. Environmental Reports (Environmental Assessments; Fish Habitat and Compensation, etc.) will be provided to the contractor especially with respect to any in-stream work procedures that will be required. For example, in-stream works will impact fish and fish habitat in the surrounding ecosystem. It is the Contractor's responsibility to ensure the work is completed in a manner that causes the least impact on the ecosystem (see section on Mitigation).			
Permits, Approvals, and Authorizations	List required permits, approvals and authorizations. As applicable, environmental mitigation measures prescribed by regulatory agencies and included in project permits, approvals and authorizations are described. NOTE: DFO, MoE and NWPA approvals and authorizations for in-stream works are PSPC's responsibility however, the Contractor must be aware of the requirements of these approvals/authorizations. Permitting for water withdrawal from the waterbody as part of construction activities is part of the Contractor's responsibility.			
Mitigation Strategies	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided. All work in BC must adhere to the BC MoE "Standards and Best Practices for Instream Works".			
Erosion and Sediment	Erosion and sediment controls are provided, as appropriate for the jurisdiction.			

Waste Management and Hazardous Materials				
Waste Management and Hazardous Materials	Hazardous materials that will be used and/or stored on site are listed. Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed. As appropriate for the jurisdiction, estimated waste quantities and specific handling procedures are also provided. For example, refueling of equipment will be conducted at least 100m away from any active drainage courses.			
EPP Implementation				
Site Representative	Name(s) and contact details for the person(s) who will be the Contractor's Site Representative(s) are provided.			
Training and Communication	Training and communication details are provided.			
Monitoring and Reporting	Monitoring and inspection procedures, including a schedule of monitoring activities and reporting procedures are provided. For example, this would include downstream monitoring activities for increased siltation during in-stream works.			
Documentation	Information and/or records that will be maintained relating to the EPP and end environmental matters on the project site are described.			
EPP Update	EPP review and update procedures are provided.			
Environmental Emergency Response Procedures				
Environmental Emergency Response Procedures	Potential incidents that may impact the environment are identified, and emergency response procedures to prevent and respond to incidents are provided. An environmental emergency response contact list is also provided.			

R.119901.003
Appendix I

Responsibility Checklist for Authorizations / Approvals / Notifications / Permitting

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

Project Title	
Project Description	
Project Type	
Comments	

Issued By	Document Type	Yes	No	N/A
PSPC Responsibility				
Federal				
DFO - Fisheries Act http://laws.justice.gc.ca/en/F-14/	Section 35(2) Authorization for Harmful Alteration Disruption or Destruction (HADD) to fish habitat (E.g. new bridges that are not clear span; erosion protection works that extend into the river channel).			
	Section 32 Authorization for Destruction of Fish (when explosives are used). Protects fish from being destroyed except by fishing or as Authorized by DFO.			
	Section 20 Approval – The Need for Safe Fish Passage – Every obstruction across or in any stream where DFO determines it necessary that a fish-pass should exist requires either a fish way or canal around the obstruction.			
	Notification process required for culverts and those works that fall under DFO Operational Statements. Stream Crossings by Roads: • Clear Span Bridges • Temporary Ford Stream Crossing • Ice Bridges and Snow Fills • Bridge Maintenance • Maintenance of Riparian Vegetation in Existing Rights-of Way			
	Section 36 – under this Section of the Fisheries Act the proponent can be FINED resulting from deposition of substances deleterious to fish in waters frequented by fish – this includes release of silt laden waters from construction activities.			

Transport Canada NWPA http://laws.justice.gc.ca/en/N-22/text.html	Section 5(1) Formal Approval for construction of new structures (new bridges, culverts, scour protection).			
	Section 5(2) Work Assessment for work resulting in insignificant impacts on navigability.			
	Section 6(4) Formal Approval for existing structures (existing bridges).			
	Minor Works and Waters Order – This is an amendment to the NWPA that streamlines the federal review process by establishing classes of waters and works (projects) that do not require an Application or Approval through the NWPP because they are "minor" in nature. These would include such “works” as repairs to riprap (no groynes) or “waters” that are not large enough for vessel traffic (ie. Contact Creek). http://www.tc.gc.ca/eng/marinesafety/oep-nwpp-minorworks-menu-1743.htm			
Indian and Northern Affairs Canada – Indian Act	Approval for activities on lands under their jurisdiction. This is addressed under the EA review process in most cases. If the project is exempt from an EA it must be addressed by the PM or ES personnel.			
Migratory Birds Convention Act (MBCA)	Environment Canada is responsible for implementing the *Migratory Birds Convention Act*, which provides for the protection of migratory birds through the *Migratory Birds Regulations*. This is addressed under the EA review process in most cases. If the project is exempt from and EA it must be addressed by the PM or ES personnel.			
ECMP	Has taken over for our old CEAA form. The ECMP Checklist and the Preliminary Identification of Environmental Support Required (PIESR) Form have been developed to ensure that applicable environmental legislation and relevant aspects are identified during a project. The ECMP Checklist replaces the PSPC CEAA Checklist, and will be the mechanism by which project information is submitted to PSPC Environmental Services to determine whether environmental support is required. The ECMP Checklist is located in ELF (Form 183_e). By completing and submitting the ECMP Checklist to Environmental Services, PSPC project managers1 will ensure that their projects are systematically evaluated for compliance with environmental			

[1] Project Manager refers to anyone who leads, manages or delivers a project

	legislation, policies and sustainable development requirements			
Species at Risk Act (SARA) http://www.sararegistry.gc.ca/default_e.cfm	A list of federally-listed species at risk likely to occur at a given subject site must be compiled in order to identify potential impacts & propose mitigation measures for minimizing impacts to these species as a result of project activities. In cases where suitable habitat for a given species exists at/near the project site, mitigation measures are recommended, including avoidance of areas containing said habitat and informing site workers of these issues to prevent incidents.			
First Nations Notifications and Consultations http://clss.nrcan.gc.ca/googledata-donneesgoogle-eng.php	Natural Resources Canada has developed an overlay to be used with Google Earth & Google Maps to identify First Nations lands throughout the country. Notifications of projects within 5 km of such lands and/or directly upstream from such lands should be submitted to the relevant First Nations for a determination of their interest in a given project and/or to request any traditional knowledge they may have to offer.			
Provincial – **Note one submission package for instream works is sent to FrontCounter BC at MoE who then send off to the appropriate departments for approval/notification/permitting – this does not apply to the archaeological.**				
Wildlife Act – WLAP – MoE http://www.qp.gov.bc.ca/statreg/stat/W/96488.01.htm	Wildlife Act – Section 34 – Birds, Nests and Eggs – vegetation clearing should not occur during critical bird nesting periods, which typically occur in the spring and summer. Contact the local WLAP for vegetation clearing timing windows.			
Water Act - Water Stewardship Division - Ministry of Forests, Lands, Natural Resource Operations, and Rural Development	Section 11 – regulates changes in or about a stream and ensure that water quality, riparian habitat, and the rights of licensed water users are not compromised. This is an approval process and takes approximately 140 days. An application fee is also required. Works requiring approval include channel realignment, retaining wall or bank protection stabilization etc.			
Environmental Stewardship Division - MoE	Notification process for such works as replacement and maintenance of culverts and outfalls; temporary stream diversions around a worksite and takes approximately 45 days to receive notification approval. In general, those works requiring a notification are those that do not involve any diversion of water.			
Fish Protection Act – MoE http://wlapwww.gov.bc.ca/habitat/fishprotectionact/	This Act was passed in 1997 and is reviewed as part of the Water Act under Section 11 when applying for approval.			

