

Parks Canada Agency

Grasslands National Park

DIVISION 01

SECTION 01 11 00	SUMMARY OF WORK	1
SECTION 01 14 00	WORK RESTRICTIONS	6
SECTION 01 21 00	ALLOWANCES	12
SECTION 01 25 00	MOBILIZATION DEMOBILIZATION	15
SECTION 01 29 01	SITE OCCUPANCY	16
SECTION 01 31 00	PROJECT MANAGING AND COORDINATION	17
SECTION 01 32 16.07	CONSTRUCTION PROGRESS SCHEDULES BAR (GANTT) CHART ..21	
SECTION 01 33 00	SUBMITTAL PROCEDURES	24
SECTION 01 35 00.06	SPECIAL PROCEDURES FOR TRAFFIC CONTROL	30
SECTION 01 35 29.06	HEALTH AND SAFETY REQUIREMENTS	34
SECTION 01 35 43	ENVIRONMENTAL PROCEDURES	37
SECTION 01 45 00	QUALITY CONTROL	47
SECTION 01 52 00	CONSTRUCTION FACILITIES	53
SECTION 01 56 00	TEMPORARY BARRIERS AND ENCLOSURES	55
SECTION 01 61 00	COMMON PRODUCT REQUIREMENTS	56
SECTION 01 71 00	EXAMINATION AND PREPARATION	60
SECTION 01 74 11	CLEANING	61
SECTION 01 77 00	CLOSEOUT PROCEDURES	63
SECTION 01 78 00	CLOSEOUT SUBMITTALS	64
SECTION 02 61 33	HAZARDOUS MATERIALS	66
SECTION 03 48 00	PRECAST CONCRETE SPECIALTIES	69
SECTION 10 14 53	TRAFFIC SIGNAGE	72
SECTION 31 24 13	ROADWAY AND DRAINAGE EXCAVATION	74
SECTION 31 32 19.01	GEOSYNTHETICS	80
SECTION 31 37 00	RIP RAP	83
SECTION 32 11 24	GRANULAR MATERIALS	84
SECTION 32 91 13	TOPSOIL PLACEMENT AND GRADING	86
SECTION 33 42 13	PIPE CULVERTS	89

Drawings:

REVISION	TITLE	DATE
0	4462-00-C-101 CROSSING 5 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS HORSE CREEK TRIBUTARY DAM ROAD	2021.02.03
0	4462-00-C-102 CROSSING 8 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS WETHERALL CREEK CROSSING	2021.02.03
0	4462-00-C-103 CROSSING 9 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS SPRING CREEK TRIBUTARY EAST-WEST TRAIL (WEST)	2021.02.03
0	4462-00-C-104 CROSSING 10 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS SPRING CREEK TRIBUTARY EAST-WEST TRAIL (EAST)	2021.02.03
0	4462-00-C-501 DETAIL 1 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS TYPICALS AND DETAILS	2021.02.03
0	4462-00-C-502 DETAIL 2 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS TYPICALS AND DETAILS	2021.02.03
0	4462-00-G-001 DRAWING INDEX AND COVER SHEET	2021.02.03

Reference Documents:

1. GNP East Block Interior Roads Stream Crossings Upgrades - Basic Impact Assessment (BIA)
2. Construction Signage Translation Database

Parks Canada Agency

Grasslands National Park

DIVISION 01**NO TABLE OF CONTENTS ENTRIES FOUND.****Drawings:**

REVISION	TITLE	DATE
C	4462-00-C-101 CROSSING 5 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS HORSE CREEK TRIBUTARY DAM ROAD	2020.12.15
C	4462-00-C-102 CROSSING 8 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS WETHERALL CREEK CROSSING	2020.12.15
C	4462-00-C-103 CROSSING 9 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS SPRING CREEK TRIBUTARY EAST-WEST TRAIL (WEST)	2020.12.15
C	4462-00-C-104 CROSSING 10 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS SPRING CREEK TRIBUTARY EAST-WEST TRAIL (EAST)	2020.12.15
C	4462-00-C-501 DETAIL 1 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS TYPICALS AND DETAILS	2020.12.15
B	4462-00-C-502 DETAIL 2 - EAST BLOCK BACKCOUNTRY CREEK CROSSINGS TYPICALS AND DETAILS	2020.12.15

Reference Documents:

1. GNP East Block Interior Roads Stream Crossings Upgrades - Basic Impact Assessment (BIA)
2. Construction Signage Translation Database

Part 1 GENERAL**1.1 PRECEDENCE**

- .1 For Federal Government projects, Division 1 Sections take precedence over technical specifications referenced in this Project Specification.

