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C-401	8	1 - 2022.04.05	TYPICAL DETAILS
C-402	9	1 - 2022.04.05	TYPICAL DETAILS
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Appendices:

- A. Parks Canada National Best Management Practices – Roadway, Highway, Parkway and Related Infrastructure, May 2015
- B. Pratiques exemplaires nationales de gestion de Parcs Canada - Routes, autoroutes, promenades et infrastructure connexe – Mai 2015
- C. Construction Signage Translation Rev 2 – November 2019
- D. Marmot Pit Plan – June 2021
- E. Directives a l'intention des titulaires de permis exerçant des activités dans les plans d'eau de l'Unité de gestion du secteur de Lake Louise et des parcs nationaux Yoho et Kootenay – avril 2017
- F. Direction for Permitted Users conducting water-related activities in LLYK – April 2017
- G. Basic Impact Analysis (BIA) Mitigations

01 11 00 SUMMARY OF WORK**Part 1 General****1.1 PRECEDENCE**

- .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.2 DEFINITIONS

- .1 British Columbia Ministry of Transportation and Infrastructure is referred to as "MoTI".
 - .1 The latest version of the BC MoTI Standard Specifications for Highway Construction is to be used.
- .2 Alberta Transportation is referred to as "AT".
 - .1 The latest version of the AT Standard Specifications for Highway Construction is to be used.
- .3 Changes in Definition, - The following changes in definitions have been made to the "BC MoTI Specifications":
 - .1 Ministry Representative – The word "Ministry Representative" shall mean Parks Canada Departmental Representative or their duly appointed representative.
 - .2 Ministry – The word "Ministry" shall mean Parks Canada Agency.
- .4 Changes in Definition, - The following changes in definitions have been made to the "AT Specifications":
 - .1 Consultant – The word "Consultant" shall mean Departmental Representative or their duly appointed representative.
 - .2 Department – The word "Department" shall mean Parks Canada Agency.
- .5 Jasper National Park of Canada is referred to as "JNP".
- .6 Trans-Canada Highway is referred to as "TCH"
- .7 Parks Canada Agency is referred to as "PCA".
- .8 Canadian Pacific Railway is referred to as "CP Rail".
- .9 Environmental Surveillance Officer is referred to as "ESO".
- .10 Watercourse is as defined in the National Parks Act.
- .11 Site means the areas on or within the limits of Construction as referenced on the Drawings and/or described in the Contract Documents.
- .12 Work means the provision of all labour, services, material, and equipment as necessary for the Contractor to complete and perform its obligations in accordance with the Contract.

1.3 PROJECT LOCATION

- .1 The project is located in Jasper National Park, Alberta. Construction work is within Whistlers Campground. The following are key locations relative to the project:
 - .1 Hwy 93N km 0 – TCH and 93N Intersection at BNP
 - .2 Hwy 93N km 75.95 – Hwy 93N / Hwy 11 (David Thompson Highway) Intersection
 - .3 Hwy 93N km 225 – Whistlers Rd and 93N Intersection at JNP

.4 Hwy 93N km 227.4 - Hwy 16 and 93N Intersection at JNP

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- .1 All requirements noted within the Contract Documents shall be completed by the Contractor unless specifically stated otherwise.
- .2 Without limiting the scope of work, the work of this Contract generally comprises the following, as directed by the Departmental Representative:
 - .1 Stripping of organic material designated in the Contract documents and in accordance with Section 31 24 13 – Roadway and Drainage Excavation.
 - .2 Installation and maintenance of temporary barriers and supply and installation of temporary traffic control and other temporary construction facilities required for the Work.
 - .3 Excavating all types of material from the right-of-way cuts, hauling and placing this material as designated in the Contract Documents and in accordance with Section 31 24 13 – Roadway and Drainage Excavation.
 - .4 Load, haul and place materials in accordance with Section 32 11 24 – Granular Base Course and Section 33 46 19 – Drain Rock and Drainage Works.
 - .5 Placement of topsoil on finished slopes in accordance with Section 32 91 19 – Topsoil Placement and Grading.
 - .6 Supply and installation of hydroseeding on finished slopes in accordance with Section 32 92 22 – Hydraulic Seeding.
 - .7 Traffic signage, control and other traffic accommodations in accordance with Section 01 35 31 – Special Procedures for Traffic Control.
 - .8 Miscellaneous Additional Work as directed by the Departmental Representative.
- .3 The following is a summary of the available pits, intended uses and Owner Furnished Items. To be used in combination with 1.10 – Owner Furnished Items and all other Specifications and Contract Documents. This table is provided for clarification purposes only.
 - .1 The Contractor may choose to supply any of the available Owner Furnished Items from outside of the Park. No additional payment will be made for supply of materials from outside of the Park.

Location	Material	Quantity Available	Use For
Marmot Pit	20mm Granular Base Course	3,515 m3	Campsites & Shower Buildings
	Manufactured Fines	4,155 m3	Pathways
	16mm Drain Rock	38 m3	Sumps
	400mm Drain rock	198 m3	Sumps
	40mm Drain Rock	396 m3	Shower Buildings

- .4 The Contractor will not be permitted to set up a crushing plant within the National Parks.
- .5 There is no power available at Marmot Pit.

- .6 The Contractor is responsible for sourcing water required for the Works from outside of the National Parks.
- .7 In preparation for and during construction of this project, an “Environmental Protection Plan” (EPP) is to be prepared by the Contractor to meet the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. The Contractor’s EPP must be approved by Parks Canada Agency prior to the commencement of construction. The Departmental Representative and Parks Canada’s Environmental Surveillance Officer (ESO) will refer to the approved EPP in determining compliance with the Plan and Contract Documents. The EPP will form part of the Contract.
- .8 Where material and construction specifications for work covered under the Contract, including any Change Orders are not available, **AT - Standard Specifications for Highway Construction (latest edition)** shall apply unless directed otherwise by the Departmental Representative.

1.5 CONTRACT METHOD

- .1 Construct Work under combined price Contract.

1.6 WORK BY OTHERS

- .1 The Contractor is advised that the following Work and anticipated completion in the vicinity has been or will be contracted by Parks Canada:
 - .1 Registration Centre Acoustic Panel Installation – 2022
 - .2 Regular PCA Staff Operations within the campground - 2022
- .2 Where it is necessary that work is to proceed in areas of this project common to both the Contractor and forces of others, the Contractor shall cooperate with the other Contractors and the PCA Departmental Representative in reviewing their construction schedules and sharing their workspace, and shall coordinate their operations with the other Contractors, including traffic management and construction staging.
- .3 The Contractors shall coordinate all work on this project with other Contractors including Site Safety and Traffic Control.
- .4 The borrow, staging areas and pits mentioned in the Contract Documents are operational and are used by many contractors and Parks Canada. The Contractor shall coordinate and cooperate with the other users of the applicable areas.

1.7 WORK SEQUENCE

- .1 Schedule work progress to allow Owner / Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 Maintain fire and emergency access on the roadways at all times.
- .3 Co-ordinate Work with other Contractors / Departmental Representatives doing maintenance, survey / testing work.
- .4 The Contractor shall prepare a meaningful bar chart or network diagram showing the proposed schedules of major work, which shall be submitted to the Departmental Representative in accordance with Section 01 32 16 - Construction Progress Schedules.
- .5 For **Phase 1** of the project, the Contractor shall:
 - .1 **Assume a Contract Award Date of May 4, 2022.**
 - .2 **Complete work on campsite locations by May 30, 2022.**

- .3 **Complete work on shower building locations by June 13, 2022.**
- .4 **Complete all of the Work in Phase 1 by June 20, 2022.**
- .6 For **Phase 2** of the project, the Contractor shall:
 - .1 **Mobilize to site no earlier than October 11, 2022.**
 - .2 **Obtain the Interim Certificate (Substantial Performance) by October 29, 2022.**
 - .3 **Complete all of the Work by November 4, 2022 (Contract Completion Date).**

1.8 CONTRACTOR USE OF PREMISES

- .1 Contractor has unrestricted use of site subject to Section 01 14 00 –Work Restrictions and Section 01 29 01 – Site Occupancy, until Contract Completion date. The Contractor's use of the site is not exclusive of other contractors or work zones within the limits of this Contract.
- .2 Contractor shall limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Work by other Contractors.
- .3 Coordinate use of premises under direction of the Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 The Contractor and any subcontractors shall obtain a business license and vehicle work passes in accordance with Section 01 35 43 - Environmental Procedures.

1.9 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.
- .3 Contractor must allow access to the Work Site for other Contractors and PCA. It is up to the Contractor to plan their work accordingly.

1.10 OWNER FURNISHED ITEMS

- .1 Notify the Departmental Representative immediately of any Owner supplied items which may be unfit for purpose.
- .2 Materials and quantities are in accordance with the table in Section 1.4 – Work Covered by Contract Documents.
 - .1 Contractor is responsible for any inspections and testing required to determine suitability and confirming available quantity of Owner Furnished Items for use in the Works.
- .3 The Contractor may choose to supply aggregates from outside of the Park instead of using the Owner Furnished materials.

1.11 CONSTRUCTION SIGNAGE

- .1 To be in accordance with Section 01 35 31 - Special Procedures for Traffic Control.
- .2 Signage shall be coordinated with other Contractors.

- .3 No signs or advertisements, other than warning signs, are permitted on site.

1.12 SETTING OUT OF WORK

- .1 Departmental Representative will establish control points and provide:
 - .1 Complete set of construction Drawings.
 - .2 Provide a list of control monuments including coordinates and elevations on request.
- .2 Contractor shall:
 - .1 Not permanently mark any infrastructure or feature during their setting out of the work. They shall fully remove any set out marks, markers, or other identifiers that they installed, prior to demobilizing from the Work Sites.
 - .2 Set additional control points as necessary.
 - .3 Set all work stakes necessary to complete work.
 - .4 Not damage geodetic benchmarks or control monuments unless authorized by Departmental Representative.
- .3 No separate payment for setting out work, unless changes are made and approved by the Departmental Representative and additional survey costs are incurred.

Part 2 Products

- .1 To be in accordance with AT - Standard Specifications for Highway Construction (latest edition).
- .2 Wherever American Society for Testing and Materials (ASTM), Canadian Standards Association (CSA/CAN), Canadian General Standards Board (CGSB) or American Association of State Highway and Transportation Officials (AASHTO) standards are referenced the latest versions of those standards shall apply.

Part 3 Execution

- .1 To be in accordance with AT - Standard Specifications for Highway Construction (latest edition).
- .2 Wherever American Society for Testing and Materials (ASTM), Canadian Standards Association (CSA/CAN), Canadian General Standards Board (CGSB) or American Association of State Highway and Transportation Officials (AASHTO) standards are referenced the latest versions of those standards shall apply.

END OF SECTION

01 14 00 WORK RESTRICTIONS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 ACCESS AND EGRESS

- .1 Provide for pedestrian, cyclist, and vehicular traffic for the duration of the construction.
- .2 Construction operations shall be conducted to cause minimal inconvenience to the public and to owners of adjoining property. Existing access to property shall be maintained as far as possible and if new access must be provided, every effort shall be taken to provide the new access before the existing access is removed. Contractor will be responsible for repairing any damage incurred, at the Contractor's cost.
- .3 The Contractor is responsible for the development and supply of construction access to the Work as approved by the Departmental Representative.

1.3 USE OF THE SITE AND FACILITIES

- .1 The Work Sites specified in the Contract shall only be used for the purposes of the Work.
- .2 The Work Site (limits shown on the Drawings) will be specified by Parks Canada and shall only be used for the purposes of the Work. The Work Site will be made available by Parks Canada to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.
- .3 The Contractor will not be permitted to set up a camp in the National Parks. PCA regulations prohibit anyone working within the Park from using public campground facilities.
- .4 Contractor office and/or tool trailer may also be set up at the campground's overflow parking or other area in the campground as directed by the Departmental Representative. See Section 01 35 43 – Environmental Procedures.
- .5 The Contractor shall not store material or park equipment along the Highway Right of Way within the clear zone.
- .6 Contractor shall maintain adequate drainage at the Work Site.
- .7 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary and at their cost for the performance and inspection of the Work.
- .8 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and Section 01 35 43 - Environmental Procedures. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .9 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at their expense.
- .10 Pets shall not be brought to or maintained at the construction site.

1.4 WORKING TIMES

- .1 Before May 4, 2022 work in JNP is permitted during daylight hours from 07:00 to 22:00, Monday to Saturday unless stipulated otherwise in the Contract Documents.
- .2 After May 4, 2022 work in JNP is permitted from 07:00 to 19:00, Monday to Saturday unless stipulated otherwise in the Contract Documents.
- .3 No work will be permitted on Sundays unless prior written approval is granted by the Departmental Representative
- .4 The Contractor will not be permitted to work during the period of any statutory or civic holiday long weekend, including one day prior to and one day following. The Contractor will not be permitted to work during the following Civic Holidays or long weekends unless prior written approval is granted by the Departmental Representative:
 - .1 Statutory and Civic Holidays (2022)
 - .1 Good Friday weekend: From 19:00 Thursday, April 14, 2022 to 07:00 Tuesday, April 19, 2022.
 - .2 Victoria Day Weekend: From 19:00 Thursday May 19, 2022 to 07:00 Tuesday, May 24, 2022.
 - .3 Thanksgiving Day Weekend: From 19:00 Thursday October 6, 2022 to 07:00 Tuesday, October 11, 2022.
- .5 The Contractor will not be permitted to work/haul on Highway 93N & 93A during the following special events unless prior written approval is granted by the Departmental Representative:
 - .1 Special Events (2022):
 - .1 Jasper Half Marathon – April 23, 2022
 - .2 Jasper Banff Relay – June 4, 2022
 - .3 Grand Fondo Bike Race – June 4, 2022
- .6 Variance of the Working Times and any others may be provided on the strict condition of satisfactory performance in all requirements as determined at the Departmental Representative's discretion and may be revoked at any time for any reason. It is provided on the presumption that no additional costs or any delay will be attributed to Parks Canada in relation to conducting Works in accordance with the Variance and if that is not the case, the Contractor shall not commence work under the Variance. No claims for additional costs, delays, schedule impacts, loss of productivity or other extra Works resulting from a Variance will be entertained.

1.5 WORK CONDUCTED OVER OR ADJACENT TO WATERWAYS

- .1 All components of the Work shall be conducted in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, or streams.
- .3 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the Project.

1.6 UTILITIES

- .1 The Contractor shall become familiar with all utilities and services adjacent to the Work and shall be responsible for cost of repair of any damage resulting from their operations.
- .2 The Contractor shall establish and maintain direct and continuous contact with the owners or operators of any Utilities which may interfere with the Work. The Contractor shall co-operate with them at all times and in all places of Work. The Contractor shall keep the Departmental Representative informed of all communications with the Utility companies and authorities.
 - .1 The Contractor will be required to obtain private locates on PCA infrastructure. This will be considered incidental to the work and will not be measured for payment.
- .3 The Drawings include indicative utility details from within the area for reference however the Contractor remains fully responsible for determining the full and accurate extent of utilities within the area of their Works.
- .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 operations on all Utilities that may be affected by its operations, and shall, in consultation with Utility owner(s), 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.

1.7 SURVEY OF EXISTING CONDITIONS

- .1 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, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.
- .2 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 requested and available, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.
- .3 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.
- .4 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.

- .5 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.

1.8 ARCHAEOLOGICAL RESOURCES

- .1 As described in Section 01 35 43 - Environmental Procedures.

1.9 INSTREAM WORK

- .1 Not allowed.

1.10 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall comply with all applicable safety regulations of WorkSafe AB and the Workers Compensation Act of British Columbia and Alberta including, but not limited to, Occupational Health and Safety Regulations and General Safety Regulations. Within the Site, the Contractor has all the responsibilities of an "employer" under the *Workers Compensation Act* and the *Occupational Health and Safety Regulation* and is designated as the "Prime Contractor".
- .2 Prime Contractor must comply with Workers Compensation Act and Occupational Health and Safety Regulation Section 20.3 Coordination of multiple employer workplaces.
- .3 Comply with all applicable safety regulations of the Workers' Compensation Board of Alberta (WCB) including, but not limited to, WCB's Industrial Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.
- .4 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .5 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.
- .6 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 or, if Parks Canada so directs, shall promptly reimburse to Parks Canada the costs resulting from such loss or damage.

1.11 USE OF PUBLIC AREAS

- .1 Steel tracked equipment with cleats will not be allowed on any pavement surface. If or when crossing asphalt, rubber mats must be used under the tracks to protect the asphalt. Asphalt, granular, embankment and excavation materials may be hauled on existing highway but this shall be by standard highway trucks not exceeding legal highway load limits unless accepted in writing by the Departmental Representative.
- .2 Flag persons shall be provided when vehicles are entering or exiting Work Site access points and when vehicles are entering or exiting gravel pits in the park. Pit access gates must remain closed at all times or have a gate person monitoring the opening for wildlife.
- .3 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 and dirt 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 that will prevent dropping of materials or debris on the roadways and, where contents may otherwise be blown off during transit, such loads shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas 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 Procedures and the Environmental Protection Plan prepared for the project.

- .4 Construction areas and construction crossings shall be flood-lit for night operations.

1.12 USE OF PITS AND QUARRIES

- .1 When the Contractor is operating in a PCA pit or quarry, the Contractor shall utilize the pit or quarry in accordance with the Departmental Representative's authorization. Under no circumstances will waste of useable material be permitted, and excavations shall be continued to depths below water level if suitable material is available.
- .2 The Contractor shall be responsible for managing the operations of the pit gate including but not limited to:
 - .1 Keeping the operational paths of the gate panels (fully closed and fully open) free from obstruction and/or debris build-up;
 - .2 Providing a gate monitor to prevent wildlife movements and unauthorized access to the Pit at all times when the gate is being left open between successive vehicle entries and/or exits regardless of cause.
 - .3 Rectifying any damages to gate components as a result of Contractor use.
- .3 Expansion of working pits is not authorized unless written approval has been given from the Departmental Representative. The Contractor shall confine all work in the pit within the limits of the existing cleared area.
- .4 The Contractor must determine the quality and quantity of material available and the condition of the PCA pit or quarry made available to the Contractor
- .5 The Contractor shall be responsible for managing their working space within the pit(s) and quarries and coordination with Parks Canada contractors, personnel or others, to maintain access.
- .6 Any claims by the Contractor or its subcontractors arising from the quality and quantity of material available, condition of, access and working space within the available pits and quarries will not be entertained, even if those claims are associated with the activities of Contractors or works conducted for Parks Canada Agency.
- .7 No separate payment will be made for clearing, grubbing, disposal or relocation of stockpiles, loss due to stockpile waste, debris or contaminated materials, or for any other costs of site preparation, pit development, pit maintenance and final cleanup, or access, or for any delay or other cost arising from, the suitability of the referenced PCA pit, or the use of referenced PCA pits by others, and all costs thereof shall be covered in the prices for the Items under which payment is provided for the applicable materials.
- .8 Pit excavation must not take place to within a minimum distance of 2m from the edge of cleared and stripped areas.
- .9 All working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H to 1V.