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development Archaeological http://www.for.gov.bc.ca/archaeology/requesting_archaeological_site_information/process_steps.htm *Contact: Hayley Bond (250) 953-3343*	When completing projects such as quarry pits and new highway alignments, a request is put into the archaeological branch of MFLNSO via the EA process to search the data base. An archaeological assessment may be required on those areas that are previously undisturbed or undeveloped.			
BC Parks	Various permits are required when completing construction activities within the Parks. Please note that all works within 150 feet of the centreline of the highway (Right-of-Way) are NOT subject to construction permitting. (this does not include permitting for fish surveys).			
Canada-British Columbia Agreement for Environmental Assessment Cooperation http://www.ceaa.gc.ca/default.asp?lang=En&n=04A20DBC-1	Most Alaska Highway Projects will not trigger this agreement, as both the Vancouver CEAA office and the Victoria BC Environmental Assessment Office (EAO) have confirmed that the types and scopes of the projects are not described in the BC Environmental Assessment Act – Reviewable Projects Regulation. However, for due diligence, it is recommended that notifications for all Alaska Highway projects be submitted to CEAA (info@ceaa-acee.gc.ca) for review and, if necessary, a determination of whether or not CEAA and/or the BC EAO should be involved.			
BC Ministry of Environment – BC Species and Ecosystems Explorer http://a100.gov.bc.ca/pub/eswp/	A list of provincially-listed species at risk likely to occur at a given subject site must be compiled in order to identify potential impacts & propose mitigation measures for minimizing impacts to these species as a result of project activities. This process involves conducting a search of the BC Species and Ecosystems Explorer inventory for the specific area of BC containing the proposed project site.			
Consultant Responsibility				
Provincial				
BC Parks ***Ministry of Forests, Lands, Natural Resource Operations, and Rural Development*** *http://www.env.gov.bc.ca/bcparks/permits/*	Permit to Collect Fish for a Scientific Purpose - Regulation Research activities in parks and protected areas, including: collection; monitoring; survey and inventory; and, other research trigger a Park Permit - Ministry of Forests, Lands, Natural Resource Operations, and Rural Development is responsible for the administration of fish and wildlife permits. Note that these permits are taking approx. 6 months to receive due to recent involvement and subsequent consultation with Treaty 8.			
Water Act – Regulation's Protection of Habitat - Section 42(1)	Permit to Collect Fish for a Scientific Purpose – Subsection 42(1)(e) – It is the responsibility of the salvage crew to obtain the necessary permit required to complete a fish and amphibian			

	salvage – in conjunction with the BC Parks permitting.			
Note: research projects and inventory projects are under the same Permit and are applied for under the "Application to Collect Fish for a Scientific Purpose". **http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html#a5**				
Contractor Responsibility				
Federal				
DFO – End of Pipe Guidelines	End-of- pipe guidelines for freshwater intake to avoid fish entrainment.			
Provincial				
Water Act - MoE	Schedule A – Water License Applications – use of water from waterbody for road maintenance.			

R.119901.003
Appendix J

Relevant Environmental Publications

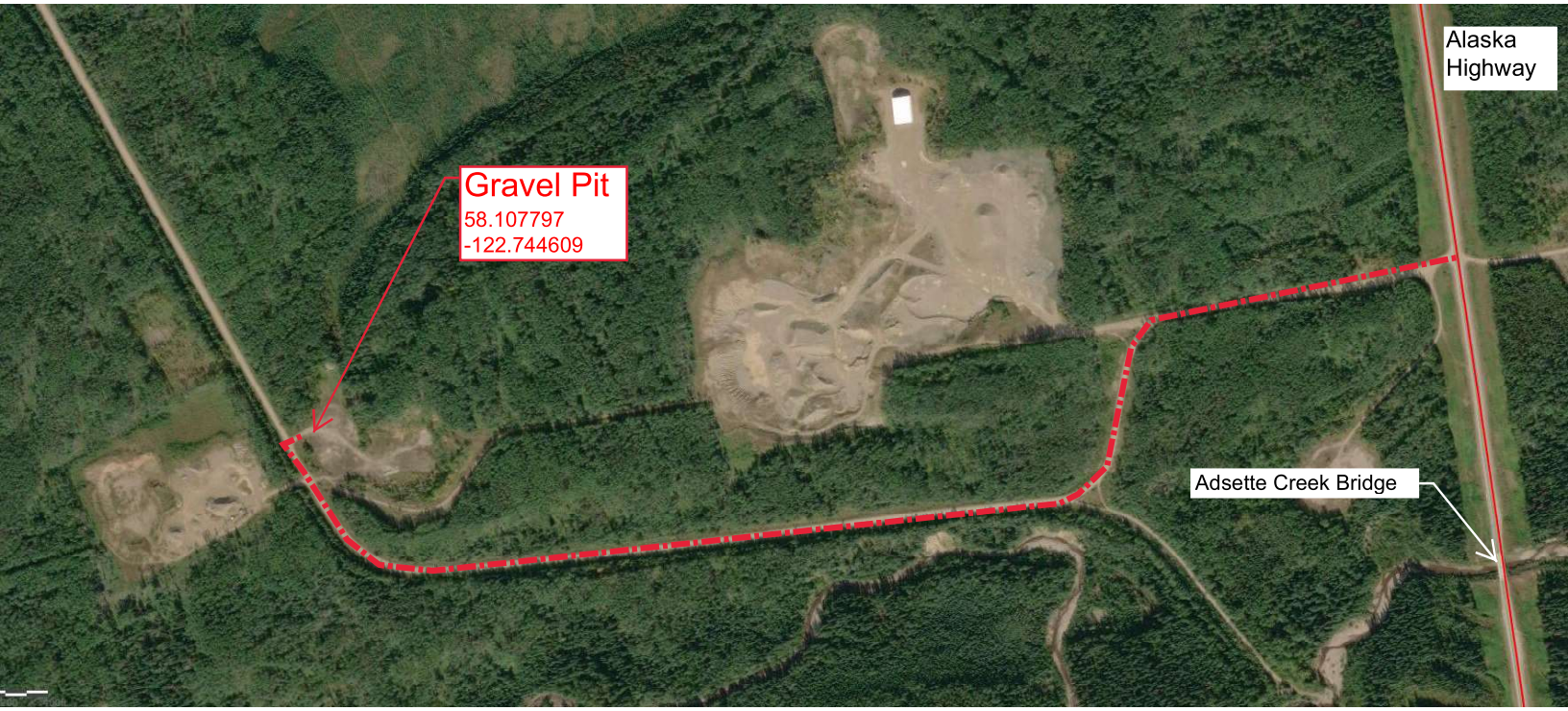
Relevant Environmental Publications

The below documents are those commonly used when determining how to design and advance a project with the potential to impact a waterbody.