1.2 DEFINITIONS

- .1 Saskatchewan Government Ministry of Highways and Infrastructure is referred to as “MHI”. The MHI Standard Specification Manual can be found at the following location:
[http://www.highways.gov.sk.ca/Doing%20Business%20with%20MHI/Ministry%20Manuals/Standard%20Specifications%20Manual/Portfolio%20Complete%20Manual/Standard%20Specifications%20Manual%20\(Jan%202021\).pdf](http://www.highways.gov.sk.ca/Doing%20Business%20with%20MHI/Ministry%20Manuals/Standard%20Specifications%20Manual/Portfolio%20Complete%20Manual/Standard%20Specifications%20Manual%20(Jan%202021).pdf)
- .2 Changes in Definition, - The following changes in definitions have been made to the MHI Specifications:
 - .1 Engineer – The word “Engineer” shall mean the Departmental Representative or their duly appointed representative unless noted otherwise.
 - .2 Deputy Minister – The word “Deputy Minister” shall mean Parks Canada Agency unless noted otherwise.
- .3 “GNP”, “Park” or “The Park” shall refer to Grasslands National Park.
- .4 Any reference to “Parks Canada Agency”, “Parks Canada”, “PCA” or “The Owner”, shall refer to Parks Canada Agency and shall include any affiliate or sub group of Parks Canada.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 In preparation for and during construction of this project, the Contractor shall review the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. The Departmental Representative and Parks Canada’s Environmental Surveillance Officer (ESO) will refer to Section 01 35 43 – Environmental Procedures in determining compliance.
- .2 All requirements noted within the Contract Documents shall be completed by the Contractor unless specifically stated otherwise.
- .3 Without limiting the scope of work, the work of this Contract generally comprises the following:
 - .1 Excavation and removal of existing subgrade material and road / trail rock or surfacing material, transporting the material, and placing this material in road embankments or in stockpiles identified in the Contract Documents or as directed by the Departmental Representative;
 - .2 Construction of a graveled surface road using excavated materials, geotextiles, and stockpiles of surplus material.
 - .3 Excavation and removal of waste material and disposal of inside of the Park as specified in the Contract Documents;

- .4 Subgrade preparation including the supply and installation of geosynthetics in accordance with the Contract Documents;
- .5 Supply and installation of geosynthetics and erosion control products;
- .6 Supply and installation of articulating concrete block revetments, including connections and earth anchor systems;
- .7 Supply and installation of culverts in accordance with MHI Specifications;
- .8 Supply and placement and compaction of granular and subgrade materials in accordance with MHI Specifications;
- .9 Supply and installation of traffic control including temporary traffic markings, signage, and other temporary construction facilities required for completion of the Work of the Project;
- .10 Supply and installation of hydraulic flow control including temporary berms, erosion control, and any temporary pumping required for completion of the Work of the Project in accordance with the BIA;
- .11 Miscellaneous Additional Work as directed by the Departmental Representative;
- .12 Where specifications for work covered under this Contract including any Change Orders are not available, the most recent version of the MHI – Standard Specifications shall apply unless directed by the Departmental Representative;

1.4 PROJECT LOCATION

- .1 The project is located in the East Block of Grasslands National Park (GNP). The following are key locations relative to the project:
 - .1 Poverty Ridge Warden Station: Southeast Area of GNP along Township Road 11, accessed from Highway 2.
 - .2 GNP East Block Access: At the East park boundary approximately 4.9 km North of Township Road 11 and 2.9 km West on existing access road.
- .2 The Contractor is advised that the work area contains natural plant life and animals that are very sensitive and restoration of these species is very difficult once the plants have been damaged. The Contractor shall proceed with caution at all times and shall not run equipment directly on the sensitive areas without protection previously approved by the Departmental Representative in place.