- .10 No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.
- .11 Pit work must be carried out in accordance with the local provincial government Health, Safety and Reclamation requirements, the current Standard Specifications for Highway Construction and Best Management Practices for the area the Work is occurring in.

1.13 USE OF PITS, QUARRIES, AND DISPOSAL SITES, OUTSIDE OF THE NATIONAL PARKS

- .1 When the Contractor is supplying material from a pit or quarry outside of the National Parks the Contractor is responsible for all permits and approvals. Pit or quarry development and reclamation must be in accordance with local and Provincial regulatory agency requirements.
- .2 When the Contractor is disposing of; stripping, unsuitable, or surplus material in a pit or other disposal sites outside of the National Parks the Contractor is responsible for all permits and approvals. Disposal site or pit development and reclamation must be in accordance with local and Provincial regulatory agency requirements.
- .3 The Contractor shall bear and pay all costs, fees, and royalties for pits, quarries, or disposal sites, outside of the National Parks.
- .4 Material supplied from pits and quarries outside of the National Parks must be clean of all, seeds, organics, top soil, or contaminants. No additional payment will be made for cleaning or washing material supplied from pits and quarries outside of the National Parks.
- .5 Material supplied from pits and quarries outside of the National Parks must meet requirements in the Contract Documents.
- .6 Pit excavation must not take place to within a minimum distance of 2m from the edge of cleared and stripped areas.
- .7 All working pit faces, and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H to 1V.
- .8 No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.
- .9 Pit work must be carried out in accordance with the local provincial government Health, Safety and Reclamation requirements, the current Standard Specifications for Highway Construction and Best Management Practices for the area the Work is occurring in.

1.14 SUPERVISORY PERSONNEL

- .1 When requesting a Preconstruction Meeting, in accordance with Section 01 31 00 - Project Management and Coordination, 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.
- .2 At a minimum, the following roles shall be included in the list:
 - .1 Contractor Manager
 - .2 Project Superintendent;
 - .3 Safety Representative;
 - .4 Quality Control Manager;

- .5 Environmental Representative;
- .6 Traffic Control Representative;
- .3 The above roles shall perform the following duties:
 - .1 Contractor Manager with full authority, as agent of the Contractor, to act on behalf of and legally bind the Contractor in connection with the Work and the Contract. The Contractor may, at its discretion, appoint one person as both Contractor Manager and Project Superintendent.
 - .2 The Project Superintendent shall be employed full time with full authority to supervise the Work, who shall be directly available to the Department Representative during all active periods of Work. Either they or their designated deputy shall be present on the Work Site each and every workday that Work is being performed, from the commencement of Work to Total Performance of the Work. Project Superintendent and their designated Deputy are responsible for supervising all their subcontractors and ensuring each subcontractor has their own foreman onsite during all works.
 - .3 The Project Superintendent shall nominate a Deputy Project Superintendent who shall have the authority of the Project Superintendent during the latter's absence.
 - .4 The Safety Representative shall possess a minimum of 2 years' construction safety supervisory experience. Their duties shall encompass all matters of safety activities from commencement of Work until the Total Performance of the Work.
 - .5 The Quality Control Representative shall be responsible for the development, implementation and execution of the Quality Management Plan and shall be the single point of contact for all quality related queries.
 - .6 The Traffic Control Representative shall be responsible for the development, implementation and execution of the Traffic Management Plan and shall be the single point of contact for all traffic control related queries.
 - .7 The Environmental Representative shall be responsible for the development, implementation and execution of the Environmental Protection Plan and shall be the single point of contact for all environmental related queries.

1.15 WASTE MANAGEMENT AND DISPOSAL

- .1 All surplus, unsuitable and waste materials shall be removed from the Work Sites to approved sites outside the National Parks. Refer to Section 01 35 43 - Environmental Procedures.
- .2 Deposit of any construction debris into any waterway is strictly forbidden.
- .3 Cost for Waste management and disposal described above shall be considered incidental to the Unit Price items and no additional payment will be made.

1.16 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of the environment over cost and schedule considerations for Work.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 21 00 ALLOWANCES**Part 1 General****1.1 REFERENCES**

- .1 General Conditions.

1.2 PRIME COST SUM

- .1 Included in Contract Price a total **Prime Cost Sum** of:
 - .1 **\$22,500** for items as listed below.
- .2 Do not include in the Contract Price, additional contingency allowances for products, installation, overhead or profit.
- .3 Prime Cost Sum provided for in the Lump Sum Arrangement Table is not a sum due to the Contractor. Rather, payment will be made against it for miscellaneous work not included in the unit price table under the General Conditions of the Contract.
- .4 No interpretation of the items listed under Prime Cost Sum Allowances shall indicate that work will be included under the Prime Cost Sum. Items, tasks, and activities included in the Works elsewhere in the Contract, including Unit Price and Lump Sum Items, shall be paid as indicated in those sections and not under the Prime Cost Sum.
- .5 Any and all additional work must be approved in writing by the Departmental Representative prior to commencement.
- .6 All expenditures must be substantiated with verified invoices and/or accepted daily extra work reports as noted in Measurement and Payment Procedures below.
- .7 Such work may include, but not be limited to:
 - .1 Additional supply and installation of granular sub-base and base course materials;
 - .2 Additional stripping, excavation and disposal of waste materials as directed by the Departmental Representative;
 - .3 Additional relocation or removal and disposal of existing signs, guardrail, guide posts and other miscellaneous items;
 - .4 Additional survey resulting from changes made by the Departmental Representative;
 - .5 Relocation / protection of existing utilities, including payment of utility service provider costs;
 - .6 Utility Pole Relocation;
 - .7 Additional remediation or removal and replacement of unsuitable or contaminated soils not described in the Contract Documents;
 - .8 Additional supply and installation of seeding;
 - .9 Supply and installation of additional landscaping;
 - .10 Additional supply and installation of Riprap;
 - .11 Additional road structure repairs;
 - .12 Additional drainage improvements, ditching, culvert repairs, cleaning or other;

- .13 Sub-drainage not specified in the tender documents;
 - .14 Additional supply and installation of Guide Posts;
 - .15 Rehabilitation work in gravel pits;
 - .16 Traffic control equipment additional to is required by the applicable regulations and standards;
 - .17 Relocation of existing structures;
 - .18 Miscellaneous work as directed by the Departmental Representative.
- .8 The Contract Price, and not Prime Cost Sum, includes Contractor's overhead and profit in connection with the Work.

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for Work under the “**Lump Sum Price Item 4 – Prime Cost Sum**” made using negotiated rates or by material, labour and equipment rates as per the following:
- .1 Rental rates will be in accordance with current Alberta Roadbuilders & Heavy Construction Association’s rate schedule and will be all inclusive and fully operated.
 - .2 Vehicles (ie. Pickup trucks) will be paid either at daily rates as per the Alberta Roadbuilders & Heavy Construction Association’s (most recent) or by mileage using National Joint Council (NJC) rates, whichever is lower. The Contractor will not be permitted to claim both daily rental and mileage rates.
 - .3 Hourly rental of equipment will be measured in actual working time and necessary travel time within project limits. Transportation time to and from site to be reimbursed only if equipment is used exclusively for additional work.
 - .4 Equipment paid on standby will be paid on 50% of the relevant Less Operator rates to a maximum of 10 hours per day.
 - .5 When based upon actual costs for additional works under Prime Cost Sum, payment will be based upon supplied invoices and other work records.
 - .6 The Prime Contractor may apply a 10% mark-up to subcontractor or supplier invoices only, as accepted by the Departmental Representative. No mark-up will be allowed on relevant equipment and labour rates.
 - .7 A claim for additional payment will be considered submitted when all required documentation has been received by the Departmental Representative.
 - .8 The Departmental Representative’s, or their delegate's, signature on extra work reports is only a record of the equipment, materials and labour hours utilized on the task, not an agreement to entitlement or quantification of that Work. Review and acceptance may be based on Contractor submitted finalized extra work reports, which are to include appropriate rates, quantities and applicable invoices. Labour and equipment rates are to be reviewed by the Departmental Representative against the appropriate accepted rates when submitted for payment.

- .9 The Contractor shall submit extra work reports to the Departmental Representative within 24 hours of the day of extra work.
 - .1 Extra work reports not submitted within the specified timelines may be denied payment at the Departmental Representative's sole discretion.
- .10 The Departmental Representative's, or their delegate's, signature on any of the Contractor's Daily Extra Work Reports shall not be an agreement to waive any portion of the Contract regardless of any wording to the contrary.
- .11 Unless otherwise provided for in the Contract, payment on a time and materials or lump sum basis represents complete payment (exclusive of GST) and reimbursement for all impacts, related costs and expenses, including, without limitation: time; labour; materials; equipment; mobilization; subcontracting; overhead; profit; general supervision; occupational tax and any other Federal or Provincial revenue legislation exclusive of GST; premiums for public liability and property damage insurance policies; bonding; for the use of all tools and equipment for which no specific rental payment provision exists; and for all costs incurred by the Contractor in supplying materials.
- .12 Reimbursement for Living Out Allowance (LOA), as agreed upon by the Departmental Representative, shall be pro-rated based on the portion of the standard 10-hour work day spent on extra work items up to a maximum of 10 hours. LOA reimbursement will only be considered for extra works completed under Force Account rates and payment for LOA will not exceed the agreed upon daily rate.

Part 2 Products

- .1 Products shall be in accordance with - Standard Specifications for Highway Construction (latest edition) or as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be in accordance with AT - Standard Specifications for Highway Construction (latest edition) or as directed by the Departmental Representative.

END OF SECTION

01 25 20 MOBILIZATION AND DEMOBILIZATION**Part 1 General****1.1 DESCRIPTION**

- .1 Mobilization and Demobilization consists of preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, camp, buildings, shops, offices, supplies and incidentals to and from the project sites.
- .2 Any protective measures or movement of Contractor trailers necessitated by animal interactions and required by Parks Canada will be paid by the Departmental Representative and are not to be anticipated in the Lump Sum Contract Price for Mobilization and Demobilization.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 Payment will be made under **“Lump Sum Price Item 1 – Phase 1 - Mobilization / Demobilization and Lump Sum Price Item 2 – Phase 2 - Mobilization / Demobilization”** for works under each Phase of the project respectfully.
 - .2 50% of the Lump Sum Price for Mobilization and Demobilization to be paid when all materials, equipment, camp, buildings, shops, offices, and other facilities have been mobilized to site.
 - .3 The remainder of the Lump Sum Price for Mobilization and Demobilization to be paid when work is complete, and all materials, equipment, camp, buildings, shops, offices, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.
 - .4 Payment of only **5%** of the total price tendered will be scheduled as outlined above. If the amount bid for mobilization and demobilization is greater than **5%** of the total price tendered, payment of the remainder of the amount will be authorized when the Contract has been completed.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.****END OF SECTION**

01 29 01 SITE OCCUPANCY

Part 1 General

1.1 DEFINITION OF OCCUPANCY

- .1 The Contractor shall be permitted to lease and occupy sites where they will be working in the National Parks, free of charge from the date of award of the Contract up to and including the specified completion date. The sites to be leased by the Contractor include all the roads and areas specified in the Contract Documents and as directed by the Departmental Representative.
- .2 The Contractor's occupancy of the sites identified in Contract will be deemed to have ended, when the following conditions are met to the satisfaction of Parks Canada:
 - .1 All the work identified under this Contract, has been completed.
 - .2 Any outstanding deficiencies for the work identified under this Contract have been addressed to the satisfaction of the Departmental Representative.
 - .3 Contractor has removed from the park all trailers and equipment and sites have been cleaned-up to the satisfaction of the Departmental Representative.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 31 00 PROJECT MANAGEMENT AND COORDINATION**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This Work shall be incidental to the Contract and will not be measured for payment.

1.2 CHANGES TO DESIGN

- .1 If a change from the IFC design is accepted in writing by the Departmental Representative and agreed on by the Contractor, a CCN (Contemplated Change Notice) and/or CO (Change Order) will be issued by the Departmental Representative.
- .2 The CCN/CO must be signed by both the Contractor's Representative and the Departmental Representative prior to performing the Work.
- .3 The Departmental Representative reserves the right to use as-built survey or neat line measurements for payment if for any reason tolerances are not in accordance with the IFC design.

1.3 COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other Contractors, and Work by Owner, under instructions of the Departmental Representative.

1.4 PROJECT MEETINGS

- .1 During the course of the Work, the Contractor shall attend weekly construction meetings as scheduled, chaired, and documented by the Departmental Representative.
- .2 The agenda will include among other things, general construction, payment, scheduling, risk, quality, environmental, and safety management items as well as any other reasonably requested by the parties.
- .3 The Contractor shall provide physical space and make arrangements for meetings at or near the Work Sites for all meetings that take place in relation to the Contract from their mobilization until their demobilization.
- .4 Meetings held outside of the time noted above (before mobilization or after demobilization) will either be held in the local PCA Field Unit offices, or at the Owner's site office, as notified by the Departmental Representative.
- .5 The Contractor will attend or otherwise ensure the attendance of their staff, subcontractors, consultants, suppliers, or other key parties all other meetings identified in the Contract or reasonably requested by the Departmental Representative in an effort to resolve specific issues as they may arise.
- .6 Meetings will be called and chaired by the Departmental Representative as required. The Contractor shall be represented at such meetings to the satisfaction of the Departmental Representative.
- .7 As described in Section 01 35 43 – Environmental Procedures, an environmental briefing for all staff will take place before beginning work at the site.

1.5 CONSTRUCTION ORGANIZATION AND START-UP

- .1 Within seven (7) days after award of Contract, request a Preconstruction meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. Meeting shall be chaired by the Departmental Representative who will prepare the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Agenda to include following:
 - .1 Appointment of official representative of participants in Work.
 - .2 Schedule of Work, progress scheduling in accordance with Section 01 32 16 – Construction Progress Schedules.
 - .3 Schedule of submittals in accordance with Section 01 33 00 – Submittal Procedures.
 - .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 – Construction Facilities.
 - .5 Site safety and security in accordance with Sections 01 14 00 – Work Restrictions, 01 35 29 – Health and Safety Requirements, 01 52 00 – Construction Facilities and 01 35 43 – Environmental Procedures.
 - .6 Quality Control in accordance with Section 01 45 00 – Quality Control.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .8 Owner-furnished materials.
 - .9 Monthly progress claims, administrative procedures, photographs, and holdbacks.
 - .10 Closeout procedures and submittals in accordance with Sections 01 77 00 – Closeout Procedures and 01 78 00 – Closeout Submittals.
 - .11 Insurances and transcript of policies.
 - .12 Other business.
- .4 Comply with Departmental Representative's allocation of mobilization areas of site, for field offices and sheds, and for access, traffic, and parking facilities.
- .5 During construction, coordinate use of site and facilities through Departmental Representative's procedures for intra-project communications: submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.
- .6 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.
- .7 Coordinate field engineering and layout work with the Departmental Representative.

1.6 ON-SITE DOCUMENTS

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract Drawings if part of tender
 - .2 Specifications
 - .3 Addenda

- .4 Reviewed Shop Drawings and mix designs
- .5 Change Orders
- .6 Other modifications to Contract
- .7 Traffic Management Plan
- .8 Safety Plan
- .9 WHMIS
- .10 Environmental Protection Plan
- .11 Quality Control Plan and field test reports
- .12 Copy of accepted Work schedule and most recent updated schedule
- .13 Labour conditions and wage schedules
- .14 Equipment rate schedule and applicable versions of the relevant rate guides
- .15 Applicable current editions of municipal regulations and by-laws

1.7 PROJECT SCHEDULES

- .1 In accordance with Section 01 32 16 - Construction Progress Schedules.

1.8 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit requests for payment for review, and for transmittal to Departmental Representative. Payment request on last day of the month.
- .3 Submit requests for interpretation of Contract Documents and obtain instructions through Departmental Representative.
- .4 Process substitutions through Departmental Representative.
- .5 Process change orders through Departmental Representative.
- .6 Submittal Schedule:
 - .1 Prepare a schedule of the required submissions and the date the submissions will be made. Include columns for Actual Date of Submission, Review Comments Received, Final Submission and Final Acceptance Received. Provide this schedule to the Departmental Representative in Excel format.
 - .2 The Owner will not be responsible for any construction delays resulting from delays in submission acceptance if the submittal dates shown in the Submittal Schedule are not achieved.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 32 16 CONSTRUCTION PROGRESS SCHEDULES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This Work shall be incidental to the Contract and will not be measured for payment.

1.2 DEFINITIONS

- .1 Activity: An element of Work performed during course of Project. An activity normally has an expected duration and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt Chart): A graphic display of schedule-related information. In a typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally, Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: Original accepted plan for Project.
- .4 Construction Work Week: Monday to Saturday, inclusive, will provide six-day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: Number of work periods (not including holidays or other nonworking periods required to complete an activity or other Project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: A summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: A significant event in Project, usually completion of a major deliverable.
- .8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: Overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.3 REQUIREMENTS

- .1 Ensure the Project Schedule is practical and remains within specified Contract duration.
- .2 Ensure all the Work required for the Contract is identified in the Project Schedule. Refer to Section 01 11 00 – Summary of Work for a potential list of activities.
- .3 Include the requirements of Section 01 14 00 – Work Restrictions and Section 01 35 43 – Environmental Procedures.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this Contract.
- .5 After review, revise and resubmit schedule to comply with revised project schedule.

- .6 During progress of Work revise and resubmit as directed by the Departmental Representative. If schedule is requested and not received, the Departmental Representative may hold back progress payment until an updated Project Schedule is received and accepted.

1.4 SUBMITTALS

- .1 In accordance with Section 01 33 00 – Submittals Procedures.
- .2 Submit to Departmental Representative within 10 working days of Award of Contract a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.5 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
- .2 Include in Project Schedule the Contractual dates under Section 01 11 00 - Summary of Work.

1.6 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Revise Departmental Representative reviewed impractical schedule and resubmit within 2 working days.
- .3 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.7 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule separately identifies the Work by area and station.
- .3 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Contract Award
 - .2 Obtaining Permits
 - .3 Pre-mobilization Submittals
 - .4 Mobilization
 - .5 Stripping and Excavation
 - .6 Drainage works
 - .7 Grading
 - .8 Topsoil placement
 - .9 Seeding
 - .10 Interim Inspection
 - .11 Remediation of any noted deficiencies
 - .12 Site Clean-up / Demobilization
 - .13 Final Completion

1.8 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on monthly basis or as and when requested by the Departmental Representative, reflecting activity changes and completions, as well as activities in progress.
- .2 Provide Weekly Progress Reports that identify completed work and Work planned for the following week in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Include as part of Project Schedule Update, a narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.9 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage.
 - .1 Activities considered behind schedule are those with projected start or completion dates later than current accepted dates shown on baseline schedule.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.****END OF SECTION**

01 33 00 SUBMITTAL PROCEDURES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete, and written acceptance of the submittal has been issued by the Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Submittals must be accompanied by a completed Quality Control Checksheet in accordance with Section 01 45 00 – Quality Control prior to submission to Departmental Representative. This completed Quality Control Checksheet represents that all the necessary requirements have been met and that the submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Departmental Representative in writing at time of submission, identifying any deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work is consistent.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one accepted copy of each submission on site.