Agency	Publications	Summary
DFO	***Land Development Guidelines for the Protection of Aquatic Habitat - 1993***	This document is a good reference guide for any works that are occurring in or around the water.
	Canada's Fish Habitat Law	Document explaining the fish and fish habitat laws under the Fisheries Act.
	Riparian Revegetation	Information on minimizing, stabilizing and revegetating construction areas.
	Freshwater Intake End-of Pipe Fish Screen Guideline - 1995	Provides guidelines for the contractor to follow to ensure fish screens are used during freshwater intake operations at construction sites.
	Operational Statements Stream Crossings by Roads: • Clear Span Bridges • Temporary Ford Stream Crossing • Ice Bridges and Snow Fills • Bridge Maintenance • Maintenance of Riparian Vegetation in Existing Rights-of Way	Fisheries and Oceans Canada has developed a series of Operational Statements to streamline the undertaking of low risk activities. The Operational Statements outline conditions and measures for avoiding harmful alteration, disruption and destruction (HADD) of fish habitat, and applying them will ensure the project complies with subsection 35(1) of the *Fisheries Act*. You are NOT required to submit a proposal for review by Fisheries and Oceans Canada when you incorporate the measures and conditions outlined in an appropriate Operational Statement into your plans. http://www.pac.dfo-mpo.gc.ca/habitat/os-eo/index-eng.htm
MoE	***Fish-stream Crossing Guidebook - 2002***	Guidelines in protection of fish and fish habitat and the safe passage of fish during construction at/on stream crossings.
	Standards and Best Practices for Instream Works - 2004	Guide to planning and carrying out the proposed construction activities to comply with relevant legislation, regulations and policies.
	A User's Guide to Working In and Around Water - 2005	Understanding the regulation under British Columbia's Water Act.
	Fish-Stream Identification Guidebook - 1998	Assists in providing information on determining fish streams.
	The Streamkeepers Handbook	A practical guide to stream and wetland care in regards to rehabilitation planting.

R.119901.003
Appendix K

Gravel Pit Location


Alaska
Highway
Gravel Pit
58.107797
-122.744609
Adsette Creek Bridge

R.119901.003
Appendix L

Bore Hole Logs

The logs are provided for reference only and PSPC makes no assurances the material encountered at these boreholes are representative of the geotechnical conditions of the area between the boreholes. Furthermore, construction work may have occurred in the areas of these boreholes since the drilling was undertaken. For additional information, refer to the "Limitation of Use" included with the borehole logs.

Public Works and Government Services Canada

Borehole No: **TH17-01**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 571.592 m
Prophet River, BC	UTM: 516589.062 E; 6433081.291 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	SPT (N) (20 40 60 80) / Pocket Pen. (kPa) (100 200 300 400)	Elevation (m)
0										
	Solid Stem Auger	CLAY, some silt, trace sand, trace gravel, trace organics (rootlets, decomposed wood), moist, firm to stiff, high plastic, dark grey; fine to coarse sand; fine sub-angular gravel; trace sulphates								571
1					1		32.1			
		SPT blow counts per 3 inches (1.5 m to 2.1 m) : 1/5//4/5/5/5//4/2 N-value (N): 19 Recovery: 0 m (catcher in SPT spoon placed backwards, prevented recovery) - becomes silty, some sand, very stiff below 1.6 m - becomes damp, medium plastic below 2.5 m			2	19				570
2										
3		SPT blow counts per 3 inches (3.1 m to 3.7 m): 1/1//2/3/3/9//6/4 N-value (N): 17 Recovery: 0.43 m			SPT3	17	13.1			569
4										568
5		SAND and GRAVEL, silty, trace clay, well graded, wet, grey; fine to coarse sand; fine to coarse subangular gravel			SH4 5					567
10/4/2017		SHELBY TUBE (4.6 m to 5.3 m) refused at 5.3 m Recovery: 0.48 m Tube severely damaged								10/4/2017
6					6		12.5			566
		CLAY, silty, some sand, some gravel, damp, very stiff, medium plastic, dark grey; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel; trace sulphates - becomes sandy, trace gravel with depth			SPT7	20	13.8			565
7		SPT blow counts per 3 inches (6.1 m to 6.7 m): 3/3//3/5/6/6//7/8 N-value (N): 20 Recovery: 0.42 m								
8		SPT blow counts per 3 inches (7.6 m to 8.2 m): 2/2//3/3/4/5//6/6 N-value (N): 15 Recovery: 0.48 m			SPT8	15	14.8			564
9										563
		SPT blow counts per 3 inches (9.2 m to 9.8 m): 2/2//3/4/5/4//8/8 N-value (N): 16 Recovery: 0.52 m			SPT9	16	14.5			562
10										
		SPT blow counts per 3 inches (10.7 m to 11.3 m): 2/8//8/6/11/17//14/11 N-value (N): 42 Recovery: 0.47 m			SPT10	42				561
11		- 5 cm thick layer of SAND, gravelly, well-graded, dense, grey; fine to coarse sand; fine to coarse gravel at 11.0 m								560
		CLAY (TILL-LIKE), silty, some gravel, some sand, damp, hard, medium plastic, dark grey; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel				100				
12		SPT blow counts per 2 inches (11.9 m to 11.95 m): 22/REFUSAL N-value (N): REFUSAL Recovery: 0 m - bouncing on cobble or boulder								559
13		End of borehole at 11.9 m (Auger and SPT refusal at 11.9 m depth) - Testhole backfilled with cuttings and bentonite. - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective.								558
14										
15										557

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 11.95 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 3, 2017
Logged By: DG	Completion Date: October 4, 2017
Reviewed By: KJ	Page 1 of 2

Public Works and Government Services Canada

Borehole No: **TH17-01**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 571.592 m
Prophet River, BC	UTM: 516589.062 E; 6433081.291 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	■SPT (N)■ 20 40 60 80 / ▲Pocket Pen. (kPa)▲ 100 200 300 400	Elevation (m)
15		- Reported SPT values are uncorrected field values. - Collar elevation and testhole coordinates were surveyed.								556
16										555
17										554
18										553
19										552
20										551
21										550
22										549
23										548
24										547
25										546
26										545
27										544
28										543
29										542
30										