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 in the vicinity has been or will be contracted by Parks Canada:
 - .1 Ongoing facility maintenance and wildlife management by Parks Canada staff within GNP.
 - .2 Monitoring and ongoing studies by the Department of Fisheries and Oceans Canada.

- .2 The Contractor shall coordinate his operations with other contractors in the area as well as any Stakeholders in the area. No claims for any delays, lost profit or inconvenience will be entertained as a result of this coordination.

1.7 WORK SEQUENCE

- .1 The Contractor shall schedule work progress to allow Owner / Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 The Contractor shall maintain fire and emergency access on the roadways at all times.
- .3 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 **one (1) week prior to commencement of any work.**
- .4 The Contractor shall:
 - .1 Not start work within GNP prior to August 4, 2021 and shall only be allowed to start once all required submittals have been approved.
 - .2 Complete all work and cleanup of the area before November 30, 2021 (Contract Completion Date).
- .5 The Contractor shall limit road closures to the segment(s) of roadway where active creek crossing rehabilitation is taking place. The remainder shall remain open for shared use of the Contractor, Stakeholders, and Parks Canada Agency staff.

1.8 CONTRACTOR USE OF PREMISES

- .1 The Contractor is not permitted to extract and process native material for the production of granular aggregate anywhere inside GNP unless specifically directed by the Departmental Representative.
- .2 The Contractor has use of site subject to above, Section 01 14 00 and Section 01 29 01 until Contract Completion date.
- .3 The Contractor shall limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner & Stakeholder occupancy.
 - .2 Work by other Contractors.
- .4 The Contractor shall coordinate the use of the premises under direction of the Departmental Representative.
- .5 The Contractor shall obtain and pay for use of additional storage, disposal or work areas needed for operations under this Contract.
- .6 The Contractor and any Subcontractors are not required to obtain a business license for the work.
- .7 The Contractor and any Subcontractors are required to obtain any required Restricted Activity Permits (RAP) and have a copy of the RAPs and signed BIA at all work sites at all times.
- .8 All Contractor's business and private vehicles are required to display a vehicle work pass from Parks Canada. These permits may be obtained free of charge from the PCA Environmental Surveillance Officer (ESO) or as directed by the Departmental Representative.

1.9 OWNER FURNISHED ITEMS

- .1 None.

1.10 OWNER OCCUPANCY

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

1.11 CONSTRUCTION SIGNAGE

- .1 Construction Signage shall be in accordance with Section 01 35 00.06
- .2 No signs or advertisements, other than warning signs and alternate traffic movement signs, are permitted on site.
- .3 Signs and notices for safety and instruction shall be in both official languages. Signs shall be diamond grade and shall conform to CAN3-Z321.
- .4 The Contractor shall maintain approved signs and notices in good condition for duration of project, and remove or dispose the signs off-site upon completion of project or earlier as directed by the Departmental Representative.
- .5 All temporary traffic control signs that are used for longer than one day shall be mounted on wood posts that shall be secured at all times.
- .6 Signage shall be coordinated with other Contractors where necessary.

1.12 SETTING OUT OF WORK

- .1 The Departmental Representative will identify location of all work sites, will perform construction layout, and will record as built details. The Contractor shall be responsible for all other layout of work including additional construction layout survey if required.
- .2 The Contractor is responsible for the accurate layout of all temporary and final lines all work sites in this contract.
- .3 The Contractor shall provide at their own cost, any survey activities as required and including, but not limited to, the following:
 - .1 String line, machine control, or other markings for the alignment or grade control of construction equipment

1.13 DOCUMENTS REQUIRED

Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 Change Orders.

Parks Canada Agency

Grasslands National Park

Page 5

- .6 Other Modifications to Contract.
- .7 Field Test Reports.
- .8 Traffic Management Plan.
- .9 Safety Plan.
- .10 WHMIS.
- .11 Environmental Protection Plan.
 - .1 BIA.
 - .2 Restricted Activity Permits.
- .12 Quality Control Plan and field test reports.
- .13 Copy of accepted Work schedule and most recent updated schedule.
- .14 Labour conditions and wage schedules.
- .15 Equipment rate schedule and applicable versions of the relevant rate guides
- .16 Health and Safety Plan and Other Safety Related Documents.
- .17 Other documents as specified.