1.3 "DESIGN AND BUILD", SHOP DRAWINGS, PRODUCT DATA, AND MIX DESIGNS

- .1 "Design and Build": The term "Design" refers to all detailed design activities (survey, investigation, drawings, specifications) based on general requirements contained in the Contract Documents. "Build" refers to construction of Contractor's detailed design after design has been reviewed by the Departmental Representative. Contractor's responsibility for error and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .2 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.

- .3 The term “Mix Design” means an engineered design for proportioning materials in concrete or asphalt concrete pavement including all supporting test results, materials properties, that is acceptable to the Departmental Representative.
- .4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of section under which adjacent items will be supplied and installed. Indicate cross-references to Contract Documents.
- .5 Allow five (5) calendar days for Departmental Representative’s review of each submission.
- .6 Adjustments made on shop drawings by the Departmental Representative are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Departmental Representative prior to proceeding with the Work.
- .7 Make changes in shop drawings as the Departmental Representative may require, consistent with the Contract Documents. When resubmitting, notify the Departmental Representative in writing of any revisions other than those requested.
- .8 Accompany submissions with a transmittal letter containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor’s name and address.
 - .4 Identification and quantity of each shop drawing, mix design, product and sample.
 - .5 Other pertinent data.
- .9 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 Contractor’s authorized representative certifying approval of submissions, verification of field measurements and compliance with the Contract Documents.
 - .5 Details of appropriate portions of the Work as applicable:
 - .1 Fabrication,
 - .2 Performance characteristics,
 - .3 Standards.
- .10 After the Departmental Representative’s review, distribute copies.
- .11 Submit one (1) electronic copy of the shop drawings or mix design for each requirement requested in the Contract Documents and as requested by the Departmental Representative.
- .12 Submit one (1) electronic copy of the product data sheets or brochures for requirements requested in the Contract Documents and as requested by the Departmental

Representative where shop drawings will not be prepared due to standardized manufacture of the product.

- .13 Delete information not applicable to project.
- .14 Supplement standard information to provide details applicable to project.
- .15 If upon review by 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 and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .16 The review of shop drawings and mix designs by Departmental Representative is for the sole purpose of ascertaining conformance with the Contract requirements. This review shall not mean that Departmental Representative approves details of the design inherent in shop drawings, responsibility for that shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting the generality of the foregoing, 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 co-ordination of Work of all sub-trades.

1.4 SAMPLES

- .1 Material samples to be provided as outlined in the Contract Documents or as requested by the Departmental Representative.

1.5 MOCK-UPS

- .1 Not used.

1.6 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

1.7 REQUIRED CONTRACTOR SUBMITTALS

.1 General

- .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on site and during the construction phase.

.2 Pre-Mobilization Submittals

The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of submittals in writing. Submit the following plans and programs to the Departmental Representative for review a minimum of five (5) calendar days prior to mobilization to the project site:

- .1 Project schedule, detailing the schedule of the workdays required from Contractor, subcontractors, suppliers and consultants to complete each activity of the project by location in order to meet stages specified in Section 01 32 16 – Construction Progress Schedules. In addition, for each activity critical elements that could impact on the schedule are to be identified. Submission shall include

- both a paper copy of the schedule and an electronic copy in Microsoft Projects format.
- .2 Environmental Protection Plan (EPP) that meets the requirements of Section 01 35 43 – Environmental Procedures. Submission of EPP must allow 1 week for review by the Parks ESO, in accordance with Section 01 35 43 – Environmental Procedures.
 - .3 Plan describing methods the Contractor will have to meet their responsibilities as the Prime Contractor for Safety and Traffic Control within the Work limits and to co-ordinate Work, traffic control, site access, safety, with other Contractors working in or adjacent to the Contract Work zone.
 - .4 Health and Safety Plan - The Contractor shall have a Certificate of Recognition (COR) or Registered Safety Plan (RSP) including a site-specific Health and Safety Plan acceptable to the Departmental Representative. The Contractor shall implement and maintain the Health and Safety Plan during the Work. 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. Health and Safety Plan must include in accordance with Section 01 35 29 – Health and Safety Requirements.
 - .1 Contractor shall develop an “Emergency Procedures Protocol” in consultation with Parks Canada. On site Contingency and Emergency Response Plan to address standard operating procedures to be implemented during emergency situations. Emergency Response Plan can be incorporated into the Health and Safety Plan.
 - .5 Traffic Management Plan, in accordance with the requirements of Section 01 35 31 – Special Procedures for Traffic Control.
 - .6 Quality Control Plan in accordance with Section 01 45 00 – Quality Control, including Quality Control checklist examples for each item of Work.
 - .7 Alberta One Call and Utilities Coordination Plan, including notifications to Utility Owners.
 - .8 Contractor and any subcontractors to submit a copy of their valid Parks Canada Business License.
 - .9 Contractor and Subcontractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone and cellular telephone. The list shall include the names and telephone/cellular telephone for contact persons who are available on a 24-hour basis in the event of emergencies.
 - .10 List of subcontractors, suppliers and consultants, their role and their key personnel, including Forman, experience of key personnel, including names and positions, addresses, telephone and cellular telephone.
 - .11 Work Plan, describing in detail for each activity by location, the Contractor’s intended methods of construction, and materials, equipment and manpower that will be used to meet stages specified in Section 01 32 16 – Construction Progress Schedules. The Work Plan must be linked to the Project Schedule.
 - .12 Survey Plan describing the Contractor’s intended methods of surveying during this project and applicable resumes in accordance with Section 01 71 00 – Examination and Preparation.

- .13 The Contractor shall not begin any Work on the Site until the Departmental Representative has provided a Notice to Proceed.

.3 Construction Phase Submittals

- .1 Weekly Progress Reports that outline the detailed Work (Contractor, subcontractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed for the following week on a day-by-day basis. Work to be linked to activities by location identified in project schedule and to provide information on materials, equipment and manpower. Also, alternate Work to be identified if Work or a portion of, proposed cannot be done due to weather, equipment breakdown, delays in delivery, etc. Weekly Progress Reports shall be submitted at the end of each week.
- .2 Quality Control Inspection Reports - The Contractor shall maintain a daily inspection report that itemizes the results of all Quality Control inspections conducted by the Contractor. The reports shall be submitted to the Departmental Representative with the Weekly Progress Report. A summary of all Quality Control inspections conducted to date shall be submitted by the Contractor with each Weekly Progress Report.
- .3 Progress Photographs Format:
 - .1 Electronic: .jpg files, minimum three (3) mega pixels.
 - .2 Submission requirements: one (1) set of electronic files.
 - .3 Identification: Name and number of project, description of photograph and date.
 - .4 Viewpoints: viewpoints determined by Construction Manager or Departmental Representative.
 - .5 Submission Frequency: prior to commencement of Work and weekly thereafter with progress statement, or as directed by Construction Manager or Departmental Representative.
 - .6 Submit all electronic pictures as part of closeout package.
- .4 Submit an electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and authority having jurisdiction, weekly.
- .5 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors immediately.
- .6 Submit copies of incident and accident reports immediately.
- .7 Submit daily extra work reports in accordance with Section 01 21 00 – Allowances.

.4 Project Completion Submittals

- .1 Record Drawings -The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-built changes to the Work and the Contractor shall submit a set of Contract Drawings clearly marked to record as-built changes to the Work.
- .2 Quality Control Records – The Contractor shall submit a .pdf electronic file containing an itemized set of project quality control documentation.
- .3 All other documents noted within the Contract Documents, and under Section 01 78 00 – Closeout Submittals.

- .5 The Contractor shall not construe the Departmental Representative's authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Provincial regulations and this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.
- .6 The Departmental Representative may, at their sole discretion, withhold payment from the Contractor for Work completed until acceptable submittal documents have been provided by the Contractor to the Departmental Representative.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.****END OF SECTION**

01 35 29 HEALTH AND SAFETY REQUIREMENTS**Part 1 General****1.1 REFERENCES**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System
 - .1 (WHMIS) Material Safety Data Sheets (MSDS).
- .3 Province of British Columbia / Alberta - Occupational Health and Safety Act, depending on the province where the Work is occurring.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.3 FILING OF NOTICE

- .1 Not used.

1.4 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work. This meeting may be combined with the Preconstruction meeting identified elsewhere.
 - .1 At this meeting the Contractor is required to complete and sign an Attestation to certify the Contractor will comply with the requirements set out in the Attestation and the terms and conditions of the Contract.
 - .2 A copy of the "Attestation and Proof of Compliance with Occupational Health and Safety (OHS)" form is part of the Invitation to Tender package.
- .2 Parks Canada recognizes that federal Occupational Health and Safety legislation places specific responsibilities upon Parks Canada as owner of the work place. In order to meet those requirements, Parks Canada has implemented a contractor safety regime to ensure roles and responsibilities assigned under Part II of the Canada Labour Code and the Canada Occupational Health and Safety Regulations are implemented and observed when involving contractor(s) to undertake work in Parks Canada work places, including on Parks Canada property.

1.6 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with the National Parks Act.

1.7 PROJECT / SITE CONDITIONS

- .1 Work at site will involve contact with British Columbia / Alberta Occupational Health and Safety, depending on which province the Work is occurring in.

1.8 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address Project Specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.9 RESPONSIBILITY

- .1 The Contractor shall act as the Prime Contractor in all matters relating to Occupational Health and Safety. They shall conduct their work and make all such arrangements necessary to allow them to be accepted as such by the relevant Provincial Authorities.
- .2 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.
- .3 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 site-specific Health and Safety Plan.

1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, General Safety Regulation, British Columbia / Alberta, depending on which province the Work is occurring in.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.11 UNFORESEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or conditions occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.12 HEALTH AND SAFETY REPRESENTATIVE

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Co-ordinator must:
 - .1 Have minimum 2 years' site-related working experience specific to activities associated with roadway construction.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.13 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction and in consultation with Departmental Representative.

1.14 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted.

1.15 BLASTING

- .1 None.

1.16 POWDER ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from the Departmental Representative.

1.17 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.**

END OF SECTION

01 35 31 SPECIAL PROCEDURES FOR TRAFFIC CONTROL**Part 1 General****1.1 DESCRIPTION**

- .1 Supply, installation, maintenance and removal of Traffic Accommodation for the duration of the Contract or as described in this Section.

1.2 REFERENCES

- .1 AT – Traffic Accommodation in Work Zones (latest edition)
- .2 AT – Traffic Control Standards (latest edition)
- .3 Manual of Uniform Traffic Control Devices for Canada, (MUTCD) distributed by Transportation Association of Canada. (latest edition)

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for Traffic Control as described in this Section, shall be made under **“Lump Sum Price Item 3 – Traffic Accommodation”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .2 Payment for Traffic Accommodation will be on a monthly basis based on the percent of Contract Works completed, not to exceed the total lump sum bid price for Traffic Accommodation. Extra works are not to be included in determining the percent complete of the Contract.
- .3 Payment for Traffic Accommodation will commence once the Contractor has implemented their accepted Traffic Management Plan and setup is accepted by the Departmental Representative.
- .4 Items considered incidental to the Work include, but are not limited to:
 - .1 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - .2 Keeping the existing roadway within the Work limits, clean, free of debris while Contractor is on site.
 - .3 Cost of snow removal required by the Contractor to complete the work identified in the Contract.
- .5 The Contractor shall not be responsible for the snow removal required for general highway road maintenance operations within the limit of construction so long as the roadway has been left in a condition deemed suitable, by Departmental Representative, for maintenance crews to safely complete the work.

1.4 GENERAL

- .1 Regardless of type of traffic control being used, **maximum period of delay to public traffic shall be 10 minutes.**
- .2 The Contractor shall develop and implement a Traffic Management Plan. The Traffic Management Plan will include plans specific to each roadway for this project.
- .3 The Traffic Management Plan must duly consider the traffic volumes associated with the direction volume increases typically experienced on the lead up to weekends and/or

special events. Adjustments to the TMP may be required at the request of the Departmental Representative to mitigate delays in excess of the stipulated maximum 20 minutes.

- .4 The Contractor shall design, supply, erect, move and maintain all traffic control devices, signs, other safety measures and provide staff to ensure safe passage of all traffic from commencement of site work to date of acceptance by the Departmental Representative.
- .5 All traffic and warning signs shall be either bilingual or of a symbolic or pictorial type. All signs are to be selected from the Construction Signage Translation Database provided in the Contract Documents.
- .6 The Contractor shall coordinate traffic management procedures with other Contractors working in the immediate vicinity as well as collaborate with the Departmental Representative.
- .7 The Contractor is responsible for keeping the roadway, within the Construction Limits, clean at all times. Sweeping, grading and/or dust control to the acceptance of the Departmental Representative is considered incidental to the Contract and no additional payment will be made.

1.5 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 Carry out traffic regulation in accordance with AT – Traffic Accommodation in Work Zones (latest edition), except where specified otherwise.
- .3 When working on existing travelled way:
 - .1 Place equipment in a position presenting a minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .4 The Contractor shall submit a Traffic Management Plan prior to commencement of work. Short closures may be allowed by the Departmental Representative for some activities such as asphalt removal as long as the delay to motorists does not exceed the stipulated maximum.
- .5 **Road and/or lane closures are not permitted without approval of the Departmental Representative.**
- .6 Emergency vehicles (i.e., ambulance, RCMP, Park Warden) must be granted immediate passage at all times. The Departmental Representative reserves the right to reduce delay time for public traffic at times when specified delay results in excessive backup of public traffic.
- .7 Traffic control measures will be monitored by the Departmental Representative, who may require modifications of these measures from time to time to achieve satisfactory traffic flow, safety of traveling public and coordination with adjacent contracts.
- .8 The Contractor shall maintain a dust free construction zone by means of cleaning and watering when required.

1.6 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work that requires road user response.
- .2 Place signs and other devices to standards and in locations recommended in AT – Traffic Accommodation in Work Zones (latest edition).
- .3 All construction signs shall be installed to prevent incidental blow down or displacement and must remain in service throughout the construction period. Construction signage heights to be minimum 1.5m from ground to the bottom of the sign, or as per AT – Traffic Accommodation in Work Zones (latest edition), whichever is higher.
- .4 Continually inspect and maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability, location and height.
 - .2 Cleaning, repairing or replacing signs as required ensuring clarity and reflectance.
 - .3 Removing or covering signs that do not apply to conditions existing from day to day or time to time.

1.7 CONTROL OF PUBLIC TRAFFIC

- .1 Contractor shall provide competent flag persons, trained in accordance with, and properly dressed and equipped as specified in AT – Traffic Accommodation in Work Zones (latest edition).
 - .1 When public traffic is required to pass working vehicles or equipment, that block all or part of travelled roadway.
 - .2 When vehicles are entering or exiting Work Site access points.
 - .1 If the area is determined to be a low traffic zone by the Departmental Representative, signage may be acceptable.
 - .3 When vehicles are entering or exiting gravel pits in the park.
 - .1 If the area is determined to be a low traffic zone by the Departmental Representative, signage may be acceptable.
 - .4 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .5 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .6 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .7 For emergency protection when other traffic control devices are not readily available.
 - .8 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
- .2 No stoppage of traffic will be allowed for the periods specified in Section 01 14 00 – Work Restrictions, pertaining to Statutory Holiday or long weekend.

1.8 OPERATIONAL REQUIREMENTS

- .1 Maintain existing conditions for traffic throughout period of Contract except that, when required for construction under Contract and when measures have been taken as specified herein and approved by Departmental Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:
 - .1 Traffic control left in place overnight must be monitored by the Contractor to ensure all traffic control equipment remains in place in accordance with the approved Traffic Management Plan.
 - .2 There may be restrictions to accommodate special events within the National Parks.
 - .3 The Departmental Representative reserves the right to stop work in the case of excessive traffic delays. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted.
 - .4 Maintain existing conditions for traffic crossing right-of-way.
 - .5 Emergency vehicles are to be directed through the Work Site immediately once conditions are safe.
 - .6 No stoppage of traffic shall be allowed during inclement weather conditions.
- .2 Maintain existing conditions for traffic crossing right-of-way.

1.9 VEHICLE DETECTION LOOPS

- .1 Damage to vehicle detection loops shall be repaired by the Contractor at their cost.
- .2 Notify the Departmental Representative immediately of any damage.

1.10 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 - Quality Control.

1.11 SUBMITTALS

- .1 In accordance with Section 01 33 00 Submittal Procedures.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.**

END OF SECTION

01 35 43 ENVIRONMENTAL PROCEDURES**Part 1 General****1.1 REFERENCES**

1. Basic Impact Analysis (BIA) Mitigations by PCA – Appendix G

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This Work shall be incidental to the Contract and will not be measured for payment.
- .2 Preparation and implementation of an Environmental Protection Plan (EPP) in accordance with this Section 01 35 43 – Environmental Procedures, including certification by a registered Qualified Environmental Professional (QEP), will not be measured separately for payment and will be considered incidental to the Work.

1.3 SUBMITTALS

- .1 The Contractor is required to prepare and submit an Environmental Protection Plan in accordance with this Section 01 35 43 – Environmental Procedures and Section 01 33 00 – Submittal Procedures. The EPP document will be reviewed and accepted for use on the project by the Departmental Representative in collaboration with the Parks Canada designated Environmental Surveillance Officer (ESO).

1.4 NATIONAL PARK REGULATIONS

- .1 All work must be performed in accordance with the National Parks Act and its Regulations and other applicable legislation (e.g., Species at Risk Act, Fisheries Act, Migratory Birds Convention Act, 1994).
- .2 All applicable mitigations outlined in the following Parks Canada's National Best Management Practices will be followed:
 - .1 Campground and Day Use Areas Maintenance and Modification (August 2016),
 - .2 Roadway, Highway, Parkway and Related Infrastructure (May 2015)
 - .3 Bat Maternity Roosts in Built Assets (August 2016) and
 - .4 Migratory Birds (April 2017).
- .3 The Contractor and any sub-contractors shall obtain a business license from a Parks Canada Administration Office, prior to commencement of the Contract. The business license must be valid for the Park in which the Work is occurring.
- .4 All Contractor's vehicles are required to display a vehicle work pass from PCA. These permits may be obtained free of charge from the PCA Administration Office once a business permit has been obtained.