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 11.95 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 3, 2017
Logged By: DG	Completion Date: October 4, 2017
Reviewed By: KJ	Page 2 of 2

Public Works and Government Services Canada

Borehole No: **TH17-02**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 550.822 m
Prophet River, BC	UTM: 516530.359 E; 6432806.421 N; Z 10

Depth (m)	Method	Soil Description	Sample Number	SPT (N)	Moisture Content (%)
0	Solid Stem Auger	CLAY, silty, some sand, some gravel, trace organics (rootlets, wood pieces), damp, firm to stiff, high plastic, dark grey; fine to coarse sand; fine to coarse angular to sub-rounded gravel; with thin silty sand laminations (<1 mm thick)			
1		- becomes trace sand, trace gravel below 0.9 m	1		28.8
2		SPT blow counts per 3 inches (1.5 m to 2.1 m) : 0/1//2/2/2/3//3/3 N-value (N): 9 Recovery: 0.52 m	SPT2	9	
3		SPT blow counts per 3 inches (3.0 m to 3.6 m) : 0/0//1/1/1/2//2/2 N-value (N): 5 Recovery: 0.45 m	5		35.2
			SPT3	5	
4		- becomes moist below 3.0 m	4		29.3
		CLAY, silty, moist, soft to firm, low plastic, dark grey			
5		CLAY, silty, trace sand, trace gravel, moist, firm to stiff, high plastic, dark grey; fine to coarse sand; fine to coarse angular to sub-rounded gravel; with frequent smooth glossy surfaces, horizontal to sub-vertical; trace sulphates	SPT6	6	
		SPT blow counts per 3 inches (4.6 m to 5.2 m) : 1/1//1/1/2/2//2/2 N-value (N): 6 Recovery: 0.64 m			
6		- becomes damp, stiff, medium plastic, dark grey; fine gravel	7		12.7
		SPT blow counts per 3 inches (6.1 m to 6.7 m) : 1/2//2/3/4/3//5/6 N-value (N): 12 Recovery: 0.55 m	SPT8	12	
7					
8		SPT blow counts per 3 inches (7.6 m to 8.2 m) : 2/3//4/3/6/5//6/8 N-value (N): 18 Recovery: 0.62 m - becomes very stiff below 7.6 m - 20 mm thick layer of fine to medium sand at 7.85 m	SPT9	18	13.1
9		- becomes wet at 9.0 m			
		SPT blow counts per 3 inches (9.2 m to 9.8 m) :5/6//6/4/4/5//7/6 N-value (N): 19 Recovery: 0.54 m	SPT10A SPT10B	19	
10		SAND, trace silt, trace gravel, poorly graded, fine to coarse (mostly fine), wet, grey brown			
11		CLAY, silty, some sand, some gravel, moist, stiff, medium plastic, dark grey; fine to coarse sand; fine sub-angular to sub-rounded gravel; trace sulphates	11	30	16.3
		SPT blow counts per 3 inches (10.7 m to 11.3 m) : 2/4//6/6/9/9//14/13 N-value (N): 30 Recovery: 0.25 m - fractured piece of gravel or cobble was blocking SPT shoe and likely affected blowcounts			
12			12	28	15.1
13		- becomes fine to coarse gravel below 10.7 m SPT blow counts per 3 inches (12.2 m to 12.8 m) : 2/4//4/5/10/9//7/9 N-value (N): 28 Recovery: 0.39 m			
14		- occasional layers of well graded fine to coarse gravelly sand between 12.9 m and 13.2 m			
		End of borehole at 13.7 m (Target depth reached) - Testhole backfilled with cuttings and bentonite.			
15					

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

SPT (N): 20 40 60 80

Pocket Pen. (kPa): 100 200 300 400

Elevation (m): 550 549 548 547 546 545 544 543 542 541 540 539 538 537 536

10/8/2017

10/8/2017

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 13.7 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 8, 2017
Logged By: DG	Completion Date: October 8, 2017
Reviewed By: KJ	Page 1 of 2

Public Works and Government Services Canada

Borehole No: **TH17-02**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 550.822 m
Prophet River, BC	UTM: 516530.359 E; 6432806.421 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	■SPT (N)■ 20 40 60 80 / ▲Pocket Pen. (kPa)▲ 100 200 300 400	Elevation (m)
15		- Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Collar elevation and testhole coordinates were surveyed.								535
16										534
17										533
18										532
19										531
20										530
21										529
22										528
23										527
24										526
25										525
26										524
27										523
28										522
29										521
30										

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 13.7 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 8, 2017
Logged By: DG	Completion Date: October 8, 2017
Reviewed By: KJ	Page 2 of 2

Public Works and Government Services Canada

Borehole No: **TH17-03**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 540 m
Prophet River, BC	UTM: 516466 E; 6432691 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	SPT (N) (20 40 60 80)	SI17-03	VW17-03	Elevation (m)
0		ROAD FILL - No recovery										540
1												539
2												538
3		CLAY, silty, trace sand, trace gravel, trace organics (wood pieces), damp, firm, high plastic, dark grey with brown mottling; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel; with thin silty sand laminations (<1 mm thick) and lenses (<10 mm thick); trace sulphates			SPT1	7	21.6					537
4		SPT blow counts per 3 inches (3.0 m to 3.6 m) : 1/1//1/1/2/3//3/4 N-value (N): 7 Recovery: 0.28 m										536
5		SHELBY TUBE (4.6 m to 5.35 m) Recovery: 0.42 m			SH2		18.8					535
6		- becomes no organics below 6.0 m SPT blow counts per 3 inches (6.1 m to 6.7 m) : 0/1//1/2/1/3//2/4 N-value (N): 7 Recovery: 0.34 m			SPT3	7	43.1					534
7	Mud-Rotary	- becomes trace sand, moist, grey with brown laminations below 6.1 m			SPT4A							533
8		SILT, sandy, wet, soft to firm, non-plastic, grey - depth to top of stratum may be shallower SPT blow counts per 3 inches (7.6 m to 8.2 m) : 1/2//1/1/1/2//2/1 N-value (N): 5 Recovery: 0.48 m			SPT4B	5	25.5					532
9					SPT5A	7	25.8					531
					SPT5B		14.6					
					SPT5C							
10		CLAY, silty, trace sand, frequent organics (wood pieces and black amorphous material), moist, soft, medium plastic, grey brown, organic odour SPT blow counts per 3 inches (8.5 m to 9.1 m) : 1/2//2/2/2/1//3/2 N-value (N): 7 Recovery: 0.46 m										530
11		SILT, sandy, trace clay, moist, non-plastic, very soft, grey brown			SPT6	11	15.8					529
12		CLAY, silty, trace sand, trace gravel, moist, soft, high plastic, dark grey; fine to coarse sand; fine sub-angular gravel										528
13		CLAY, some silt, trace sand, trace gravel, moist, stiff, medium plastic, dark grey; fine to coarse sand (mostly fine); fine sub-angular to sub-rounded gravel; lenses of fine sand, trace silt less than 10 mm thick SPT blow counts per 3 inches (10.7 m to 11.3 m) : 1/1//2/3/3/3//3/5 N-value (N): 11 Recovery: 0.44 m										527
14					SPT7	11	16.2					526
15		SPT blow counts per 3 inches (13.7 m to 14.3 m) : 2/2//2/3/3/3//4/4										525