Part 2 PRODUCTS

- .1 Not used.

Part 3 EXECUTION

- .1 Not used.

END OF SECTION

Part 1 GENERAL**1.1 ACCESS AND EGRESS**

- .1 Contractor vehicular access to the site shall be restricted to construction, emergency and maintenance vehicles for the duration of the contract.
- .2 Provide for vehicular traffic for the duration of the construction.
- .3 Construction operations shall be conducted to cause minimal inconvenience to the public and to owners of adjacent or adjoining property.
- .4 The Contractor is responsible for any development and supply of construction access to the Work as approved by the Departmental Representative.

1.2 USE OF THE SITE AND FACILITIES

- .1 The Work Sites specified in these specifications shall only be used for the purposes of the Work.
- .2 The Work Site will be made available by the Owner to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents. The Contractor shall include in the tender, payment to taxes properly levied by law (Federal, Provincial and Municipal) including the cost of any collection of permits and business licenses.
- .3 Parks Canada regulations prohibit anyone working within the Park from using public campground facilities except as specifically identified herein.
- .4 Water is not available within GNP. The Contractor shall not extract water from within the National Park. The Contractor shall be responsible for locating and hauling water into GNP as approved by the Departmental Representative.
- .5 Power is not available on site. The Contractor must supply power for offices, lights, tools, etc.
- .6 Office-tool trailer(s) may be set up at the Poverty Ridge and / or at one crossing location, both in an area designated by the Departmental Representative and subject to the approval of the RAP for the location. See Section 01 35 43 - Environmental Procedures.
- .7 Contractor shall maintain adequate drainage and siltation control at the Worksite.
- .8 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 his or her cost for the performance and inspection of the Work.
- .9 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and the Environmental Procedures for this project. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .10 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at their expense prior to contract completion date or construction completion.

1.3 WORKING TIMES

- .1 The Contractor may work during daylight hours, from 07:00 to 19:00, Monday to Friday inclusive subject to the following restrictions:
 - .1 No Work shall occur on Saturdays and Sundays unless prior written approval is granted by the Departmental Representative.
 - .2 No hauling of material during inclement weather, or as directed by the Departmental Representative.
 - .3 The Contractor will be permitted to work on Civic Holidays and long weekends without the prior written approval of the Departmental Representative.
 - .4 The Contractor will not be permitted to adversely impact wildlife or vegetation during critical life stages (breeding, nesting, rearing, and migration) unless prior written approval is granted by the Departmental Representative. The Contractor shall consult with the Departmental Representative and the Parks Canada ESO regarding any localized wildlife concerns.
 - .5 A wildlife survey may be conducted by PCA prior to the start of construction, and as needed during the project. Work will be restricted if critical life stages are observed adjacent to the project.

1.4 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, the BIA, 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 outside of the work area. Refer to Section 01 35 43 - Environmental Procedures, for details.
- .3 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the 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. The Contractor shall be responsible to provide waste containers that are weather and wildlife proof as needed.

1.5 ACCESS TO ADJACENT PROPERTIES

- .1 Construction operations shall be conducted so as to cause minimal inconvenience to the public and to owners of adjoining property. Existing access to property shall be maintained as required and coordination with the landowner shall be required.

1.6 UTILITIES

- .1 The Contractor shall become familiar with all utilities and services adjacent to the Work and shall safeguard all infrastructure. The Contractor 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.

- .3 The Contractor shall notify the Departmental Representative and the Utility companies at least seven days in advance of any activities which may interfere with the operation of such Utilities.
- .4 Whenever working in the vicinity of Utilities, the Contractor shall locate such Utilities and expose those that may be affected by the Work in a manner that is acceptable to the utility owner, using hand labour if required.
- .5 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.
- .6 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 PROPERTY CONDITIONS

- .1 Submission of tender is deemed to be confirmation that the Contractor has inspected the site and is conversant with all conditions affecting execution and completion of work.
- .2 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.
- .3 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, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.
- .4 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.
- .5 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.
- .6 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 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall comply with all applicable safety regulations of the Workers' Compensation Board of Saskatchewan (WCB) including, but not limited to, WCB's Industrial Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.
- .2 The Contractor shall comply with Canada Labour Code, Canada Occupational Health and Safety Regulations.