1.5 IMPACT ASSESSMENT ACT (IAA)

- .1 Execution of the work is subject to the provisions within the *Impact Assessment Act* and subsequent amendments.
- .2 The Contractor is required to implement all recommendations and mitigations and follow all procedures and processes whether supply, construction, administration or

otherwise as described in particular in this Section 01 35 42 – Environmental Procedures, BMPs, and all Contract Documents.

- .3 The Contractor shall prepare their Environmental Protection Plan (EPP) to implement the mitigations identified in this Section 01 35 42 – Environmental Procedures, BMPs, and all Contract Documents as a minimum but shall ensure that all environmental requirements under the Contract and associated with the Works are appropriately managed through their EPP processes.
- .4 Where there is a discrepancy or inconsistency between this Section 01 35 43 – Environmental Procedures and other documents, this Section takes precedence over other documents.
- .5 Failure to comply with or observe environmental protection measures as identified in the Contract Documents may result in the work being suspended pending rectification of the problems. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted.

1.6 ENVIRONMENTAL BRIEFING AND ESO

- .1 **All staff employed at the construction site will be required to attend an approximate one (1) hour environmental briefing presented by PCA prior to their commencement of work on site.** It is recognized that new employees may join the Contractors' work force after the initial round of "environmental briefing". In that case and as required, subsequent "environmental briefings" can be presented as numbers warrant, by arrangement with the ESO through the Departmental Representative. Also, some sub-trades may be present at the site for a short time, to perform once-only duties. In these cases, the "environmental briefing" will be replaced by the Contractor explaining the environmental sensitivity of the work location to the sub-trade worker(s), and reviewing highlights of personal conduct expected, with reference to a one-page briefing summary to be provided to the Contractor by the ESO. A copy of this summary will be provided to each sub-trade worker joining the work force at the site.
- .2 Parks Canada will have an ESO attending the site to inspect the construction activity for conformance with the EPP. The ESO or alternate designated Parks Canada staff member will present the "environmental briefing". The ESO's main duties are to inspect the progress of the construction on an on-going basis to ensure compliance with environmental protection measures, and to provide guidance through the Departmental Representative, in the event of unanticipated environmental problems. Although the ESO has authority to enforce National Parks Act violations, direction to the Contractor will be the duty of the Departmental Representative.
- .3 The ESO is not to act as daily environmental monitor but shall check activities with the approved EPP to ensure compliance, at their discretion.
- .4 The Contractor's QEP shall be responsible for ensuring all activities are conducted in accordance with the Contract Documents.

1.7 ENVIRONMENTAL PROTECTION PLAN

- .1 The EPP is to be prepared by the Contractor and is considered incidental to the Works and no additional payment will be made.

- .2 Changes and/or revisions to the EPP may be required by the ESO as the Work progresses and more information becomes available. No additional payment will be made for changes and/or revisions to the EPP.
- .3 The Contractor's EPP shall include:
 - .1 An access plan including access routes, type of equipment used for various construction phases, and lay down areas in order to prevent/minimize disturbance to vegetation and soils. Lay down areas shall occur on paved and/or hardened surfaces. Any new laydown areas will require approval from the Project Manager and the ESO.
 - .2 Details on how the work limits will be marked and what procedures will be employed to ensure trespass outside these limits does not occur and to ensure that the environment is not impacted or damaged by workers or construction equipment beyond the work limits.
 - .3 Contingency plans for work during high precipitation, wind or runoff events
 - .4 An erosion and sediment control (ESC) plan for the site will be developed and implemented that minimizes risk of sedimentation of a watercourse or waterbody during all phases of the Project. Appropriate erosion control measures will be designed and constructed to avoid vertical or lateral scour of watercourses or water bodies near the outlet of modified/replaced culverts.
 - .1 ESC plan must be submitted and accepted by the ESO two weeks prior to work occurring in riparian areas.
 - .2 Installation of appropriate erosion and sediment control methods before starting work to protect aquatic habitats.
 - .3 Sediment and erosion control materials to prevent sediment transport into any watercourse that may cause harm to fish. A Qualified Environmental Professional will monitor suspended sediment during construction to ensure compliance with CCME guidelines.
 - .4 ESC Plan must include detailed drawings that identify site specific isolation measures, de-watering systems, and discharge location.
 - .5 Maintenance of erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear.
 - .6 Erosion will be minimized by: phasing construction activities to decrease time that soils are exposed; retaining vegetation as much as possible; installing temporary erosion and sediment controls during construction and, once construction works are completed, restoring exposed soils using appropriate restoration methods.
 - .5 A spill response plan will be prepared by the Contractor 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 be accepted by the ESO and Project Manager and in accordance with all applicable federal and provincial legislation.
 - .6 The plan shall include a list of products and materials to be used or brought to the work site that are considered or defined as hazardous or toxic to the environment.

Such products may include, but are not limited to fuels, lubricants, cement and/or resin based grouts, and asphalt cement, chemicals, etc.

- .7 An emergency response plan that outlines procedures to follow in the case of an emergency (wildlife encounter, equipment malfunction/failure, fire, motor vehicle accident, etc.).
- .8 A fire prevention plan which describes the fire prevention equipment (fire extinguishers etc.) and procedures on site in the event of a fire. Should a fire occur, Jasper Dispatch and the Fire Duty Officer must be notified immediately.
- .4 The EPP will include how the Contractor will manage all environmental risks and specify site-specific details for implementing mitigation or achieving mitigation outcomes identified in particular in this Section 01 35 42 – Environmental Procedures, BMPs, and all Contract Documents.
- .5 Spill Response and Erosion and Sedimentation Management Plans are to be included in the EPP, in accordance with this Section.
- .6 QEP resumes are to be included in the EPP for Departmental Representative and ESO review.
- .7 The Contractor shall submit the EPP in accordance with Section 01 33 00 – Submittal Procedures yet **allow no less than 1 weeks for the review of their EPP** and shall address and respond to all comments raised during the review within a maximum of 1 weeks.

1.8 RESTRICTED ACTIVITY PERMITS

- .1 Prior to commencing any activity, the Contractor may be required to first obtain a Restricted Activity Permit (RAP) in consultation with PCA and Departmental Representative.
- .2 Prior to mobilization, Contractor is to establish what RAPs are required for the Works, for the duration of the project. Include, in the project schedule, the acquisition of the application for RAPs, allowing no less than 2 weeks for review and acceptance by the ESO.
- .3 Contractor shall list RAPs they require in the EPP.
- .4 The Contractor is required to submit an application form to the Departmental Representative for each required RAP.
- .5 RAP application details include, but are not limited to: Name of activity, start and end date of activity, location of Work, Contractor company name and address, Contractor contact name, phone number and email address and vehicle / equipment information.
- .6 Following the application submission, the Contractor may be required to provide further details regarding the Work to PCA.
- .7 Submission of a RAP application to the Departmental Representative does not permit the Contractor to commence the restricted activity.

1.9 CONSTRUCTION SITE ACCESS AND PARKING

- .1 Points of access from the existing roadway to the various construction sites will be required. The Contractor shall review both short and long-term construction access requirements with the Departmental Representative, both at start-up and on an ongoing basis. In consultation with the Departmental Representative, the Contractor shall

formulate an agreement for worker transportation to and from the work sites and where workers shall park their private vehicles.

- .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.

1.10 ACCIDENTAL FINDS

- .1 It is possible that undocumented historic objects will be found within the Project limits. If significant features are encountered, stop Work in the immediate area, notify the Departmental Representative, take photographs of the findings and a GIS location reading.
- .2 Significant features include items such as:
 - .1 Structural remains, high artifact concentrations, tent platforms, cornerstones, commemorative plaques, inscribed tablets, log cribbing retaining features, human remains, marked trees and other various items.
 - .2 If unsure, contact the Departmental Representative immediately.
- .3 The Departmental Representative will notify the Contractor when Works can resume in the area.
- .4 Should any process or requirements regarding archeological matters listed in this Section contradict the BMPs and other Contract Documents, this Section shall take precedence.
- .5 All historical or archaeological objects found in the National Parks are protected under the National Parks Act and Regulations and are the property of Parks Canada. The Contractor and workers shall protect any articles found and request direction from the ESO or the Departmental Representative.
- .6 If staff observe any cultural resources while they are working, they will stop work in the immediate area, and contact the project manager, or a Parks Canada archaeologist or cultural resource advisor to discuss any protective actions that might be needed. Objects will be left in- situ (in place) until PCA staff have indicated that it is acceptable to move them.

1.11 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 A RAP application will be required for any permitted Work camps or off-highway operation of a motor vehicle.
- .2 A Contractor's office and work headquarters material laydown, equipment parking and storage area will be permitted in accordance with this Section and Section 01 14 00 - Work Restrictions.
- .3 Removal and storage of snow shall be in accordance with Section 01 35 31 - Special Procedures for Traffic Control. If coordination is required, the Contractor shall coordinate through the Departmental Representative.
- .4 The Contractor shall control blowing dust and debris generated from the construction site by means such as covering or wetting down dry materials and rubbish. Dust generated during the grade construction and or utilization of any temporary access roads must be kept at a reasonable level so as not to impart any hazard to the public traffic.

Control measures must be initiated as and when required and may require increased vigilance at the discretion of the Departmental Representative.

1.12 SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION

- .1 The Contractor's QEP shall prepare an Erosion and Sedimentation Management Plan (ESMP) for the components of the Contract that are undertaken in proximity to watercourses, wetlands or riparian environments. The plan shall be included in the EPP and prepared to the satisfaction of the Departmental Representative and ESO.
- .2 The ESMP shall be prepared so as to ensure that there is no release into watercourses of sediments in levels that are deleterious to fish or that would harmfully alter, disrupt, or destroy fish habitat. Similarly, there is to be no sediment release into areas of vegetation growth or sensitive areas of sediments in levels that would adversely alter growing or hydraulic conditions. The target is 0 mg/L of TSS over background levels. The threshold is a maximum instantaneous increase of 25 mg/L over background levels when background levels are <250 mg/L, or a maximum instantaneous increase of 10% over background levels when background levels are >250 mg/L. This threshold shall not be exceeded.
- .3 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating construction activities.
- .4 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 and ESO also will monitor erosion control performance.
- .5 The site will be secured against erosion during any periods of construction inactivity or shutdown.

1.13 POLLUTION CONTROL

- .1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres from watercourses.
- .2 A Spill Response Plan will be prepared by the Contractor's QEP 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 PCA 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 metres from watercourses.

- .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 and the ESO before start-up. 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 by methods that are approved by the Departmental Representative or ESO.
- .6 The Contractor shall provide spill kits at re-fuelling, 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 ESO and Departmental Representative prior to project start-up must approve these spill kits. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.
- .7 Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. Parks Canada Dispatch shall be notified immediately of any spill immediately and can be contacted at a phone number provided in the Preconstruction Meeting. Following notification of Parks Canada Dispatch, the Departmental Representative and the ESO shall be notified. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.
- .8 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .9 The costs involved in a spill incident (the 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 expected standard and to the satisfaction of the Departmental Representative and ESO.

1.14 EQUIPMENT MAINTENANCE, FUELLING 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) outside the National Parks before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Except for chain saws, any fuelling closer than 100 metres any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
- .3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any streams, wetlands, water bodies or watercourses. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain presence at and immediate attention to the fuelling operation.
- .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 above.

- .5 Equipment used on the project shall be fuelled with E10, and low sulfur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
- .6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations approved by the ESO or 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., anywhere within the National Parks.
- .7 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
- .8 Fuel containers and lubricant products shall be stored only in secure locations specified by the Departmental Representative. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight the National Parks. Alternatively, the Contractor may hire a security person employed to prevent vandalism in accordance with Section 01 52 00 - Construction Facilities.

1.15 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 approved by the Departmental Representative. Unless authorized by the Departmental Representative, activities beyond the work limits are not permitted. No machinery will enter, work in or cross over streams, rivers, wetlands, water bodies or watercourses, nor damage aquatic and riparian habitat or trees and plant communities. Some of the construction shall require working close to watercourses or water bodies. In these instances, the Contractor is to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) do not enter any watercourses, to the satisfaction of the Departmental Representative and ESO.
- .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 watercourses or water bodies.
- .3 When, in the opinion of Parks Canada, 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 and ESO.
- .4 Restrict vehicle movements to work limits.
- .5 Workers private vehicles are to remain within the construction footprint.

1.16 FIRE PREVENTION AND CONTROL

- .1 A fire extinguisher shall be carried and available for use on each machine and at locations within the plant in the event of fire. Basic firefighting equipment recommended (e.g. a water truck; minimum 500 Imperial gallons with 500 feet of fire hose and a pump capable of producing 45 psi water pressure at the nozzle, three

- shovels, two pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to all the Contractors' staff.
- .2 A water truck may be necessary and will depend on the timing of the Contract (e.g. not required during winter or snow covered conditions).
 - .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. Fires or burning of waste materials is not permitted.
 - .5 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. Parks Canada Dispatch shall be notified immediately of any fire immediately and can be contacted at a phone number provided in the Preconstruction Meeting. Following notification of Parks Canada Dispatch, the Departmental Representative and the ESO shall be notified.
 - .6 Fires or burning of waste materials is not permitted.

1.17 WILDLIFE

- .1 During the Environmental Briefing all personnel shall be instructed by the ESO on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .2 Avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if bears, cougars, wolves, elk or moose display aggressive behaviour or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.
- .3 Notify the ESO and Departmental Representative immediately about dens, litters, nests, carcasses (road kills), bear activity or encounters on or around the site or crew accommodation. Other wildlife-related encounters are to be reported within 24 hours. If the ESO or Departmental Representative is not available, Parks Canada Dispatch will be contacted at a phone number provided in the Preconstruction Meeting.
- .4 Western toad activity and migration may occur into September/October. The Jasper Field Unit Aquatics Specialists will complete pre-disturbance surveys to assess the unnamed streams for Western Toad/Western Toad habitat, and amphibian habitat will be flagged for avoidance within the project area. If eggs, tadpoles or toads are found, an avoidance or mitigation plan will be developed and implemented.
- .5 If Columbian Ground Squirrel populations are found within work areas, options to be considered will include avoidance, minimization of works around populations and potential re-location by Parks Canada Staff.
- .6 A Qualified JNP staff will conduct a pre-construction survey of all facilitates to be demolished for Northern Myotis and Little Brown Myotis maternity roosts, as well as Barn Swallow nests within the project footprint.
 - .1 All building must be removed before April 15th to avoid impacts to migratory birds and bats.
 - .2 Should the pre-construction survey identify maternity roosts SARA authorization will be required

- .7 A wildlife specific briefing will be conducted by a Field Unit Wildlife Conflict Officer for all construction workers and contractors prior to working at Whistlers Campground
- .8 If active dens are disturbed, immediately stop work and contact the Project Manager for direction.
- .9 Never approach or harass wildlife (e.g., feeding, baiting, luring).
- .10 If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the area.
- .11 Alert Jasper Dispatch & the ESO immediately to any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion), distress or mortality. In the case of aggressive behaviour or persistent intrusion, stop work and evacuate the area.
- .12 All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) in wildlife-proof containers, a secure building or vehicle.
- .13 Human/wildlife concerns will be addressed by:
 - .1 Ongoing JNP Human/Wildlife conflict Program, minimizing the excessive growth of wildlife attractant foods:
 - .2 Mechanically removing buffalo berry bushes at specific locations post-construction to reduce bear foods, which will be undertaken by the Field Unit. A contingency should be in place to address on-going assessment and bush removal.

1.18 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor and workers shall dispose of hazardous wastes in conformance with the Environmental Contaminants Act and applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .2 All wastes 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 or elsewhere in the National Parks. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers and disposed of at an appropriate waste landfill site located outside the Park. Construction waste storage containers, provided by the Contractor, shall be emptied by the Contractor when 90% full. Waste containers will have lids, and waste loads shall be covered while being transported.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials.
- .5 All efforts to prevent wildlife from obtaining food, garbage or other domestic wastes shall be made by the Contractor and Contract staff while undertaking their work in the National Parks. Such wildlife attractants shall not be stored at the work site overnight. Lunches, coolers and food products, including waste food products, shall be securely stored away from access by animals. Daily removal of food scraps, food wrappers, pop cans or other attractive products to bear proof containers is mandatory. It is incumbent on the Contractor to notify Parks Canada and make specific arrangements to have garbage collected by Parks Canada when using existing Parks Canada receptacles.

- .6 The Contractor and workers shall immediately report any circumstances related to food/garbage (e.g. overflowing container or strong smell) and wildlife to the ESO or the Departmental Representative. If neither can be reached, the Contractor/worker shall immediately contact Parks Canada Dispatch at the phone number provided in the Preconstruction Meeting and report the details.
- .7 Sanitary facilities, such as a portable container toilet, shall be provided by the Contractor and maintained in a clean condition.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 GENERAL

- .1 It is expected that all staff and contractors will understand and comply with all National Park regulations within the park. All staff employed at the construction site will be required to attend an environmental briefing regarding their individual and collective responsibilities to ensure avoidable adverse environmental impact does not arise from their activities and personal choices. This information will be available on site and provided to any new workers and/or subcontractors such that subsequent environmental briefings can be presented by arrangement with the Environmental Surveillance Officer (ESO) through the Project Manager.
- .2 An on-site ESO will be assigned to provide periodic and unscheduled site visits to ensure the Project operations are conducted in accordance with all identified environmental protection measures (including, but not limited to those within this document, applicable legislation and construction Best Management Practices).
 - .1 Through the Project Manager, the ESO maintains the right to halt any work that does not comply with environmental regulations and guidelines to safeguard against harmful environmental impacts or to protect ecological integrity. The contractor is responsible for undertaking surveillance activities reporting of rehabilitation works such that the criteria in PCA Approvals and the EPP are being adhered to.
- .3 It is the responsibility of the contractor to obtain all necessary permits prior to the commencement of the Project activities. These include but are not limited to;
 - .1 Special Activity Permit (SAP/RAP)
 - .1 Disturb Natural Object
 - .2 Light and Maintain a Fire
 - .3 Use of Water Resources
 - .2 Business Permit
 - .3 Development/Building Permit
- .4 Work shall be planned to ensure the minimum possible amount of machine movement, ground tracking, and subsequent disturbance to surface vegetation.
- .5 Staging areas, material/equipment drop sites, and parking areas must be identified, including duration of use, within an existing disturbed footprint (e.g., roadway,

previously disturbed area with high resiliency) or as approved by the Project Manager in consultation with the ESO.