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 19.5 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 19, 2017
Logged By: DG	Completion Date: October 19, 2017
Reviewed By: KJ	Page 1 of 2

Public Works and Government Services Canada

Borehole No: **TH17-03**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 540 m
Prophet River, BC	UTM: 516466 E; 6432691 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	SPT (N) (20 40 60 80)	SI17-03	VW17-03	Elevation (m)
15												525
16	Mud-Rotary	N-value (N): 11 Recovery: 0.63 m - soft wet disturbed zone from 14.0 m to 14.1 m No recovery below 14.3 m - Mud-rotary drilling to 19.5 m depth for SI installation. No recovery below 14.3 m - Mud-rotary drilling to 19.5 m depth for SI installation.										524
17												523
18												522
19												521
20		End of borehole at 19.5 m (Target depth reached) - VW piezometer and 70 mm diameter SI installed and grouted in testhole upon completion and protected with a flush mount well cover. VW Model: RST VW2100-0.35 Serial Number: VW40757 Depth: 18.95 m - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Testhole coordinates obtained with handheld GPS and are approximate.									520
21												519
22												518
23												517
24												516
25												515
26												514
27												513
28												512
29												511
30												510

TETRA TECH

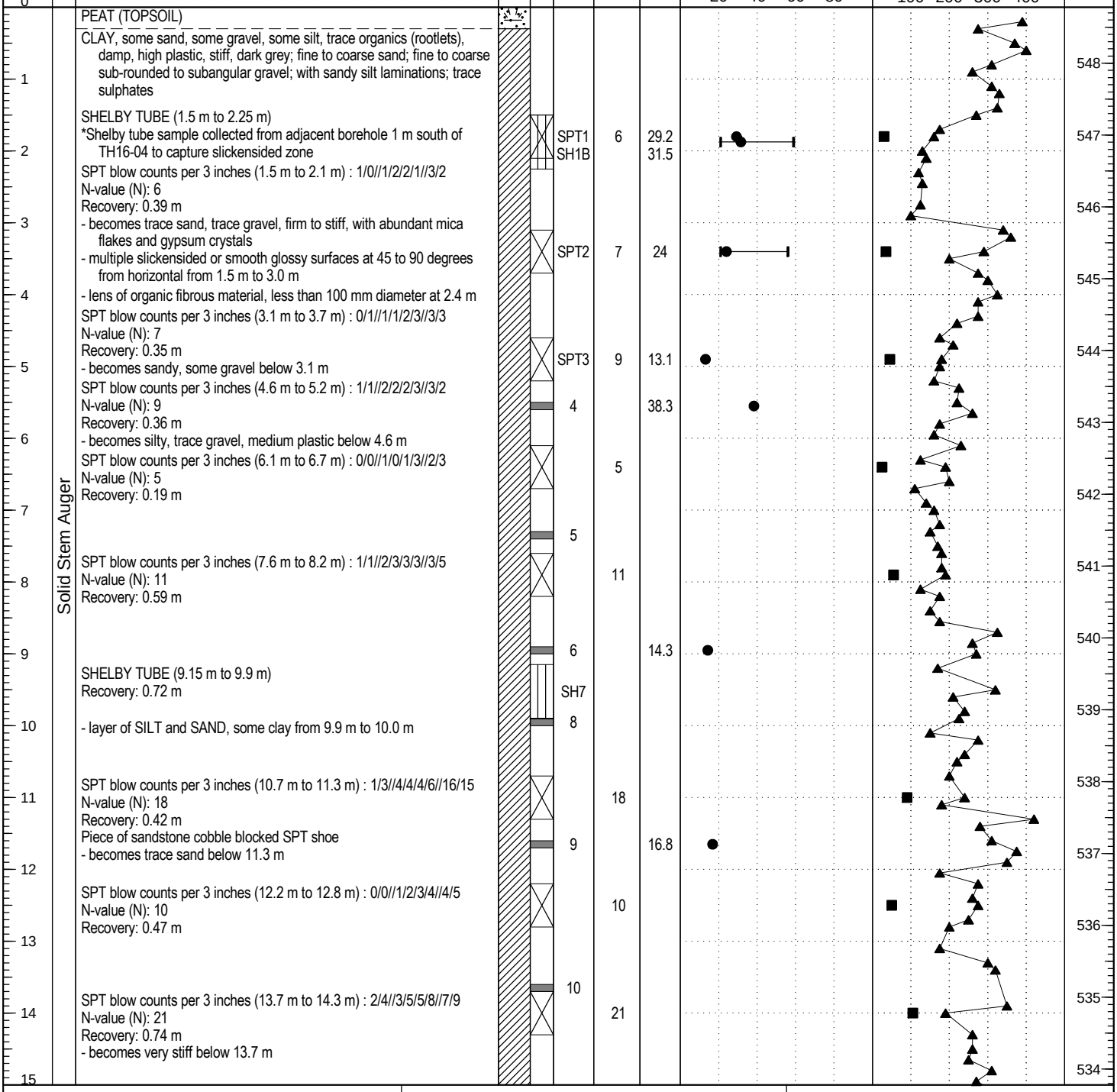
Contractor: Geotech Drilling	Completion Depth: 19.5 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 19, 2017
Logged By: DG	Completion Date: October 19, 2017
Reviewed By: KJ	Page 2 of 2

Public Works and Government Services Canada

Borehole No: **TH17-04**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 548.778 m
Prophet River, BC	UTM: 516487.243 E; 6432611.66 N; Z 10