- .3 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.
- .4 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.

1.9 USE OF PUBLIC AREAS

- .1 Off-road construction equipment will not be allowed on the Badlands Parkway or on Highway 2. Steel tracked equipment with cleats will not be allowed on pavement. Granular, embankment and excavation materials may be hauled on existing highway and RM roads, but this shall be by standard highway trucks not exceeding legal load limits for the roadway.
- .2 Certified Flag persons shall be provided during mobilization and demobilization of construction site and when work vehicles are entering or exiting the work site.
- .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 which 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.

1.10 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 (personnel can hold multiple roles).
- .2 At a minimum, the following personnel 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 personnel 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.

- .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 1 year 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.

1.11 MEETINGS

- .1 The Work includes attending weekly regularly scheduled meetings between the Contractor and the Departmental Representative. All project meetings will be called and facilitated by the Departmental Representative as required. The Contractor shall be represented at such meetings to the satisfaction of the Departmental Representative.
- .2 The Departmental Representative will schedule an initial project kick off meeting to be held at a location to be determined by the Departmental Representative after award and subsequent notification. Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors, supervisors and Utility Companies (if required) are to be in attendance.
- .3 The Contractor shall assemble their site staff and sub-contractors for an environmental briefing to be conducted by the Owner. The duration of the briefing shall reflect the information to be shared by the Owner's staff to adequately convey the importance of the information and shall be held at initial project start-up. **The Contractor shall ensure that all current project staff are in attendance.** The Departmental Representative and the Contractor will co-operate in setting the most appropriate time and place for the briefing. Subsequent to the initial environmental briefing, additional briefings will be arranged for new project staff and sub-contractors within **48 hours** of reporting for duty on the project.
- .4 Cost of attending the above meetings shall be considered incidental to the Unit Price items and no additional payment will be made.

1.12 WASTE DISPOSAL

- .1 All surplus or unsuitable earth or rock materials shall be removed from the work site to approved sites within GNP. Stockpile of some rock adjacent to crossing locations may be possible if approved by the Departmental Representative, or may require hauling as far

as Poverty Ridge. The Contractor shall assume that all hauled material is hauled to Poverty Ridge and include that cost in the unit price.

- .2 Surplus, unsuitable and waste materials may be removed from the work site to approved sites outside GNP at the Contractor’s expense if the Contractor desires to do so.
- .3 Deposit of any construction debris into any waterway is strictly forbidden.
- .4 Cost for Waste Disposal described above shall be considered incidental to the Unit Price items and no additional payment will be made.
- .5 Waste Disposal shall be completed in accordance with Section 01 35 43 - Environmental Procedures.

1.13 WORK STOPPAGE

- .1 The Contractor shall give precedence to safety and health of public and site personnel and protection of the environment over cost and schedule considerations for Work, as shall be included in the Contractor’s Health and Safety Plan.

Part 2 PRODUCTS

- .1 Not used.

Part 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 REFERENCES**

- .1 General Conditions.

1.2 PRIME COST SUM

- .1 Include in Contract Price a total **Prime Cost Sum of \$10,000.00.**
 - .1 Do not include in the Contract Price, additional contingency allowances for products, installation, overhead or profit.
 - .2 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.
 - .3 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.
 - .4 Any and all additional work must be approved in writing by the Departmental Representative prior to commencement.
 - .5 All expenditures must be substantiated with verified invoices and/or accepted daily extra work reports as noted in Measurement and Payment Procedures below.
- .2 Such work may include, but not be limited to:
 - .1 Excavate, load, haul, crush, and stockpile aggregate materials
 - .2 Additional ditching and drainage improvements
 - .3 Additional road structure repairs including subgrade, sideslopes, and surfacing
 - .4 Additional removal and re-installation of existing and/or new barriers or guardrails
 - .5 Additional earthwork and/or slope stabilization
 - .6 Additional supply and installation of culverts and drainage structures
 - .7 Additional removal or repair of culverts
 - .8 Additional supply and installation of geosynthetics
 - .9 Additional Supply and installation of Rip Rap
 - .10 Additional Supply and installation of articulating concrete block revetments (mats)
 - .11 Additional Supply and Installation of earth anchor systems
 - .12 Supply and installation of permanent traffic signs (not construction signs)
 - .13 Installation of owner supplied information signs
 - .14 Supply and installation of barrier reflectors