- .6 Clearing techniques and equipment will be selected that meet or exceed environmental standards to avoid disturbance to soil and vegetation.
- .7 Machinery must be stored, maintained and refuelled on a previously disturbed, hardened flat surface, outside the dripline of trees and a minimum of 30m from waterbodies, as measured from the High Water Mark. Increase the buffer zone depending on level of risk and site specific conditions.
- .8 Prior to use on site, equipment will be inspected by the ESO and found to be free of fluid leaks, dirt, debris, and vegetation. Any detected leaks from equipment on site will be addressed immediately and absorbent pads will be used under equipment with chronic leaks. Equipment stored overnight should be stored on appropriate secondary containment structures.
- .9 In the event of any fluid spills or leaks exceeding 1 litre or any spill quantity to water, Parks Canada Jasper Dispatch, the Project Manager and the ESO should be notified immediately. Any absorbent materials used in the clean-up or soils contaminated by the spill should be disposed of in the appropriate facilities.

3.2 INSTREAM WORK

- .1 Not allowed.

3.3 WATER EXTRACTION AND DISTRIBUTORS

- .1 All water related activities are to be conducted in accordance with Whirling Disease Protocols as included in the Appendix.
- .2 Backflow prevention is required on all water trucks.
- .3 All water trucks and water extraction equipment must be thoroughly cleaned prior to entering any Park. Proof of cleaning must be provided to the Departmental Representative and ESO for verification.
- .4 Extraction of water within any National Park requires a RAP.
- .5 Care must be taken by the Contractor to ensure extracted water does not enter another water body, other than the initial source of extraction.
- .6 ESO may require water trucks to be cleaned prior to moving between sites within the Parks to mitigate the risk of cross- contamination of water bodies.

3.4 SOIL AND LANDFORMS

- .1 Limit heavy equipment use on slopes where traction may be inadequate and cause spinning or rutting.
- .2 Use protective barriers (e.g., floatation mats or mat of tree limbs) on all vegetated or riparian surfaces to reduce soil compaction and disturbance.
- .3 During periods of soft soil (i.e. post spring melt) equipment and vehicle access will be restricted to dry or frozen soils to the extent possible.
- .4 Trench widths will be narrowed to the safest extent possible during utility excavations to reduce the total area of disturbance associated with utility corridors

3.5 AQUATIC RESOURCES

- .1 All work and activities will comply with the Fisheries Act and the Measures to Avoid Causing Harm to Fish and Fish Habitat (Fisheries and Oceans Canada).
- .2 Equipment operation and vegetation removal will be limited to the extent possible within 30m from the high water mark of waterbodies.
- .3 Any modification to culverts or bridges will be designed and constructed (i.e. with proper size and gradient) such that flows, flow paths, and fish passage are similar or better than the existing structure.
- .4 In order to reduce the impact to aquatic and riparian habitat, replacement of the bridges and culverts will occur during dry or frozen conditions, or in isolation of flowing water. The site will be isolated from flows by pumping flow around the work zone to ensure downstream habitat is not dewatered. Pumping will require a Restricted Activity Permit (RAP).
- .5 Disturbance to natural materials and vegetation that contribute to habitat or channel stability will be minimized.
 - .1 Temporary diverted water will be returned to the same water body downstream of construction activities and flow will be maintained at all times.
 - .2 Water running or being pumped/diverted through the site will be managed such that sediment is settled or filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.
- .6 Beds and banks of a watercourse will be restored to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that maintains runoff patterns and aquatic passage will be developed.
- .7 The Contractor will notify the Project Manager who, in consultation with ESO, will consider approval to encroach upon the 30m riparian buffer zone or if an open water stream crossing is unavoidable.
- .8 Approved crossing structures will be required if stream crossings at other locations are required that would result in contact with open water.
- .9 Beneficial managed practices for construction work in/near water and wet areas must be followed and the campground design must allow for continued aquatic connectivity between areas upstream and downstream of the campground.
- .10 No water is to be extracted from a local stream, river or other water body within the Park unless a Restricted Activity Permit (RAP) has been approved and issued specifically to do so.
- .11 In order to protect the ecological integrity and riparian habitat of these creeks, a temporary fence be installed to the extent possible around areas of disturbance resulting from project reconstruction activities at a feasible distance from the high water mark.
 - .1 This includes but is not limited to areas disturbed as a result of the excavation to replace the existing utility corridors that intersect or parallel the waterbodies
- .12 In an effort to keep Whirling disease from entering the Park waters and fish populations, the contractor will follow Direction for Permitted Users conducting water-related

activities in Banff National Park, November 2016 for all equipment and gear arriving onsite that will be used in or near a watercourse or riparian area. All equipment will be inspected by the ESO prior to use in the Park.

3.6 VEGETATION

- .1 A detailed site-specific restoration plan will be included on finalization of the Project design. Revegetation will include use of an approved Jasper Field Unit seed mixture and other approved plant species. If disturbance occurs within 30m setback from riparian vegetation, the restoration plan will include specific measures to address these sensitive areas.
- .2 JNP Vegetation/Fire Management specialist will provide Management Objectives and Desired End Results (MODERS) and participate in development of the restoration requirements with facilitation of the Impact Assessment Officer.
- .3 Project boundaries, riparian zones buffers (30 m), as well as the locations of sensitive ecological features will be clearly marked and communicated to all individuals involved with project as per the project briefing and site visits.
- .4 Vegetation clearing will not occur without prior notification to the Project Manager. Avoid any tree or vegetation clearing during the migratory bird nesting window (April 19 - August 24) and the bat window for roosting (April 15th to September 1st). Any variance for vegetation removal must be obtained from the FU Superintendent in advance of works.
- .5 If a tree contains critical wildlife features all efforts will be made to allow it to remain unless it poses a risk to worker or public safety. Direction will be provided by the Project Manager, in consultation with ESO, and other appropriate JNP specialist on how to manage trees containing critical wildlife features.
- .6 Fell trees to avoid damaging other standing vegetation and away from any watercourse where it is safe to do so. Because of their restricted occurrence in the Park, the felling of mature Douglas- fir trees (diameter at breast height [DBH]>30 cm) will be avoided wherever possible, and will be undertaken only with the prior approval of Parks Canada Project Manager, in consultation with the ESO.
- .7 Avoid disturbance within montane grassland areas, where possible.
- .8 Avoid disturbance within aspen-dominated ecosystems, where possible.
- .9 All new areas to be cleared will be restricted to essential expansion areas and essential temporary workspace required for maintenance activities.
- .10 All sites disturbed during Whistler Campground reconstruction activities and not supporting permanent structures or roads following project completion will be rehabilitated to achievable Management Objectives and Desired End Results.
- .11 Restore native vegetation along disturbed areas of the campground by seeding disturbed areas with native seed.
- .12 Develop restoration plan as part of the project scoping and specifications prior to project approvals
- .13 Vegetation restoration is most effective if seeded in the fall, this allows for full scarification of the seed over the winter and adequate moisture available. Spring and early summer will also work, use seed mixture provided by the Departmental Representative. Transplants will do best in the spring and summer and will require adequate watering

- .14 Adequate watering is required throughout the entirety of the warranty period, at the direction of the Departmental Representative
- .15 Topsoil Replacement:
- .1 Implement restoration plan for the disturbed area immediately following completion of construction.
 - .2 All graded materials will be protected from erosion at all times.
 - .3 Do not compact topsoil.
 - .4 Where salvaged topsoil is insufficient, alternate topsoil sources will be designated by the Departmental Representatives from these sites; Marmot Pit and/or Snaring Overflow . Imported topsoil must be completely free of non-native seeds and compost developed from sewage treatment plants. Methods of improving vegetation succession using locally sourced, weed and contaminant free materials are preferred.
 - .5 Slopes to be seeded should be no steeper than 2 horizontal to 1 vertical (2:1) and covered with a minimum of 50 mm (2 inch) of topsoil. Finish grading should always follow top soil placement.
 - .6 Where remaining soils are unstable due to steepness or soil characteristics, immediate installation of sod or erosion control blanket is required such as cocomatting, or approved equivalent Project Manager in consultation with the ESO or Vegetation specialist.
 - .7 Methods of bioengineering such as terracing, willow staking, live pole drain systems should be assessed as solutions where soils are steeper or remain unstable.
- .16 Soil Amendments:
- .1 Do not apply fertilizer within a 30m buffer around watercourses.
- .17 Seedbed Preparation
- .1 The seedbed must be rough graded surface and not to be smoothed out by mechanical methods.
 - .2 A crust must not have formed on the seedbed prior to the application of hydroseed, the seedbed must be in a condition conducive to establishment of seed
 - .3 Roughened seedbed surface must not contribute to channelization of surface runoff
- .18 Required Seed Mixture:
- .1 Contractor to confirm seed mix with the Departmental Representative before ordering.

Species/Variety	Proportion by weight (%/wt)
Wheatgrass, awned (<i>Agropyron subsecundum</i>)	35
Tufted Hairgrass (<i>Deschampsia caespitose</i>)	20

Spike Trisetum	15
Wheatgrass, western (<i>Agropyron smithii</i>)	30

.19 Seed Lot Selection:

- .1 All native seed will be double sampled and submitted to a certified seed testing laboratory for germination and purity analysis
- .2 Seed analysis certificates to be provided and accepted by Project Manager in consultation with ESO prior to purchase.

.20 Seeding:

- .1 Seed and stabilize (e.g. mulch/tackifier) bare areas as soon as possible after disturbance, preferably as soon as a significant area is graded and finished and before the next rain event. If there is a risk of seedling mortality as a result of fall frost stabilize until appropriate growing conditions exist.
- .2 Use temporary seeding when outside the seeding dates for permanent vegetation
- .3 The seeding rate is to be 150 kg/ha for hydraulic seeding. The mulch rate will be 1500 kg/ha. The amount of fertilizer to be used in the mix will be 500 kg/ha of a high- phosphate fertilizer (12-51-
- .4 to encourage root growth and soil development.
- .5 Do not increase the seeding rate to compensate for poor seedbed conditions.
- .6 Monitor temporary erosion control measures to prevent seed loss.
- .7 Some seeding procedures may have to be completed or repeated in subsequent years.

.21 Reclamation Standards:

- .1 Minimum standard for native plant density is 25 plants/m², with 90% frequency.
- .2 Minimum standard for plant cover is 80% ground cover, with 90% frequency.
- .3 Exclude species designated as weeds in the work sites from the plant density standard. 2% is the maximum cover density allowed for weeds present in sites. All areas with higher than 2% weed density must be mitigated.

.22 Time Limits:

- .1 During all calendar years of the warranty period, both a spring and fall inspection must be conducted to monitor the compliance with the restoration specifications
- .2 Minimum reclamation standard, as above, to be met within one season post planting.
- .3 Apply amendments as required based upon results of the compliance inspection and depending on reclamation progress.

- .4 Re-seed site if the plant density standard is not expected to be achievable within warranty period.
- .5 Warranty requirements will not be satisfied until restoration requirements are met. Contractor is responsible for monitoring restoration and undertake additional remedial work, where warranted
- .6 Pre-construction rare plant survey conducted prior to project commencement to identify occurrences of rare vegetation known to occur in footprint of where the Project activities will be undertaken.
- .7 Implement mitigation measures recommended for occurrences of rare vegetation and rare ecological communities observed on or adjacent to the proposed campground expansion.
- .8 Reduce strippings salvage, grading or grubbing to the extent practical to protect plant root systems.
- .9 Reduce clearing shrubs/trees in the area to the extent possible to allow the original species composition, shade, structure, and moisture retention to persist.
- .10 Conduct post-construction monitoring to assess mitigation success a minimum of 3 years is most ecologically helpful in assessing success. With less than 3 years, the field unit should be aware of additional financial liabilities associated with this project after construction.
- .11 If any federally-listed rare vegetation species are incidentally observed during construction, immediately cease construction activities in the area and consult a QEP and/or Parks Canada for further direction.
- .12 Pre-construction weed survey will be conducted to identify occurrences of Noxious or Prohibited Noxious weeds that are known to occur in the vicinity of where the activities will be undertaken.
- .13 Monitor Noxious weed growth on topsoil piles during the course of construction activities and conduct corrective measures (i.e., herbicide application, mowing, or hand-pulling), if warranted.
- .14 Beetle infested trees require special handling and disposal. Red and Grey attack trees can be handled normally. Green attack trees may still have beetles present under the bark. To avoid spread of Mountain Pine Beetle green attack trees will normally be burnt onsite, alternately wood may be debarked and shipped off-site for firewood or disposal.
 - .1 This activity will be completed under the direction of the JNP Fire/Vegetation specialist
- .15 Following the warranty period invasive plants, if found will be treated as part of the ongoing monitoring program for Jasper National Park.
- .16 Exclusion devices will be installed where feasible and to the extent possible in areas of vegetation restoration to prevent overgrazing during establishment period. This will result in extensive fenced off areas remaining when the campground re-opens.

- .17 Burning will ONLY be permitted on days when fire danger and smoke dispersal conditions are suitable. Work may be temporarily suspended by the project manager, health inspector, or ESO when inversions, other weather conditions, or location do not allow for proper smoke dispersal.
- .18 Proper burning methods and practices are required to reduce smoke production, encourage complete consumption and hasten vegetation recovery. This can be accomplished in the following ways:
 - .1 Achieving compact machine-built piles with logs aligned in “deck” form;
 - .2 Placing dead, drier material at the base/core of piles;
 - .3 Keeping piles small (3x3x3m) and frequent (60 – 80 per hectare);
 - .4 Lighting piles on ALL sides using accelerant to shorten initial smoke stage;
 - .5 Adding other materials only after piles are fully ignited and at peak heat production;
 - .6 Using portable air blowers during pile ignition and for stubborn piles;
 - .7 Igniting piles during the time of day when venting is most probable and avoiding early morning and late afternoon periods (peak burning during peak venting);
 - .8 Frequent tending and “rolling in” of piles, this is a requirement before leaving site at end of the day;
 - .9 Re-rolling smoldering piles that survive the night as a first task each day.

3.7 VISITOR EXPERIENCE

- .1 Timing windows will be scheduled as best as possible to minimize impact on key visitor experience objectives.
- .2 Closures will be put in place, as required, for trails, roads, and areas to inform and protect the public during campground reconstruction activities. These closures will be coordinated between the Contractor and JNP staff responsible for visitor safety.
- .3 Vehicle access to highways will require cautionary traffic signs and flag person(s) as per provincial highway regulations.
- .4 All signage to inform the public of area closures must be bilingual or symbolic in nature.

3.8 CLEARING AND GRUBBING

- .1 None.

3.9 SPECIFIC CONCERNS RELATIVE TO SENSITIVE SITES AND ACTIVITIES

- .1 Construction activity near streams, rivers, wetlands, water bodies or watercourses must be undertaken with care to prevent damage to aquatic and riparian habitat or associated tree and plant communities. A large and mobile spill kit shall be kept at hand during construction at these sensitive sites in proximity to watercourses.

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Parks Canada Agency

Whistlers Campground
Site Grading and Drainage
Management

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END OF SECTION

01 45 00 QUALITY CONTROL**Part 1 General****1.1 DESCRIPTION**

- .1 The Contractor is responsible for quality control inspection throughout every stage of the Work to ensure that equipment, materials and workmanship comply with the requirements of the Contract Documents.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.2-04, Methods of Test and Standard Practices for Concrete
- .2 AT - Standard Specifications for Highway Construction (latest edition)

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 All Quality Control is to be done by the Contractor.
- .2 This work shall be incidental to the Contract and will not be measured for payment.

1.4 QUALITY CONTROL PLAN

- .1 Contractor's Quality Control Plan shall be in accordance with AT - Standard Specifications for Highway Construction (latest edition).
- .2 Submittals in accordance with Section 01 33 00 – Submittals Procedures.

1.5 TESTING BY THE CONTRACTOR

- .1 Testing required to provide quality control to assure that the Work strictly complies with the Contract requirements shall include, but not be limited to:
 - .1 Testing all structural concrete, grout, reinforcing steel, asphalt concrete pavement, structural backfill, corrugated steel culverts, miscellaneous metals, concrete barriers, and all source acceptance testing; and
 - .2 All testing specified in the Contract Documents; and
 - .3 Any other testing required as a condition for deviation from the specified Contract procedures.
- .2 Testing proposed shall be based on testing requirements in the latest edition of AT Standard Specifications for Highway Construction in collaboration with current ASTM and CSA Standards or as stated below.
- .3 All Quality Control technicians are to be certified by Canadian Council of Independent Laboratories (CCIL) for testing asphalt, aggregates and concrete, as applicable to the testing requirements for that item of Work.
- .4 The Contractor shall be fully responsible and bear all costs for all quality control testing and shall conduct such testing in the following manner:
 - .1 Provide testing facilities and personnel for the tests and inform the Departmental Representative in advance to enable the Departmental Representative to witness the tests if it so desired;

- .2 Notify the Departmental Representative when sampling will be conducted;
- .3 Within one Day after completion of testing, submit test results to the Departmental Representative; and
- .4 Identify test reports with the name and address of the organization performing all tests, and the date of the tests.
- .5 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.
- .6 Testing agencies, their inspectors, and their representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the Contract Documents, nor to approve or accept any part of the Work
- .7 The minimum frequency for Quality Control testing during embankment construction will be as follows:

CONSTRUCTION TYPE	TEST TYPE	MINIMUM FREQUENCY OF TESTS
Embankment construction with fine grained or granular soil	Proof Roll and or Rutting Test	On all works and/or as required by the Departmental Representative
Road structure construction with granular materials	Proof Roll and or Rutting Test	On all works and/or as required by the Departmental Representative

1.6 CONTRACTOR'S QUALITY CONTROL PROGRAM

- .1 The Contractor shall prepare a Quality Control Program. The purpose of the program shall be to ensure the performance of the Work in accordance with Contract requirements.
- .2 The Quality Control Program shall be described in a Quality Control Plan. The Contractor shall submit the Manual to the Departmental Representative for review in accordance with Section 01 33 00 - Submittal Procedures. The Manual shall develop a logical system for tracking and documenting the Quality Control of the Work. A systematic format and a set of procedures patterned on a recognized Quality Control Standard will be acceptable, subject to review by the Departmental Representative.
- .3 The Quality Control Plan shall include the following information:
 - .1 Distribution list, providing a list of names to whom the Manual shall be distributed;
 - .2 Title page, identifying the Contract, Contractor and copy number;
 - .3 Revision page, identifying the revision number and date of the Manual;
 - .4 Table of contents;
 - .5 Revision control, tabulating the revision number, date of revision, description of revisions and authorized signature;
 - .6 Details of measuring and testing equipment including methods and frequency of calibration;
 - .7 Purchasing details of all materials and equipment including procurement documents and vendor's Quality Control Program standards;

- .8 Procedures for inspection of incoming items, in-process inspection and final inspection and tagging of all supply items;
 - .9 Details of special processes as identified by the Departmental Representative, including qualifications of personnel and certification;
 - .10 Procedures for shipping, packaging and storage of materials;
 - .11 Procedures for maintaining quality records and Statements of Compliance, including filing and storage of documents for a period of one year after Completion of the Works;
 - .12 Details of any non-conformance, including identification and recording of deficiencies, tagging procedures for "HOLD" or "REJECT" items, and final disposition of non-conformance forms by the Quality Control Manager;
 - .13 Inspection and test checklists, including tabulated checklists describing all manufacturing and delivery activities such as Inspection or Test, frequency of tests, description of tests, acceptance criteria of tests, such as verification, witnessing or holding tests and sign-off by the Quality Control Manager and the Departmental Representative, if the Departmental Representative witnesses the tests; and
 - .14 Forms used to ensure the application of the inspection and test checklist requirements. These forms shall be identified in the checklists and describe all testing requirements for Contract Document compliance.
- .4 The Contractor shall appoint a qualified and experienced Quality Control Manager who will report regularly to the Contractor's management at a level that shall ensure that Quality Control requirements are not subordinated to manufacturing, construction or delivery. The Quality Control Manager shall be empowered by the Contractor to resolve quality matter and shall be onsite for the duration of the Contract.
- .5 The Quality Control Plan shall include samples of all forms to be filled in by the Quality Control Inspectors. All forms shall be signed by the Quality Control Manager and submitted promptly to the Departmental Representative who will add its review signature.
- .6 An independent check of all Work shall be performed by the Contractor. The Contractor shall appoint Quality Control Inspectors to ensure compliance of products and workmanship with Contract requirements. The same personnel may not be used to perform a given task and to check the quality and accuracy of the task.
- .7 At completion of the Work a bound and itemized copy of all Quality Control documents and reports shall be prepared by the Contractor's Quality Manager and submitted to the Departmental Representative.