Depth (m)	Method	Soil Description	Sample Number	SPT (N)	Moisture Content (%)
0	Solid Stem Auger	PEAT (TOPSOIL)			
		CLAY, some sand, some gravel, some silt, trace organics (rootlets), damp, high plastic, stiff, dark grey; fine to coarse sand; fine to coarse sub-rounded to subangular gravel; with sandy silt laminations; trace sulphates			
1		SHELBY TUBE (1.5 m to 2.25 m) *Shelby tube sample collected from adjacent borehole 1 m south of TH16-04 to capture slickensided zone	SPT1 SH1B	6	29.2 31.5
2		SPT blow counts per 3 inches (1.5 m to 2.1 m) : 1/0//1/2/2/1//3/2 N-value (N): 6 Recovery: 0.39 m - becomes trace sand, trace gravel, firm to stiff, with abundant mica flakes and gypsum crystals - multiple slickensided or smooth glossy surfaces at 45 to 90 degrees from horizontal from 1.5 m to 3.0 m			
3			SPT2	7	24
4		- lens of organic fibrous material, less than 100 mm diameter at 2.4 m SPT blow counts per 3 inches (3.1 m to 3.7 m) : 0/1//1/1/2/3//3/3 N-value (N): 7 Recovery: 0.35 m			
5		- becomes sandy, some gravel below 3.1 m SPT blow counts per 3 inches (4.6 m to 5.2 m) : 1/1//2/2/2/3//3/2 N-value (N): 9 Recovery: 0.36 m	SPT3	9	13.1
6		- becomes silty, trace gravel, medium plastic below 4.6 m SPT blow counts per 3 inches (6.1 m to 6.7 m) : 0/0//1/0/1/3//2/3 N-value (N): 5 Recovery: 0.19 m	4		38.3
7				5	
8		SPT blow counts per 3 inches (7.6 m to 8.2 m) : 1/1//2/3/3/3//3/5 N-value (N): 11 Recovery: 0.59 m	5		
9				11	
10		SHELBY TUBE (9.15 m to 9.9 m) Recovery: 0.72 m - layer of SILT and SAND, some clay from 9.9 m to 10.0 m	6 SH7 8		14.3
11		SPT blow counts per 3 inches (10.7 m to 11.3 m) : 1/3//4/4/4/6//16/15 N-value (N): 18 Recovery: 0.42 m Piece of sandstone cobble blocked SPT shoe - becomes trace sand below 11.3 m		18	
12			9		16.8
13		SPT blow counts per 3 inches (12.2 m to 12.8 m) : 0/0//1/2/3/4//4/5 N-value (N): 10 Recovery: 0.47 m		10	
14		SPT blow counts per 3 inches (13.7 m to 14.3 m) : 2/4//3/5/5/8//7/9 N-value (N): 21 Recovery: 0.74 m - becomes very stiff below 13.7 m	10	21	
15					



Elevation (m)
548
547
546
545
544
543
542
541
540
539
538
537
536
535
534

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 15.3 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 9, 2017
Logged By: DG	Completion Date: October 9, 2017
Reviewed By: KJ	Page 1 of 2

Public Works and Government Services Canada

Borehole No: **TH17-04**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 548.778 m
Prophet River, BC	UTM: 516487.243 E; 6432611.66 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	■SPT (N)■ 20 40 60 80 / ▲Pocket Pen. (kPa)▲ 100 200 300 400	Elevation (m)
15	Solid Stem Auger	End of borehole at 15.3 m (Target depth reached) - Testhole backfilled with cuttings and bentonite. - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Upon completion of testhole, augered an adjacent testhole 1 m south of TH17-04 to collect an undisturbed sample in slickensided zone. - Collar elevation and testhole coordinates were surveyed.			11		17.8			533
16										532
17										531
18										530
19										529
20										528
21										527
22										526
23										525
24										524
25										523
26										522
27										521
28										520
29										519
30										

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 15.3 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 9, 2017
Logged By: DG	Completion Date: October 9, 2017
Reviewed By: KJ	Page 2 of 2

Public Works and Government Services Canada

Borehole No: **TH17-06**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 531 m
Prophet River, BC	UTM: 516367 E; 6432481 N; Z 10

Depth (m)	Method	Soil Description	Sample Type	Sample Number	SPT (N)	Moisture Content (%)
0	Solid Stem Auger	SAND and GRAVEL (ROAD FILL), some silt, occasional cobbles, well graded, damp, dense, brown; fine to coarse sand; fine to coarse angular to sub-rounded gravel		1		
				2		
3		CLAY, silty, trace sand, trace gravel, trace organics (grass, wood fibres), damp, stiff, high plastic, dark grey; fine to coarse sand; fine to coarse angular to sub-rounded gravel; with lenses and laminations of fine sand; trace sulphates		3		14.6
4				4		20.5
		- smooth glossy surface at 70 degrees from horizontal at 3.2 m		5		
5		- smooth glossy non-planar surface at 50 degrees from horizontal at 3.6 m		SH1		15.6
		- 10 cm thick layer of CLAY, silty, damp, firm, medium plastic, grey brown				
6		SILT, some clay, some sand, damp, firm, low plastic, brown		6		13
		CLAY, silty, trace sand, trace gravel, damp, stiff, high plastic, grey brown; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel; with lenses and laminations of fine sand; trace sulphates		SPT2	13	
		SHELBY TUBE (4.6 m to 5.35 m)				
8		- becomes moist below 4.6 m		SPT3	20	
		- becomes some sand, some gravel below 5.3 m				
		- 50 mm thick layer of SAND and GRAVEL, very wet at 5.6 m (possibly entrained material)				
		- potential groundwater level at 5.6 m				
9		SPT blow counts per 3 inches (6.1 m to 6.7 m) : 4/3//3/3/4/3//5/5				
		N-value (N): 13		SPT4	14	18.6
10	Mud-Rotary	Recovery: 0.37 m				
		- becomes silty, trace gravel, damp below 6.1 m				
		- 50 mm thick soft wet disturbed zone at 6.2 m				
11		SPT blow counts per 3 inches (7.6 m to 8.2 m) : 4/3//5/4/6/5//7/7				
		N-value (N): 20				
		Recovery: 0.40 m				
		- becomes some silt, very stiff below 7.6 m				
12		SPT blow counts per 3 inches (9.2 m to 9.8 m) : 3/4//3/3/4/4//4/10				
		N-value (N): 14		SPT5	25	17.8
		Recovery: 0.49 m				
13		SPT blow counts per 3 inches (12.2 m to 12.8 m) : 2/3//5/6/6/8//9/9				
		N-value (N): 25				
		Recovery: 0.53 m				
14		- becomes some gravel below 12.2 m				
15						

Plastic Limit / Moisture Content / Liquid Limit: 20 40 60 80

SPT (N): 20 40 60 80

Pocket Pen. (kPa): 100 200 300 400

SI17-06 | VW17-06 | Elevation (m): 531 530 529 528 527 526 525 524 523 522 521 520 519 518 517 516

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 30.5 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 17, 2017
Logged By: DG	Completion Date: October 18, 2017
Reviewed By: KJ	Page 1 of 3