1.7 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.
- .5 The Departmental Representative will provide the Contractor with an Approval to Proceed document, after performing an audit and confirming all requirements are met, as stated in Section 01 71 00 - Examination and Preparation. The Approval to Proceed must be signed by the Departmental Representative and the Contractor's representative before proceeding to the next layer.
 - .1 The Contractor shall provide a minimum of 48 hours notice to the Departmental Representative to arrange for an audit and Approval to Proceed.

1.8 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .3 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Departmental Representative at no cost to the Departmental Representative.

1.9 ACCESS TO WORK

- .1 Allow inspection / testing agencies access to Work, including but not limited to: off site manufacturing and fabrication plants, QC testing facilities and asphalt plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.10 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Provide labour and facilities to obtain and handle samples and materials on site.

1.11 NON-CONFORMANCES

- .1 A Non-Conformance can relate to any item within the Contract including but not limited to: materials testing, lines and levels, products, design-build items, traffic accommodation, quality control, environmental, health and safety, and other general procedural matters including communication protocols.
- .2 Contractor's Internal Non-Conformance Report (NCR):
 - .1 Should the Contractor's QC reporting indicate that the Work is not in conformance, the Contractor's QC Manager shall issue an internal Non-

Conformance Report (NCR) to the Contractor, with a copy to the Departmental Representative, including a response time.

- .3 The Contractor shall then respond to the QC Manager, with a copy to the Departmental Representative, with respect to the NCR, within the specified time, with proposed resolutions and corrective actions. The Contractor and/or the QC Manager shall consult with the Departmental Representative on the resolutions.
- .4 The Departmental Representative will accept or reject the proposed resolution and corrective action proposal.
- .5 Payment for the Work itself may be withheld until the NCR issue is resolved.
- .6 Owner Issued NCR:
 - .1 Should the Quality Assurance reporting indicate that the Work is not in conformance, the Departmental Representative will issue to the Contractor a NCR, including a response time.
 - .2 The Contractor shall then respond to that NCR, within the specified time, with proposed resolutions and corrective actions.
 - .3 The Departmental Representative will accept or reject the proposed resolution and corrective action proposal.
 - .4 Assurance testing and inspection will be performed 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.
 - .5 Payment for the Work itself may be withheld until the NCR issue is resolved.
- .7 The Completion Certificate will not be issued if there are any unresolved Non-Conformance Reports.
- .8 Appealing an NCR:
 - .1 If the Contractor disputes the validity of a finding in an NCR, the Contractor may file an appeal with the Departmental Representative. The Departmental Representative and the Contractor Representative will use all reasonable efforts to refine the area of dispute and to resolve the determination of conformance with the Contract.
 - .2 If the Departmental Representative and the Contractor Representative cannot come to a mutually agreeable resolution, the Work that is the subject of the Non-Conformance Report shall be re-evaluated by an independent third-party, selected by the Departmental Representative in consultation with the Contractor, at a test frequency equivalent to twice that specified in the Contract or to such other frequency as may be mutually agreed between the Departmental Representative and the Contractor.
 - .3 If the appeal testing confirms the non-conformance determination, all appeal testing costs will be borne by the Contractor. If the appeal testing shows that the Work did in fact meet the requirements of the Contract, all appeal testing costs will be borne by the Owner.

1.12 OPPORTUNITIES FOR IMPROVEMENT

- .1 Should the QA review indicate that the Work is not in conformance, but the variance is deemed minor by the Departmental Representative, the Departmental Representative may issue an Opportunity for Improvement (OFI) report.
- .2 The Contractor is encouraged to review the findings and undertake such modifications to the QC Plan and the work procedures as necessary to address the issue.

1.13 REJECTED WORK

- .1 Defective products or work, whenever identified, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .2 Remove defective Work, whether as a result of poor workmanship, use of defective products or damage and whether incorporated in Work or not. Replace or re-execute defective Work in accordance with Contract Documents, through the NCR process.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in the opinion of the Departmental Representative, it is not expedient to the greater benefit of the Project to remedy defective Work or Work not performed in accordance with Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by Contract Documents, the amount of which shall be determined by Departmental Representative.

1.14 REPORTS

- .1 In accordance with Section 01 33 00 - Submittals Procedures.

1.15 TESTS AND MIX DESIGNS

- .1 Furnish test results and designs as may be requested.

1.16 MILL TESTS

- .1 Submit mill test certificates as required in the Contract Documents.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 NOT USED.****END OF SECTION**

01 52 00 CONSTRUCTION FACILITIES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 All work of this section shall be incidental to Contract and will not be measured for payment.

1.2 INSTALLATION AND REMOVAL

- .1 Provide construction facilities to execute work expeditiously.
- .2 Remove from site all such work after use.

1.3 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.

1.4 CONSTRUCTION PARKING

- .1 Provide and maintain adequate access and parking at the project site in areas approved by the Departmental Representative.
- .2 Build and maintain temporary roads and provide snow removal during period of Work.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

1.5 SECURITY

- .1 If required by the Contractor, provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays. For extended shut-downs, the Contractor shall provide the level of security as required to protect the Work. The Contractor is advised that some random acts of vandalism to equipment have occurred within the Park. Cost of security personnel is incidental to the Work and no additional payment will be made.
- .2 It is strongly advised that the Contractor consider the provision of security personnel.

1.6 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 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 work activities.

1.7 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations, ordinances and the EPP.

- .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 To be in accordance with Section 01 35 31 - Special Procedures for Traffic Control.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

Part 1 General

1.1 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously and remove from site all such work after use.

1.3 HOARDING

- .1 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.4 GUARDRAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations.

1.5 WEATHER ENCLOSURES

- .1 Not used.

1.6 DUST TIGHT SCREENS

- .1 Not used.

1.7 ACCESS TO SITE

- .1 Provide and maintain access roads, as may be required for access to Work.

1.8 PUBLIC TRAFFIC FLOW

- .1 In accordance with Section 01 35 31 - Special Procedures for Traffic Control.

1.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 In accordance with Section 01 14 00 - Work Restrictions.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED

END OF SECTION

01 61 00 COMMON PRODUCT REQUIREMENTS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 REFERENCE STANDARDS

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in the Contract Documents.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance in accordance with Section 01 45 00 – Quality Control.
- .4 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

1.3 QUALITY

- .1 In accordance with Section 01 45 00 - Quality Control.
- .2 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .3 Defective products or work, whenever identified, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in Contract Documents, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .7 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .8 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative whose decision is final.

1.4 AVAILABILITY

- .1 Immediately after signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are

foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work

- .2 In the event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, alteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and miscellaneous metals on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.7 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in the Contract Documents, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between Contract Documents and manufacturer's instructions, so that Departmental Representative may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 CO-ORDINATION

- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.10 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings that cause spalling or cracking of material to which anchorage is made are not acceptable.

1.11 PROTECTION OF WORK IN PROGRESS

- .1 Do not cut, drill or sleeve any load bearing structural member without written approval of Departmental Representative, unless specifically indicated.

Part 2 Products

- .1 Materials shall be in accordance with AT - Standard Specifications for Highway Construction (latest edition), or as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be completed in accordance with AT - Standard Specifications for Highway Construction (latest edition), or as directed by the Departmental Representative.

END OF SECTION

01 71 00 EXAMINATION AND PREPARATION**Part 1 General****1.1 REFERENCES**

- .1 Owner's identification of existing survey control points and property limits.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.3 QUALIFICATIONS OF SURVEYOR

- .1 Qualified surveyor, licensed to practise in Place of Work, acceptable to Departmental Representative.

1.4 SURVEY REQUIREMENTS

- .1 The Departmental Representative shall identify the location of all work sites.
- .2 The Contractor shall be responsible for all other survey and layout work identified in the Contract Documents and as required to complete the works including but not limited to:
 - .1 Establishing lines and levels, locate and layout, by instrumentation.
 - .2 Staking for grading, cut and fill.
 - .3 Measurement of neat line for payment.
 - .4 Ensuring survey instruments are properly calibrated prior to commencing Works.
- .3 Survey Accuracy:
 - .1 All survey work shall be tied into the existing Control Monument Network with grid coordinates in UTM Zone 11 NAD 83. Departmental Representative will provide information on Control Points.
 - .2 All traverses will be closed and balanced. All level loops and traverses will be tied into the Control Monument Network.
 - .3 Secondary Control Points will be tied into and relative to Control Monument Network. Accuracy for Control Point surveys shall be to second order:
 - .4 Horizontal shall be less than $r = 5(d+0.2)$ where "r" is in cm and "d" is in km
 - .5 Vertical shall be less than $0.008 \times \sqrt{k}$ where k is distance in kilometres.
- .4 Staking accuracy shall be:
 - .1 In bush areas, all elevations shall be within 100 mm of correct elevation. In open ground, all elevations shall be within 50 mm of correct elevation.
 - .2 In bush areas, all horizontal locations shall be within 100 mm of Design. In open ground, all horizontal locations shall be within 50 mm of Design.
 - .3 On highway surface, all elevations shall be within 10 mm of correct elevation.
 - .4 All structures shall be within 20 mm of Design elevation and horizontal
- .5 The Departmental Representative will complete quality assurance construction survey measurements to verify grades and alignment, interim survey re-measurements for

excavation limits and final neat line measurements to verify payment quantities for completed works.

1.5 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 Record locations of maintained, re-routed and abandoned service lines.

1.6 SUBMITTALS

- .1 In accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit name and address of Surveyor to Departmental Representative.
- .3 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .4 On request of Departmental Representative, submit survey data.
- .5 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform to the Contract Documents.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 74 11 CLEANING**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative and in accordance with Section 01 35 43 - Environmental Procedures. Do not burn waste materials on site.
- .3 Clear snow and ice in accordance with Section 01 35 31 – Special Procedures for Traffic Control.
- .4 Keep roadway clean in accordance with Section 01 35 31 – Special Procedures for Traffic Control.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 One bear proof container will be provided by Parks Canada. Contractor to provide any additional on-site bear proof containers they require for collection of waste materials and debris.
- .7 Remove waste material and debris from site at end of each working day.
- .8 Dispose of waste materials and debris off site in accordance with Section 01 35 43 - Environmental Procedures.
- .9 Store volatile waste in covered metal containers and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 The Departmental Representative and ESO may, at their total discretion, require the Contractor to suspend work activities until such a time as the Work Site is cleaned and debris, waste, and animal attractants are satisfactorily managed. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted.
- .13 Maintain excavation and trenches free of debris and waste.

1.3 FINAL CLEANING

- .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .3 Remove waste products and debris including that caused by Owner or other Contractors.

- .4 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Inspect finishes and ensure specified workmanship and operation.
- .7 Remove dirt and other disfiguration from exterior surfaces.
- .8 Sweep and wash clean paved areas.
- .9 Remove all construction debris and accumulated dirt from completed drainage systems; manholes; catch basins; and all piping.
- .10 Clean hydroseed / hydromulch overspray from buildings, pavement, fences, light poles, and other unintended surfaces.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 77 00 CLOSEOUT PROCEDURES

Part 1 General

1.1 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and all subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Work is complete and ready for Final Inspection.
 - .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative, and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

01 78 00 CLOSEOUT SUBMITTALS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 CLOSEOUT SUBMITTALS

- .1 The Contractor shall provide the following documents and information to the Departmental Representative prior to them being eligible for Final Completion as detailed in Section 01 77 00 – Closeout Procedures.

1.3 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.4 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque Drawings and in copy of the Project Manual.
- .2 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.

- .3 Details not on original Contract Drawings.
- .4 References to related shop drawings and modifications.
- .4 Specifications: legibly mark each item to record actual construction, including:
 - .1 Changes made by Addenda and change orders.

1.5 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.6 WARRANTIES AND BONDS

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible personnel.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.

Part 2 Products

2.1 NOT USED.

Part 3 Execution

3.1 NOT USED.

END OF SECTION

02 41 99 DEMOLITION FOR MINOR WORKS**Part 1 General****1.1 DESCRIPTION**

- .1 Demolition and removal of existing structures as specified in the Contract Documents and as directed by the Departmental Representative.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350 [M1980(R1998)], Code of Practice for Safety in Demolition of Structures.

1.3 MEASUREMENT FOR PAYMENT

- .1 This Work shall be incidental to the Contract and will not be measured for payment.
- .2 Work includes, but is not limited to works below that are not otherwise noted for payment under Unit Price Items:
 - .1 Removal, loading, hauling and disposal outside of the Parks for items specified.
 - .2 Excavation, backfill or surface restoration other than that required elsewhere in the Contract or under other Unit Price Items.
 - .3 Surface restoration and/or repair to any damaged infrastructure, other than that required elsewhere in the Contract or under other Unit Price Items.
 - .4 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .3 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 3 - Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .4 Mobilization and Demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Phase 1 – Mobilization / Demobilization and Lump Sum Price Item 2 – Phase 2 – Mobilization / Demobilization”** and no separate payment will be made to the Contractor.

1.4 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 - Quality Control.

1.5 SUBMITTALS

- .1 In accordance with Section 01 33 00 - Submittal Procedures.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.

1.7 SITE CONDITIONS

- .1 Not disrupt services without prior approval to proceed being granted by the Departmental Representative.

Part 2 Products**2.1 NOT USED.****Part 3 Execution****3.1 PREPARATION**

- .1 Inspect the site with the Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities in accordance with Section 01 14 00 -Work Restrictions.
 - .1 Preserve active utilities traversing the site in operating condition.
 - .2 Notify and obtain approval of utility companies before starting demolition.
 - .3 Disconnect, cap, plug or divert, as required, existing public utilities within the roadway where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
 - .1 Immediately notify the Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
 - .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PROTECTION

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features to remain in place.
 - .1 Provide bracing and shoring as required.
- .2 Keep noise, dust, and inconvenience to occupants and public to minimum.
- .3 Provide temporary dust screens, covers, railings, supports and other protection as required.

3.3 SALVAGE

- .1 Salvage items for use in accordance with the Contract Documents. Remove items to be reused, store as directed by Departmental Representative and reinstall under the appropriate Section(s) of the Contract Documents.
- .2 Salvaged materials damaged during removal due to the Contractor's negligence shall be replaced at the Contractor's expense.

3.4 REMOVALS

- .1 Remove items as indicated in the Contract Documents or as directed by the Departmental Representative.

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END OF SECTION

02 81 01 HAZARDOUS MATERIAL**Part 1 General****1.1 REFERENCES**

- .1 Export and Import of Hazardous Waste Regulations (EIHWR Regulations), SOR/92-637.
- .2 National Fire Code of Canada 1995.
- .3 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
- .4 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.3 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.

1.4 SUBMITTALS

- .1 In accordance with Section 01 33 00 - Submittal Procedures.
- .2 Retain current Material Safety Data Sheet (MSDS) for each hazardous material required on site. Submit MSDS to Departmental Representative upon request.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .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 All explosives must be mixed outside of the Park and delivered to the site. No storage of explosives shall be allowed within the National Parks.
- .5 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.

- .6 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers which 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.
- .7 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.6 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.
- .3 If hazardous waste is generated on site:
 - .1 Coordinate transportation and disposal with Departmental Representative.
 - .2 Ensure compliance with applicable provincial laws and regulations for generators of hazardous waste.
 - .3 Use only a licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept the material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Ensure that only trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide a photocopy of all shipping documents and waste manifests to Departmental Representative.

- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
- .9 Report any discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 MATERIALS

- .1 Only bring on site the quantity of hazardous materials required to perform Work.
- .2 Maintain MSDSs 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 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.
- .2 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .3 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.
- .4 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .5 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .6 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

END OF SECTION

31 24 13 ROADWAY AND DRAINAGE EXCAVATION

Part 1 General

1.1 DESCRIPTION

- .1 This item consists of the excavation and use/disposal of all materials in conformity with the lines, grades and dimension indicated in the Contract Documents and as directed by the Departmental Representative and includes:
 - .1 Stripping of organic material.
 - .2 Waste Excavation to accommodate drainage improvements.
 - .3 Construction of trails, drainage and other earthworks necessary for the Work.
 - .4 Removal and disposal of waste / surplus materials from excavation.
 - .5 Transportation of excavated materials.
 - .6 Finishing of top surfaces and slopes.
 - .7 Maintenance of the work set forth under this section in a finished condition until any portion thereof has been accepted as completed by the Departmental Representative.

1.2 REFERENCES

- .1 AT - Standard Specifications for Highway Construction (latest edition).

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 **Stripping, Stockpile onsite and Replace Topsoil:**
 - .1 Measure for payment for will be the volume in cubic metres measured in its original position in areas of excavation. Topsoil is to be stripped, stockpiled onsite and spread back over the disturbed area after drainage works and grading is completed. Work is to be done in accordance with the Contract Documents and accepted by the Departmental Representative.
 - .2 Payment will be made under “**Unit Price Item 1c – Phase 1 - Campsite Grading – Remove, Stockpile and Replace Topsoil**” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .2 **Stripping and Spread Topsoil onsite:**
 - .1 Measure for payment for will be the volume in cubic metres measured in its original position in areas of excavation. Topsoil is to be stripped and spread on existing landscaped areas near the excavation. Work is to be done in accordance with the Contract Documents and accepted by the Departmental Representative.
 - .2 Payment will be made under “**Unit Price Item 2c – Phase 1 - Shower Building Erosion Protection – Remove Topsoil & Spread onsite**” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

- .3 Payment will be made under **“Unit Price Item 5c – Phase 2 - Pull Through RV – Turning Radii Improvements – Remove Topsoil & Spread onsite”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .3 **Scarifying & Compaction of Existing Base:**
- .1 Measure for payment for Scarifying and Compaction of Existing Base will be measured in square meters and will require a minimum of 100mm of scarification and recompaction of existing gravel base. Work is to be done in accordance with the Contract Documents and accepted by the Departmental Representative.
- .2 Payment will be made under **“Unit Price Item 1a – Phase 1 - Campsite Grading – Scarifying and Compaction of Existing Base”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .3 Payment will be made under **“Unit Price Item 4a – Phase 2 – Trail Improvements – Compaction of Existing Base”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .4 **Roadway and Drainage Excavation:**
- .1 Measure for payment for Subgrade Reshaping will be measured in square meters of 2D original surface. Work is to be done in accordance with the Contract Documents and accepted by the Departmental Representative.
- .1 Payment will be made under **“Unit Price Item 1d – Phase 1 - Campsite Grading – Reshaping Subgrade for Drainage”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .2 Measure for payment for Waste Excavation will be the volume in cubic metres measured in its original position from cross sections taken by the Contractor in areas of excavation. Work is to be done in accordance with the Contract Documents and accepted by the Departmental Representative.
- .1 Payment will be made under **“Unit Price Item 1e – Phase 1 - Campsite Grading – Waste Excavation – Offsite Disposal”, “Unit Price Item 5a – Phase 2 – Pull Through RV – Turning Radii Improvements – Waste Excavation – Offsite Disposal”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents. Offsite Disposal will be at Marmot Pit in Jasper National Park as directed by the Departmental Representative.
- .2 Payment will be made under **“Unit Price Item 2a – Phase 1 – Shower Building Erosion Protection – Waste Excavation & Spread Onsite”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

- .1 Waste Excavation is to be spread onsite and maintain positive drainage from buildings, campsites and other infrastructure.
- .5 Contractor will take initial cross sections of existing ground and again upon completion of stripping and again prior to backfill of any excavation.
- .6 Items considered incidental to the Work include, but are not limited to:
 - .1 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - .2 Survey and layout.
 - .3 Excavating, loading, hauling, placing and compacting material within the limits of the Works.
 - .4 Separating of organic material from non-organic material and stockpiling, as directed by the Departmental Representative.
 - .5 Overhaul.
 - .6 Embankment construction.
 - .7 Watering, drying or compacting soils to achieve specified densities inclusive of all compaction efforts.
 - .8 Proof rolling.
 - .9 Placing material in stockpiles, grading, or maintaining the stockpile site.
 - .10 Finishing.
- .7 In addition to incidental items, no measure for payment will be made for:
 - .1 Stripping below the design ditch grade.
 - .1 Excavating and/or construction embankments unnecessarily beyond design lines established by Departmental Representative, with exception of unavoidable slide material. Do not measure slide material, when such slides are attributable to negligence.
 - .1 Contractor contaminated suitable surplus materials with unsuitable materials. Contaminated unsuitable materials shall be removed from the Park at the Contractor's expense.
 - .2 If overcut, no payment will be made for filling an area back to grade.
 - .3 Removing unsuitable material from embankment attributable to negligence.
- .8 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Phase 1 – Mobilization / Demobilization and Lump Sum Price Item 2 – Phase 2 – Mobilization / Demobilization”**, and no additional payment will be made.
- .9 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 3 – Traffic Accommodation”** and no separate payment will be made to the Contractor.

1.4 DEFINITIONS

- .1 Rock Excavation: excavation of:
 - .1 All forms of “solid rock in place” occurring in masses, ledges, seams or layers of sufficient hardness to require breaking by continuous drilling and blasting before excavation and removal.
 - .2 Detached masses of rock or boulders individually containing a volume of 2.0 cubic metres or more.

- .2 Common Excavation: excavation of materials that are not Rock Excavation or Stripping.
- .3 Borrow:
 - .1 Suitable material obtained from locations outside the limits of the roadway cut and placed as embankment material.
 - .2 Suitable material obtained from culvert foundation excavations used for the onsite production of granular material.
- .4 Stripping: excavation of organic material covering original ground.
- .5 Embankment: material derived from usable excavation and placed above original ground or stripped surface.
- .6 Waste Material: material unsuitable for embankment, embankment foundation, and material surplus to requirements.
- .7 Topsoil: material passing a 100 mm sieve and capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

1.5 QUALITY CONTROL

- .1 Regulatory Requirements:
 - .1 Adhere to regulations of authority having jurisdiction when blasting is required.
 - .2 Adhere to Provincial and National Environmental requirements when potentially toxic materials are involved.
- .2 In accordance with Section 01 45 00 – Quality Control.

1.6 SUBMITTALS

- .1 In accordance with Section 01 33 00 - Submittal Procedures.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.

Part 2 Products

2.1 MATERIALS

- .1 Embankment materials require acceptance by Departmental Representative.
 - .1 The Contractor shall provide material test certificates to the Departmental Representative for consideration.
- .2 Material used for embankment not to contain more than 3% organic matter by mass, frozen lumps, weeds, sod, roots, logs, stumps or other unsuitable material.

Part 3 Execution

3.1 UTILITY COORDINATION

- .1 In accordance with Section 01 14 00 - Work Restrictions.
- .2 Coordinate relocations or protection of utilities (manholes, ducts, conduits or other associated infrastructure) with utility service providers and perform works required to

complete relocation or protection. Work to be in accordance with utility service provider instruction or as directed by the Departmental Representative.

- .3 Existing buried utilities are to be located at all work locations where the utilities may be damaged by the Work, by using low impact excavation such as hydrovac or similar methods which will not damage buried utilities.
- .4 Payment for locating utilities to be incidental to the Works and no additional payment will be made.

3.2 COMPACTION EQUIPMENT

- .1 Compaction equipment must equivalent of one 12 tonne vibratory packer capable of obtaining required densities in materials on project. Equipment that does not achieve specified densities must be replaced or supplemented.

3.3 WATER DISTRIBUTORS

- .1 Apply water with equipment capable of uniform distribution and in accordance with Section 01 35 43 – Environmental Procedures.

3.4 STRIPPING OF TOPSOIL

- .1 Commence topsoil stripping of areas on acceptance by the Departmental Representative after clearing and grubbing debris have been removed from these areas.
- .2 Stripping depth for the removal of organic material is estimated to be on average 100 mm but will fluctuate from one location to the other. Contamination of non-organic material will not be permitted during stripping.
- .3 Strip topsoil to depths as verified by the Departmental Representative. Do not mix topsoil with subsoil. Stripping depth will vary.
- .4 Stripping material is to be hauled to Marmot Pit or spread onsite as directed by the Departmental Representative. The Contractor is advised that there is limited storage area for this material.
- .5 Stripped soil (including fine forest litter) materials shall be placed and stored at locations and in amounts and form as instructed by the Departmental Representative, for later reclamation use on graded slopes. Stripping piles may require erosion control, sedimentation protection or stabilization, depending on the location and anticipated duration of storage. At the Departmental Representatives direction, the Contractor shall prepare a plan for management of each stripping pile.

3.5 EXCAVATING

- .1 General:
 - .1 Stockpiling along the ROW outside of the cut/fill slope will not be permitted unless approval has been given by the Departmental Representative.
 - .2 Notify the Departmental Representative when waste materials are encountered and remove to depth and extent as approved by the Departmental Representative. This material shall be hauled to and stockpile at the designated pit locations.
 - .3 The dimensions of the excavations and embankments shall be, in accordance with the typical sections accompanying these specifications, but the dimensions of any or all excavations and embankments may be increased or decreased at any

time by the Departmental Representative as conditions and circumstances may determine.

- .2 Drainage:
 - .1 Maintain profiles, crowns and cross slopes to provide positive surface drainage at all times.
 - .2 Provide ditches as work progresses for positive drainage.
- .3 Rock excavation:
 - .1 Notify the Departmental Representative if material appearing to conform to classification for rock is encountered, to enable measurements to be made to determine volume of rock. The Contractor shall provide a minimum of 24 hours notice for the Departmental Representative to review the excavation.

3.6 EMBANKMENTS

- .1 This item consists of the construction of the subgrade in embankments and cuts to the lines, grades, cross-sections and dimensions as per the Contract Documents.
- .2 Scarify or bench existing slopes in side hill or sloping sections to ensure proper bond between new materials and existing surfaces. Method used to be subject to prior approval of the Departmental Representative.
- .3 Do not place material that is frozen nor place material on frozen surfaces except in areas authorized.
- .4 Maintain crowned surface during construction to ensure ready run-off of surface water.
- .5 Drain low areas before placing materials.
 - .1 Place and compact to full width in layers not exceeding 200 mm loose thickness. The Departmental Representative may authorize thicker lifts if specified compaction can be achieved and if material contains more than 25% by volume stone and rock fragments larger than 100 mm.
- .6 Rock Embankments:
 - .1 Place to full width in layers of sufficient depth to contain maximum sized rocks, but in no case is layer thickness to exceed 0.7 m.
 - .2 Distribute rock material to fill voids with smaller fragments to form compact mass.
 - .3 Fill surface voids at design elevation with rock spalls or selected material to form earth-tight surface.
 - .4 The Contractor may place rock embankments during freezing conditions provided compaction equipment of sufficient size to break large rock particles is used and all snow and ice is removed from fill surface.
- .7 Deductions from excavation will be made for overbuild of embankments.
- .8 Excess Excavation placed in stockpile in the designated pits:
 - .1 Material in the quantities specified shall be placed in the designated pits or as otherwise directed by the Departmental Representative.
 - .2 The Contractor shall place, grade and track pack the material in stockpile as necessary to allow for construction access and the movement of equipment.
 - .3 The Contractor shall maintain access to the stockpile area and allow for access to the stockpiled material by other.

- .4 Materials placed in the designated pits, once accepted by the Departmental Representative, are the property of PCA.

3.7 SUBGRADE COMPACTION

- .1 Break material down to sizes suitable for compaction and mix for uniform moisture to full depth of layer.
- .2 Embankment material shall be placed in successive uniform layers over the entire area as follows:
 - .1 Material containing less than 25 percent by volume of stones larger than 100 mm shall be constructed in successive horizontal layers not exceeding 200 mm in loose thickness except that the top 500 mm shall be constructed in layers not exceeding 100 mm in loose thickness
 - .2 Material containing 25 percent or more by volume of stones larger than 100 mm shall be placed in layers not exceeding the maximum size of the stones. Stones larger than 100 mm shall not be placed within 150 mm of the subgrade elevation.
 - .3 In embankments composed principally of material obtained from rock cuts, the larger stones shall be carefully distributed and the interstices filled with smaller stones and other material to form a compact mass. Such embankments shall be constructed in layers not exceeding 0.7 metre. The placing of individual rocks and boulders exceeding 0.7 metres in least dimension will be permitted provided they are carefully distributed and the interstices filled with finer material to form a dense and compact mass. Each layer, before starting the next, shall be levelled and smoothed with suitable equipment. Hauling and spreading equipment shall be operated over the full width of each layer.
- .9 Each layer shall be brought to its required degree of compaction throughout its entire width before successive layers are placed.
- .10 Compact each layer to minimum 95% Standard Proctor density, ASTM D698 (AASHTO T99). Top 300 mm of subgrade to be compacted to 100% Standard Proctor density, ASTM D698 (AASHTO T99).
- .11 Add water or dry as required to bring moisture content of materials to level required to achieve specified compaction.
- .12 For rock placed as fill, compact with large steel wheeled or tracked equipment of sufficient size to break larger particles. Compact until rock fill is stable under compaction equipment and all voids are filled.

3.8 PROOF ROLLING

- .1 Finished subgrade must not rut or deflect when proof rolled with a truck having a 9 tonne single axle dual tire or 17 tonne tandem axle group with dual tires with a tire pressure of 600 kPa. The prepared subgrade shall receive one complete coverage by the tires of a truck as specified.
- .2 Proof roll subgrade. If use of non-standard proof rolling equipment is approved, Departmental Representative to accept level of proof rolling.
- .3 Where proof rolling reveals areas of defective subgrade:
 - .1 Remove subgrade material to depth and extent as directed by Departmental Representative.

- .2 Backfill excavated subgrade with suitable Common material and compact in accordance with Section 31 24 13 – Roadway and Drainage Excavation.
- .3 Replace subgrade material and compact in accordance with the Contract Documents.
- .4 All associated Works, including replacing defective material with new materials in accordance with the appropriate Sections is to be done at the Contractor's cost.

3.9 FINISHING

- .1 Shape entire subgrade to within ± 15 mm of design elevations but not to be uniformly high or low.
- .2 Trim between constructed slopes and edge of clearing to provide drainage.

3.10 PROTECTION

- .1 Maintain finished surfaces in condition conforming to this section until acceptance by the Departmental Representative.

END OF SECTION

31 32 19 GEOTEXTILES**Part 1 General****1.1 DESCRIPTION**

- .1 Supply and installation of Geotextiles including but not limited to non-woven geotextile, geo-grid, silt fences, and geosynthetic berms as required to complete the Work as specified in the Contract Documents and as directed by the Departmental Representative.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .2 ASTM D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - .3 ASTM D4716, Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
 - .4 ASTM D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
 - .5 ASTM A123 / A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 11.2-M89(R2013), Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).
 - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
 - .3 No.2-M85, Methods of Testing Geosynthetics - Mass per Unit Area.
 - .4 No.3-M85, Methods of Testing Geosynthetics - Thickness of Geotextiles.
 - .5 No.6.1-93, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
 - .6 No.7.3-92, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
 - .7 No. 10-94, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .4 AT - Standard Specifications for Highway Construction (latest edition)

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 The supply and installation of Geotextiles including but not limited to non-woven geotextile, geo-grid, silt fences, and geosynthetic berms will be measured by square meters of neat line area and any required overlap shall be considered incidental to the unit price.
- .1 The supply and installation of non-woven geotextile will be incidental to **“Unit Price Item 1h – Phase 1 - Campsite Grading – Non-woven Geotextile”** and will include supply, installation, anchoring and/or pinning and any other activities required to complete the Works.

1.4 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 - Quality Control.

1.5 SUBMITTALS

- .1 Submit samples in accordance with 01 33 00 – Submittal Procedures for each type of geotextile used.
- .2 Submit copies of mill test data and certificates in accordance with Section 01 33 00 – Submittal Procedures.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.
- .2 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements and with manufacturer's written instructions.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.
- .2 Unused geotextiles to be removed from the Parks at the Contractor's expense.

Part 2 Products**2.1 MATERIAL**

- .1 Nonwoven geotextile shall meet or exceed the specifications of Nilex 4552 Non-Woven Geotextile. If the Contractor wishes to propose an alternate non-woven geotextile, the approval is subject to the discretion of the Department Representative.

Part 3 Execution**3.1 INSTALLATION**

- .1 Filter Fabric for separation requirements:
 - .1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with Pins.
 - .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

- .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
- .4 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .5 Pin successive strips of geotextile with securing pins at 3m intervals.
- .6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- .8 Place and compact rock in accordance with Section 33 46 19 Drain rock and Drainage Works.
- .9 Install as per manufacturers specifications.

3.2 PROTECTION

- .1 Vehicular traffic not permitted directly on geotextile.

END OF SECTION

32 11 24 GRANULAR BASE COURSE**Part 1 General****1.1 DESCRIPTION**

- .1 Load, haul, place and compact Manufactured Fines as a surfacing treatment.
- .2 Load, haul, place and compact 20mm Granular Base Course

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C117, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
 - .1 ASTM C131, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - .2 ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
 - .4 ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).
 - .5 ASTM D1883, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
 - .6 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- .3 AT - Standard Specifications for Highway Construction (latest edition)

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Measure for payment of 20mm Granular Base Course shall be in neat line cubic meter volumes calculated from the surveyed cross sections for work completed in accordance with the Contract Documents and accepted by the Departmental Representative.
 - .1 Payment shall be made under the applicable item of **“Unit Price Item 1b – Phase 1 - Campsite Grading - Crushed Granular Base Course (3-20A)”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
 - .2 Payment shall be made under the applicable item of **“Unit Price Item 2b – Phase 1 - Shower Building Erosion Protection - Crushed Granular Base Course (3-20A)”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

- .3 Payment shall be made under the applicable item of **“Unit Price Item 5b – Phase 2 - Pull Through RV – Turning Radii Improvements - Crushed Granular Base Course (3-20A)”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .2 Measure for payment of Manufactured Fines shall be in neat line cubic meter volumes calculated from the Design cross sections for work completed in accordance with the Contract Documents and accepted by the Departmental Representative.
- .1 Payment shall be made under the applicable item of **“Unit Price Item 4b – Phase 2 - Trail Improvements – Manufactured Fines Base Course”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .3 Items considered incidental to the Work include, but are not limited to:
 - .1 Loading, hauling, placing, compacting, water for compaction, drying of material and finishing.
 - .2 Overhaul.
 - .3 Any temporary stockpiling of aggregates onsite.
 - .4 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .4 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Phase 1 - Mobilization / Demobilization and Lump Sum Price Item 2 – Phase 2 - Mobilization / Demobilization”**, and no additional payment will be made.
- .5 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 3 – Traffic Accommodation”** and no separate payment will be made to the Contractor.

1.4 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 – Quality Control.
- .2 Contractor to provide material samples to the Departmental Representative prior to works commencing for Quality Assurance purposes.

1.5 SUBMITTALS

- .1 In accordance with Section 01 33 00 Submittal Procedures.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.
- .2 Divert unused granular material to Marmot Pit as accepted by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 20 mm Base Course Aggregate is available in Marmot Pit.

- .2 Manufactured Fines are available in Marmot Pit.

Part 3 Execution

3.1 PLACING

- .1 Load, haul and place base aggregate after surface is inspected and accepted by Departmental Representative.
- .2 Placing
 - .1 Construct base aggregate to depth and grade in areas indicated.
 - .2 Ensure no frozen material is placed.
 - .3 Place material only on clean unfrozen surface, free from snow and ice. For each lift, material shall be placed on crown line using a Tonne / metre spreadsheet. Contractor shall have a checker to indicate spread distance when material is being placed.
 - .4 Begin spreading base aggregate on crown line or on high side of one-way slope.
 - .5 Place material using methods that do not lead to segregation or degradation of aggregate.
 - .6 For spreading and shaping material, use spreader boxes having adjustable templates or screeds that will place material in uniform layers of required thickness.
 - .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. Departmental Representative may authorize thicker lifts if specified compaction can be achieved.
 - .8 Shape each layer to smooth contour and compact to the specified density before succeeding layer is placed.
 - .9 Remove and replace that portion of layer in which material becomes segregated during spreading.