Public Works and Government Services Canada

Borehole No: **TH17-06**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 531 m
Prophet River, BC	UTM: 516367 E; 6432481 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	SPT (N) (20 40 60 80) / Pocket Pen. (kPa) (100 200 300 400)	SI17-06	VW17-06	Elevation (m)
15												516
16		SPT blow counts per 3 inches (15.3 m to 15.9 m) : 3/2//4/4/5/6//7/8 N-value (N): 19 Recovery: 0.53 m - becomes trace gravel below 15.3 m			SPT6	19	20.3					515
17												514
18												513
19		SPT blow counts per 3 inches (18.3 m to 18.9 m) : 13/8//9/4/6/5//8/10 N-value (N): 24 Recovery: 0.47 m - becomes silty, sandy below 18.3 m			SPT7	24	18					512
20												511
21												510
22	Mud-Rotary	SPT blow counts per 3 inches (21.4 m to 22.0 m) : 2/3//3/3/5/6//6/7 N-value (N): 17 Recovery: 0.63 m - becomes trace sand below 21.4 m - smooth glossy or slickensided surfaces at 21.45 m, 21.65 m, and 21.70 m at 45 to 55 degrees from horizontal			SPT8	17	34.7					509
23												508
24		SILT and SAND, trace clay, poorly graded, fine, wet, compact, dark grey SPT blow counts per 3 inches (24.4 m to 25 m) : 3/3//4/4/5/6//11/12 N-value (N): 19 Recovery: 0.65 m - 40 mm thick layer of CLAY interlaminated with silty SAND at 24.9 m			SPT9	19	23.6					507
25												506
26												505
27												504
28		SPT blow counts per 3 inches (27.5 m to 28.1 m) : 3/6//7/7/7/8//8/8 N-value (N): 29 Recovery: 0.43 m - becomes SAND, silty below 27.5 m			SPT10	29	22					503
29												502
30												501

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 30.5 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 17, 2017
Logged By: DG	Completion Date: October 18, 2017
Reviewed By: KJ	Page 2 of 3

Public Works and Government Services Canada

Borehole No: **TH17-06**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 531 m
Prophet River, BC	UTM: 516367 E; 6432481 N; Z 10

Depth (m)	Method	Soil Description
30	Mud-Rotary	End of borehole at 30.5 m (Target depth reached) - VW piezometer and 70 mm diameter SI installed in testhole upon completion and protected with a flush mount well cover. VW Model: Roctest FR-100DPWS350K Serial Number: 100D1700241 Depth: 29.5 m - Single Channel VW Datalogger installed with the VW piezometer. Serial Number: RST DT06510 - SI casing grouted to surface. - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Solid Stem Auger hole was drilled to 6.1 m depth, offset 1 m south of mud-rotary hole. Grab samples were collected from auger hole. Shelby and SPT samples were collected from mud-rotary hole. Information from both testholes is combined in this log. - Testhole coordinates obtained with handheld GPS and are approximate.
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		

Graphical Representation | Sample Type | Sample Number | SPT (N) | Moisture Content (%)

Plastic Limit | Moisture Content | Liquid Limit
20 40 60 80

■ SPT (N) ■
20 40 60 80

▲ Pocket Pen. (kPa) ▲
100 200 300 400

SI17-06 | VW17-06

Elevation (m)
501
500
499
498
497
496
495
494
493
492
491
490
489
488
487
486

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 30.5 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 17, 2017
Logged By: DG	Completion Date: October 18, 2017
Reviewed By: KJ	Page 3 of 3

Public Works and Government Services Canada

Borehole No: **TH17-07A**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 518.677 m
Prophet River, BC	UTM: 516354.505 E; 6432269.07 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	SPT (N) (20 40 60 80) / Pocket Pen. (kPa) (100 200 300 400)	Elevation (m)
0										
0	Solid Stem Auger	SAND and GRAVEL (ROAD FILL), silty, trace clay, damp, well graded, compact, brown, slight hydrocarbon odour; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel			1					
1		CLAY, silty, some gravel, some sand, trace organics (wood piece, rootlets), damp, firm to stiff, high plastic, dark grey; fine to coarse sand; fine to coarse sub-angular to sub-rounded gravel; with thin laminations and lenses of silty brown sand; trace sulphates			2a	6	21.8			518
2		- becomes trace gravel, trace sand, with occasional subvertical slickensided surfaces below 0.9 m SPT blow counts per 3 inches (1.5 m to 2.1 m) : 31/0//2/1/1/2//2/3 N-value (N): 6 Recovery: 0.42 m								517
3		- becomes some gravel, some sand, slight organic odour, with lenses of fibrous organic material below 1.5 m			2b	9				516
4		SPT blow counts per 3 inches (3.1 m to 3.7 m) : 1/1//3/2/2/2//3/3 N-value (N): 9 Recovery: 0.18 m - becomes trace gravel, trace sand, abundant organics (rootlets, wood pieces, black amorphour lenses), strong organic odour below 3.1 m			3	4	14.9			515
5		SPT blow counts per 3 inches (4.6 m to 5.2 m) : 0/0//1/0/1/2//3/3 N-value (N): 4 Recovery: 0.27 m Shoe blocked by piece of decomposed wood - organic smear on auger sample from 4.6 m to 4.9 m - becomes soft from 4.6 m to 4.9 m - becomes trace organics below 4.6 m			4	8				514
6		SPT blow counts per 3 inches (6.1 m to 6.7 m) : 1/0//1/2/2/3//3/4 N-value (N): 8 Recovery: 0.34 m SPT spoon wet on outside. Top of SPT sample is wet. - becomes some gravel, some sand, trace organics (roots, wood pieces, grass); with slickensided or smooth glossy surfaces			5	9	27.5			513
7		SPT blow counts per 3 inches (8.6 m to 8.2 m) : 1/1//2/2/3/2//5/4 N-value (N): 9 Recovery: 0 m			6					512
8		SAND and SILT, poorly graded, moist, fine, compact, dark grey								511
9		SPT blow counts per 3 inches (8.6 m to 8.2 m) : 4/4//5/6/7/7//8/8 N-value (N): 25 Recovery: 0.65 m			SPT7	25				510
10		End of borehole at 9.8 m (Target depth reached) - Testhole backfilled with cuttings and bentonite. - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Collar elevation and testhole coordinates were surveyed.								509
11										508
12										507
13										506
14										505
15										504

10/10/2017

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 9.8 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 9, 2017
Logged By: DG	Completion Date: October 9, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-07B**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 518.5 m
Prophet River, BC	UTM: 516354 E; 6432242 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Elevation (m)
0	Solid Stem Auger	SAND and GRAVEL (ROAD FILL), trace silt, well graded, damp, dense, brown; fine to coarse sand; fine to coarse angular to sub-rounded gravel			1			518
1		CLAY, silty, trace sand, trace gravel, trace organics (wood pieces, roots), damp, stiff to firm, medium plastic, dark grey; fine to coarse sand; fine to coarse angular to sub-rounded gravel; with lenses of black amorphous organic material						517
2					2	6.1	●	516
3					3	15.4	●	515
4								514
5		End of borehole at 4.6 m (Target depth reached) - Testhole backfilled with cuttings and bentonite. - Estimates of the soil consistency were determined from SPT blow counts, drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Reported SPT values are uncorrected field values. - Testhole coordinates obtained with handheld GPS and are approximate.						513
6								512
7								511
8								510
9								509
10								508
11								507
12								506
13								505
14								504
15								