3.2 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Compact to density not less than 100% Standard Proctor density in accordance with ASTM D698.
- .3 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
- .4 Apply water as necessary during compacting to obtain specified density.
- .5 Dry as necessary to obtain specified compaction.
- .6 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative.
- .7 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 PROOF ROLLING

- .1 Granular Base Course must not rut or deflect when proof rolled with a truck having a 9 tonne single axle dual tire or 17 tonne tandem axle group with dual tires with a tire

pressure of 600 kPa. Each compacted course of base course aggregate shall receive one complete coverage by the tires of a truck as specified.

- .2 Proof roll Granular Base Course. If use of non-standard proof rolling equipment is approved, Departmental Representative to accept level of proof rolling.
- .3 Where proof rolling reveals areas of defective Granular Base Course, Gravel fill or subgrade:
 - .1 Remove Gravel fill and subgrade material to depth and extent as directed by Departmental Representative.
 - .2 Backfill excavated subgrade with suitable Common material and compact in accordance with Section 31 24 13 – Roadway and Drainage Excavation.
 - .3 Replace Gravel fill and/or Granular Base Course material and compact in accordance with the Contract Documents.
- .4 All associated Works, including replacing defective material with new materials in accordance with the appropriate Sections is to be done at the Contractor's cost.

3.4 SITE TOLERANCES

- .1 Finished base surface to be within +/- 10 mm of established grade and cross section but not uniformly high or low.
- .1 Finished sub-base surface to be within +/- 15 mm of elevation as indicated but not uniformly high or low.

3.5 PROTECTION

- .1 Maintain finished base in condition conforming to this Section until succeeding material is applied.

END OF SECTION

32 33 00 SITE FURNISHINGS**Part 1 General****1.1 DESCRIPTION**

- .1 Removal, Salvage and Reinstallation of site marker posts in accordance with the Contract Documents and as directed by the Departmental Representative.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .2 Measure for payment for removing, salvaging and reinstalling marker posts in new locations will be by marker post completed in accordance with the Contract Documents and accepted by the Departmental Representative.
- .3 Payment shall be made under **“Unit Price Item 5d – Phase 2 - Pull Through RV – Turning Radii Improvements – Remove and Reinstall Marker Posts”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .4 Items considered incidental to the Work include, but are not limited to:
 - .1 Any temporary stockpiling of materials onsite.
 - .2 Any location of existing utilities required for the works.
 - .3 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .5 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 2 – Phase 2 – Mobilization / Demobilization”**, and no additional payment will be made.
- .6 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 3 – Traffic Accommodation”** and no separate payment will be made to the Contractor.

Part 2 Products**2.1 MATERIALS**

- .1 All materials as per the Contract Drawings.

Part 3 Execution**3.1 INSTALLATION**

- .1 Install components square, straight and true to line.
- .2 Disassemble and reassemble furnishings in accordance with manufacturer's instructions.
- .3 Install furnishing true, plumb, anchored, and firmly supported, as indicated.

END OF SECTION

32 91 19 TOPSOIL PLACEMENT AND GRADING**Part 1 General****1.1 DESCRIPTION**

- .1 Topsoil to be native organic soils stripped from the Contract Work area and placed on finished slopes from stockpile(s) as directed by the Departmental Representative.

1.2 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.
- .2 Canadian Council of Ministers of the Environment
 - .1 PN1340-[2005], Guidelines for Compost Quality.
- .3 Canadian Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-[December 2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System For New Construction and Major Renovations.
- .4 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.
- .5 AT Standard Specifications for Highway Construction (latest edition)

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Topsoil placement and finishing will not be measured in for payment and shall be considered incidental to stripping unit price items.
- .2 Items considered incidental to the Work include, but are not limited to:
 - .1 Preparing the finished grade.
 - .2 Loading and hauling from stockpiles.
 - .3 Placing and fine grading.
 - .4 Preparing the topsoil materials for planting.
 - .5 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .3 Traffic Control shall be incidental to **“Lump Sum Price Item 3 – Traffic Accommodation”** and no additional payment will be made.
- .4 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Phase 1 – Mobilization/ Demobilization and Lump Sum Price Item 2 – Phase 2 – Mobilization/ Demobilization”** and no additional payment will be made.

1.4 DEFINITIONS

- .1 Compost:

- .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
- .2 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A) (B).

1.5 SUBMITTALS

- .1 In accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit erosion and sedimentation control plan for Credit SSp1 in accordance with LEED Canada-NC.
- .3 Soil testing: submit certified test reports showing compliance with specified performance characteristics and physical properties.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 – Environmental Procedures.
- .2 Divert unused soil amendments from landfill to official hazardous material collections site, outside of the Parks, as approved by Departmental Representative.
- .3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 TOPSOIL

- .1 Unless otherwise approved by the Departmental Representative, topsoil is to be sourced from onsite stripping and no topsoil from outside of the Park will be permitted.
- .2 Topsoil for seeded areas and planting beds: mixture of particulates, microorganisms and organic matter that provides suitable medium for supporting intended plant growth.
 - .1 Native topsoil to be stripped from on-site sources.
 - .2 Contain no toxic elements or growth inhibiting materials.
 - .3 Finished surface free from:
 - .1 Debris and stones over 100 mm diameter.
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

2.2 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 – Quality Control.
- .2 Advise Departmental Representative of sources of topsoil and manufactured topsoil to be utilized with sufficient lead time for testing.
- .3 Contractor is responsible for amendments to supply topsoil as specified.
- .4 Soil testing by recognized testing facility for PH, P and K, and organic matter.
- .5 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative.
 - .1 Soil sampling, testing and analysis to be in accordance with Provincial standards.

Part 3 Execution**3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 In accordance Section 01 35 43 – Environmental Procedures
- .2 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of sediment and erosion control drawings, sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .3 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .4 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
 - .1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
 - .2 Remove debris that protrudes more than 75mm above surface.
 - .3 Dispose of removed material off site.
- .4 Cultivate entire area that is to receive topsoil to minimum depth of 100 mm.
 - .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.3 PLACING AND SPREADING OF TOPSOIL / PLANTING SOIL

- .1 Place topsoil after Departmental Representative has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 100 mm.
- .3 Spread topsoil as indicated to following minimum depths after settlement.
 - .1 100 mm for seeded areas.
 - .2 600 mm for shrub beds.
- .4 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
- .2 Prepare loose friable bed by means of cultivation and subsequent raking.
- .3 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.
- .4 Leave surfaces smooth, uniform and firm against deep footprinting.

3.5 ACCEPTANCE

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.6 SURPLUS MATERIAL

- .1 Topsoil not required is to be stockpiled at locations as directed by Departmental Representative.

END OF SECTION

32 92 22 HYDRAULIC SEEDING**Part 1 General****1.1 DESCRIPTION**

- .1 Supply and application of Hydraulic Seeding as required to complete the work in accordance with the Contract Documents and as directed by the Departmental Representative.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Measure for payment for Hydraulic Seeding will be by the square meter acceptably installed resulting in full grass growth, 75% germination and growth of specified seed mixture, within the dimensions indicated in the Contract Documents or as approved by the Departmental Representative.
- .2 Payment for hydraulic seeding shall be made under “**Unit Price Item 3 – Phase 1 – Hydraulic Seeding and Unit Price Item 6 – Phase 2 – Hydraulic Seeding**” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .3 Items considered incidental to the Work include, but are not limited to:
 - .1 Areas of blending into existing landscape will not be measured for payment.
 - .2 Maintenance.
 - .3 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .4 Mobilization and demobilization required for this Work shall be incidental to “**Lump Sum Price Item 1 – Phase 1 – Mobilization / Demobilization and Lump Sum Price Item 2 – Phase 2 – Mobilization / Demobilization**”, and no additional payment will be made.
- .5 Traffic Control required for this Work shall be incidental to “**Lump Sum Price Item 3 – Traffic Accommodation**” and no separate payment will be made to the Contractor.

1.3 SUBMITTALS

- .1 In accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data
 - .1 Provide product data for:
 - .1 Seed
 - .2 Mulch
 - .3 Tackifier/Soil Stabilizer
- .3 Submit in writing to Departmental Representative prior to commencing work:
 - .1 Volume capacity of hydraulic seeder in litres.
 - .2 Amount of material to be used per tank based on volume.
 - .3 Number of tank loads required per hectare to apply specified slurry mixture per hectare.

1.4 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 – Quality Control.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties to be provided to the Departmental Representative.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Use all means necessary to protect all materials before, during and after installation. Provide adequate protection to materials that may deteriorate if exposed to weather.
- .2 Seed to be stored in dry weatherproof place and shall be protected from damage by heat, rodents and other causes. Deliver and store grass seed in original packages with label indicating:
 - .1 Analysis of seed mixture;
 - .2 Percentage of pure seed by weight;
 - .3 Year of production;
 - .4 Net mass, and
 - .5 Date tagged and location.

Part 2 Products**2.1 SEED**

- .1 Seed shall be Certified Canada No. 1 Grade quality seed varieties, in accordance with the Canadian Seeds Act and Regulations, and having a minimum purity of 97% and germination of 75%. Seed shall be free of impurities and disease.
- .2 Seed mix for all applications to be the following, by weight:
 - 35% Wheatgrass, awned (*Agropyron subsecundum*)
 - 20% Tufted hairgrass (*Deschampsia caespitose*)
 - 15% Spike Trisetum (*Trisetum spicatum*)
 - 30% Wheatgrass, western (*Agropyron smithii*)
- .3 Seeding rate to be 150 kg/ha for hydraulic seeding.
- .4 **Seed mix and certificate to be approved by the PCA ESO prior to ordering.**
- .5 Seed mix shall be free of Scentless Chamomile, Downy Brome and Canada Thistle.

2.2 WATER

- .1 In accordance Section 01 35 43 – Environmental Procedures

2.3 SOIL STABILIZER/TACKIFIER

- .1 Soil stabilizer/tackifier shall be a nontoxic, colourless copolymer emulsion with no less than 52.6% solids. Acceptable product is: Soil Master WR or approved alternate.

2.4 MULCH

- .1 Wood fibre mulch shall be manufactured from virgin wood fibres and contain not less than 3% of an organic tackifier by volume. Cellulose type products are not acceptable. Acceptable product is: Eco Fibre Plus or approved alternate.

Part 3 Execution

3.1 GENERAL

- .1 No mechanical seeding will be allowed for this project.
- .2 Contractor shall advise Departmental Representative prior to the start of seeding operations.
- .3 Contractor shall mechanically remove any weeds prior to seeding. Weed removal method to be approved by Departmental Representative prior to commencement. This will be incidental to the work.
- .4 Contractor shall ensure that equipment is steam cleaned, free of soil and seed from previous project to prevent site contamination.
- .5 Seeding shall be done upon completion of stripped soil material/chip compost placement.
- .6 Contractor shall not perform work under adverse field conditions such as frozen soil, excessively wet or dry soil, or soil covered with snow, ice or standing water.
- .7 Contractor shall hydraulic seed only during dry weather conditions with no rain forecasted for the next 24 hours and ensuring a seasonably dry seedbed to provide for proper curing of soil stabilizers/tackifier. Contractor shall check weather conditions to ensure soil stabilizer has sufficient time to cure prior to heavy rainfall.
- .8 Seeding shall be done to ensure a catch satisfactory to the Departmental Representative's approval. In areas where seed fails to germinate for whatever reason, the Contractor shall re-cultivate and reseed until acceptable germination takes place.
- .9 Contractor shall carry out seeding in locations as per the Contract Documents or, as directed by Departmental Representative.

3.2 HYDRAULIC SEEDING

- .1 The following application rates are the minimum required for hydraulic seeding:
 - .1 Seed: 150 kg/hectare
 - .2 Mulch: 1500 kg/hectare
 - .3 Tackifier: As per Manufacturer's Instructions
 - .4 Water: 30,000 L/hectare
- .2 The Contractor shall measure quantities of materials by weight, or weight calibrated Contractor to calculate and submit applicable area of coverage per tank load of slurry in accordance with Section 01 33 00 – Submittal Procedures
- .3 Contractor shall physically stake and identify limits of tank coverage prior to seeding to the satisfaction of Departmental Representative.
- .4 Each tank load of slurry shall be fully applied within the designated boundaries for each load as staked volume measurement, to the satisfaction of the Departmental Representative.

- .5 The Contractor shall fill the tank half full with required water and add mulch while continuing to fill with water. Seed mix and fertilizer is to be added. All material is to be added into the hydraulic seeder under agitation. The Contractor shall pulverize mulch with tackifier and charge slowly into seeder.
- .6 The Contractor shall charge soil stabilizer/tackifier into seeder after all other material is well mixed in seeder. Contractor shall mix slowly to avoid foaming but thoroughly to complete slurry.
- .7 The Contractor shall use hydraulic seeding equipment with a minimum slurry tank capacity of 4500 litres.
- .8 The Contractor's equipment shall have an agitation system for slurry capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and mechanical method:
 - .1 Pumps shall be capable of maintaining a continuous non-fluctuating flow of solution.
 - .2 Equipment shall be capable of seeding up to 150m distance from hydraulic seeder using hand operated hoses and appropriate nozzles.
- .9 The Contractor shall apply slurry when wind velocities will not affect the application and cause the mixture to be blown.
- .10 The Contractor shall apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed. Ensure good contact of slurry with soil with minimal air pockets.
- .11 The Contractor shall use the correct nozzle(s) for application and use hoses to access difficult to reach surfaces and to control application.
- .12 The Contractor shall ensure that the application is uniform and the surface is evenly covered. Contractor shall blend into retained landscape for approximately 1 metre.
- .13 The Contractor shall clean all structures, appurtenances and natural features not designated to be seeded of any overspray, to the satisfaction of the Departmental Representative.
- .14 The Contractor shall ensure that at all times during the seeding, that no vehicles are parked within the path of public travel and the Contractor shall provide warning devices as directed by the Departmental Representative to ensure safe operations.
- .15 Traffic Control to be in accordance with Section 01 35 31 – Special Procedures for Traffic Control.

3.3 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Establishment period is a minimum of four months of continuous growing season. Growing season shall not to be divided by winter.
- .2 The Contractor shall repair and reseed dead or bare spots, as directed in the Contract Documents, to Departmental Representative's satisfaction, to allow establishment of seed prior to acceptance. In the case of erosion, the Contractor shall be compensated at the specified unit rates for reseeding.
- .3 For areas of poor seed germination and growth, as determined by the Departmental Representative, the soil shall be scarified or re-cultivated as directed by the Departmental Representative, and seeding and fertilizing undertaken as specified. This work is incidental to the Contract.

3.4 CONSTRUCTION COMPLETION ACCEPTANCE

- .1 Seeded areas will be accepted by the Departmental Representative provided that all areas are uniformly established and turf is not eroded or rutted and relatively free of weeds. Seeded areas to be growing for a minimum of four continuous months prior to construction completion acceptance inspection.
- .2 Areas seeded in fall will be accepted in following spring, a minimum of four months after start of growing season, provided acceptance conditions are fulfilled.
- .3 Minimum 75% growth by area of coverage of specified seed mixture must be present in order to be acceptable.

3.5 MAINTENANCE DURING WARRANTY PERIOD

- .1 Maintenance shall occur for one full year from Construction Completion Acceptance. The estimated period of maintenance within one calendar year shall be from approximately April 1 to October 31. The Contractor will be required to employ all of the necessary measures to establish and maintain all seeding in an acceptable, vigorous and healthy growing condition.
- .2 The Contractor shall repair and reseed dead or bare spots, as directed in the Contract Documents, to Departmental Representative's satisfaction, to allow establishment of seed prior to acceptance. In the case of erosion, the Contractor shall be compensated at the specified unit rates for reseeding.
- .3 For areas of poor seed germination, or as determined by the Departmental Representative, the soil shall be scarified or re-cultivated as directed by the Departmental Representative, and seeding and fertilizing undertaken as specified. This work is incidental to the Contract.
- .4 For small areas of poor seed germination or as determined by the Departmental Representative, the soil shall be scarified to a depth of 25 mm and seeding and fertilizing shall be undertaken as specified. This work is incidental to the Contract.
- .5 Weed control shall be undertaken as determined by the Departmental Representative. Hand pulling of weeds may be required. This work is incidental to the Contract.

END OF SECTION

33 46 19 DRAIN ROCK AND DRAINAGE WORKS**Part 4 General****4.1 DESCRIPTION**

- .2 Hauling and installation of various size rock for drainage in accordance with the Contract Documents and as directed by the Departmental Representative.

4.2 MEASUREMENT AND PAYMENT PROCEDURES

- .7 Measure for payment of Drain Rock will be in neat line cubic meter volumes calculated from the Design cross sections for work completed in accordance with the Contract Documents and accepted by the Departmental Representative.
- .8 Payment shall be made under **“Unit Price Item 1f – Phase 1 - Campsite Grading - Sumps – 16mm Drain Rock”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .9 Payment shall be made under **“Unit Price Item 1g – Phase 1 - Campsite Grading - Sumps – 400mm Drain Rock”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .10 Payment shall be made under **“Unit Price Item 2d – Phase 1 - Shower Building Erosion Protection – 40mm Drain Rock”** and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .11 Items considered incidental to the Work include, but are not limited to:
 - .3 Loading, hauling, placing, and finishing.
 - .4 Overhaul.
 - .5 Any temporary stockpiling of aggregates onsite.
 - .6 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
- .12 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Phase 1 - Mobilization / Demobilization”**, and no additional payment will be made.
- .13 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 3 – Traffic Accommodation”** and no separate payment will be made to the Contractor.

4.3 QUALITY CONTROL

- .1 In accordance with Section 01 45 00 – Quality Control.
- .2 Contractor to provide material samples to the Departmental Representative prior to works commencing for Quality Assurance purposes.

4.4 SUBMITTALS

- .1 In accordance with Section 01 33 00 Submittal Procedures.

4.5 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with Section 01 35 43 - Environmental Procedures.
- .2 Divert unused Select Granular Sub-base to Marmot Pit as accepted by the Departmental Representative.

Part 5 Products**5.1 MATERIALS**

- .2 All materials for drain rock as described in this section are available in Marmot Pit at the direction of the Departmental Representative.

Part 6 Execution**6.1 PLACING**

- .1 Drain Rock
 - .1 Load, haul and place Gravel Fill after subgrade has achieved the requirements of the Contract Documents.
 - .2 Place granular Gravel Fill materials using methods that do not lead to segregation or degradation.
 - .3 Place material to full width in uniform layers not exceeding 200 mm loose thickness.
 - .4 Place material on geotextile as to not damage geotextile during placement.
 - .5 Shape each layer to smooth contour and compact to the specified density before succeeding layer is placed.
 - .6 Remove and replace portion of layer in which material has become segregated during spreading.

6.2 SITE TOLERANCES

- .1 Finished surface to be within $\pm 15\text{mm}$ of elevation as indicated but not uniformly high or low.

6.3 PROTECTION

- .4 Maintain finished subgrade in condition conforming to this section until succeeding base is constructed.

END OF SECTION