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 4.6 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 10, 2017
Logged By: DG	Completion Date: October 10, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-D**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 556.075 m
Prophet River, BC	UTM: 516538.878 E; 6432872.439 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Elevation (m)
0		BST - 0.15 m thick						556
		SAND and GRAVEL (ROAD FILL), trace silt, damp, well graded, dense, brown; fine to coarse sand (mostly fine); fine to coarse sub-rounded to sub-angular gravel			D1	2.7		
1	Solid Stem Auger	CLAY, silty, some sand, some gravel, trace organics (rootlets, wood pieces, lenses of black amorphous material), damp, stiff, high plastic, dark grey; fine to coarse sand; fine sub-rounded to sub-angular gravel						555
		- slickensided surface at 45 degrees from horizontal at 1.2 m			D2	23.7		
2		- slickensided surfaces at 60 to 85 degrees from horizontal at 2.0 m						554
3					D3			553
		End of borehole at 3.1 m (Target depth reached) - Testhole backfilled with cuttings, filter sand, and concrete. - Estimates of the soil consistency were determined from drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Collar elevation and testhole coordinates were surveyed.						
4								552
5								

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 3.1 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 4, 2017
Logged By: DG	Completion Date: October 4, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-E**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 530.547 m
Prophet River, BC	UTM: 516374.904 E; 6432471.145 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Elevation (m)
0		BST - 0.03 m thick						
		SAND (ROAD FILL), gravelly, some silt, damp, well graded, dense, brown; fine to coarse sand; fine to coarse sub-rounded to sub-angular gravel						530
					E1			
1		- becomes silty below 0.9 m						
					E2			
	Solid Stem Auger	CLAY, silty, some gravel, some sand, trace organics (rootlets), damp, stiff, high plastic, dark grey; fine to coarse sand; fine sub-rounded to sub-angular gravel						529
2								
								528
					E3	13.5	●	
3								
		End of borehole at 3.1 m (Target depth reached) - Testhole backfilled with cuttings, filter sand, and concrete. - Estimates of the soil consistency were determined from drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Collar elevation and testhole coordinates were surveyed.						527
4								
								526
5								

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 3.1 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 5, 2017
Logged By: DG	Completion Date: October 5, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-O**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 517.974 m
Prophet River, BC	UTM: 516346.676 E; 6432229.148 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Pocket Pen. (kPa) (100 200 300 400)	Elevation (m)
0		BST - 0.33 m thick							
		SAND and GRAVEL (ROAD FILL), some silt, occasional cobble, damp, well graded, dense, brown, hydrocarbon odour; fine to coarse sand; fine to coarse angular to sub-rounded gravel			O1				
					O2				
1									517
	Solid Stem Auger	CLAY, silty, some sand, trace gravel, trace organics (rootlets, wood pieces), damp, stiff, high plastic, dark grey; organic odour; fine to coarse sand; fine to coarse sub-rounded gravel; with lenses and laminations of fine sand			O3	13.3			
2									516
					O4	17.4			
3									515
		End of borehole at 3.1 m (Target depth reached) - Testhole backfilled with cuttings, filter sand, and concrete. - Estimates of the soil consistency were determined from drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Collar elevation and testhole coordinates were surveyed.							
4									514
5									513

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 3.1 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 6, 2017
Logged By: DG	Completion Date: October 6, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-P**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	Ground Elev: 539.781 m
Prophet River, BC	UTM: 516436.581 E; 6432622.739 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	▲Pocket Pen. (kPa)▲ (100 200 300 400)	Elevation (m)
0		BST - 0.38 m thick							
		SAND and GRAVEL (ROAD FILL), some silt, occasional cobble, damp, well graded, dense, brown, hydrocarbon odour; fine to coarse sand; fine to coarse angular to sub-rounded gravel			P1				539
1	Solid Stem Auger	CLAY, silty, some gravel, some sand, trace organics (rootlets, wood pieces), damp, stiff, high plastic, dark grey; organic odour; fine to coarse sand; fine to coarse sub-rounded gravel; with lenses and laminations of fine sand			P2	17.8	●		538
2									
3					P3	19.1	●		537
		End of borehole at 3.1 m (Target depth reached) - Testhole backfilled with cuttings, filter sand, and concrete. - Estimates of the soil consistency were determined from drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Collar elevation and testhole coordinates were surveyed.							536
4									535
5									

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 3.1 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 6, 2017
Logged By: DG	Completion Date: October 6, 2017
Reviewed By: KJ	Page 1 of 1

Public Works and Government Services Canada

Borehole No: **TH17-Q**

Project: Bougie Creek	Project No: 704-TRN.VHWY03084
Location: Alaska Highway	
Prophet River, BC	UTM: 516556 E; 6433033 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Pocket Pen. (kPa) (100 200 300 400)	Depth (ft)
0									0
	Solid Stem Auger	BST - 0.25 m thick							
		SAND and GRAVEL (ROAD FILL), some silt, occasional cobble, damp, well graded, dense, brown, hydrocarbon odour; fine to coarse sand; fine to coarse angular to sub-rounded gravel - filter fabric encountered underneath the roadfill			Q1				1
1					Q2				2
		CLAY, silty, some gravel, some sand, damp, stiff, high plastic, dark grey; organic odour; fine to coarse sand; fine to coarse sub-rounded gravel; with lenses and laminations of fine sand			Q3	13.6	●		3
2		SAND, some silt, moist, loose, grey brown; poorly graded fine sand			Q4	19.4	●		4
		CLAY, silty, some gravel, some sand, moist, stiff; fine to coarse sand; fine gravel							5
		SAND, some silt, moist, loose, grey brown; poorly graded fine sand			Q5				6
3		SAND, some silt, some gravel, moist, loose, grey brown; fine to coarse well graded sand; fine sub-angular gravel			Q6	12.4	●		7
		End of testhole at 3.1 m (Target depth reached) - Testhole backfilled with cuttings, filter sand, and concrete. - Estimates of the soil consistency were determined from drill rig performance, and visual classification of recovered samples. These estimates are based on engineering judgment and are subjective. - Testhole coordinates obtained with handheld GPS and are approximate.							8
4									9
									10
									11
									12
									13
									14
									15
									16
5									

TETRA TECH

Contractor: Geotech Drilling	Completion Depth: 3.1 m
Drilling Rig Type: FRASTE MDXL	Start Date: October 6, 2017
Logged By: DG	Completion Date: October 6, 2017
Reviewed By: KJ	Page 1 of 1

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GEOTECHNICAL

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The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this document, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function. Where temporary or permanent drainage systems are installed within or around a structure, these systems must protect the structure from loss of ground due to mechanisms such as internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design details regarding the geotechnical aspects of such systems (e.g. bedding material, surrounding soil, soil cover, geotextile type) should be reviewed by the geotechnical engineer to confirm the performance of the system is consistent with the conditions used in the geotechnical design.

1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.