- .15 Supply and installation of guide posts
- .16 Additional survey resulting from changes made by the Departmental Representative
- .17 Additional stripping, excavation and disposal of waste materials as directed by the Departmental Representative
- .18 Additional remediation or removal and replacement of unsuitable or contaminated soils not described in the contract documents
- .19 Supply and installation of landscaping and seeding as directed by the Departmental Representative
- .20 Clearing and brushing
- .21 Miscellaneous work as directed by the Departmental Representative
- .3 The Contract Price, and not Prime Cost Sum, includes Contractor's overhead and profit in connection with the Work.

1.3 MEASUREMENT PROCEDURES

- .1 Payment for Work under the **“Lump Sum Price - Item 16 – 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 Saskatchewan Heavy Construction Association (SHCA) 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 Saskatchewan Heavy Construction Association (SHCA) rate or by mileage using National Joint Council (NJC) rates. 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 10hrs 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 signature on extra work reports is an agreement to the hours worked that day. Labour and equipment rates are to be reviewed by the Departmental Representative against the appropriate accepted rates when submitted for payment.

PART 2 PRODUCTS

- .1 Materials and products shall be in accordance with the most current version of the Saskatchewan Government Ministry of Highways and Infrastructure Standard Specifications, or as directed by the Departmental Representative.

PART 3 EXECUTION

- .1 Work shall be in accordance with the most current version of the Saskatchewan Government Ministry of Highways and Infrastructure Standard Specifications, or as directed by the Departmental Representative.

END OF SECTION

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, buildings, shops, offices, supplies and incidentals to and from the project sites.
- .2 Mobilization and Demobilization does not include work or operations outside of the Park in private land or disposal sites.
- .3 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 PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 Payment will be made under **“Lump Sum Price Item 14 – Mobilization / Demobilization”**.
 - .2 50% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
 - .3 The remainder of the Lump Sum Price for Mobilization and Demobilization to be paid when work is complete and all materials, equipment, 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 A maximum payment of **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

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 PRECEDENCE**

- .1 For Federal Government projects, Division 1 Sections take precedence over technical specifications referenced in this Project Specification.

1.2 DEFINITION OF OCCUPANCY

- .1 The Contractor shall be permitted to use and occupy sites where they will be working in GNP, free of charge from the allowable mobilization date to the Contract Completion Date as specified in Section 01 11 00 – Summary of Work.
- .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 All sites clean up and 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

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 MEASUREMENT 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 design variance letter will be issued by the Departmental Representative. The design variance letter must state what changes are being made from the IFC design and what the method of measurement for payment will be, if varying from the Contract Documents.
- .2 The design variance letter 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 The Contractor shall coordinate progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other Contractors, and Work by the Owner, under instructions of the Departmental Representative.

1.4 PROJECT MEETINGS

- .1 The Contractor shall attend weekly project meetings chaired by the Departmental Representative, throughout progress of Work and provide information as determined by the Departmental Representative.
- .2 The Contractor shall attend pre-installation meetings, when specified in specifications and when required to coordinate related or affected Work and provide information, as determined by the Departmental Representative.
- .3 The Contractor shall provide physical space and make arrangements for meetings.

1.5 CONSTRUCTION ORGANIZATION AND START-UP

- .1 Within seven (7) days after award of Contract, the Contractor shall request a meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. The meeting is to be chaired by the Departmental Representative who will record the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors shall 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 16.07.
 - .3 Schedule of submittals in accordance with Section 01 33 00.
 - .4 Environmental requirements and procedures.

- .5 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.
- .6 Site safety and security in accordance with Sections 01 14 00, 01 52 00 and 01 35 43.
- .7 Quality Control in accordance with Section 01 45 00.
- .8 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
- .9 Owner-furnished materials.
- .10 Monthly progress claims, administrative procedures, photographs, and holdbacks.
- .11 Close out procedures and submittals in accordance with Sections 01 77 00 and 01 78 00.
- .12 Insurances and transcript of policies.
- .13 Other business.
- .4 The Contractor shall comply with the Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.
- .5 During construction, the Contractor shall coordinate use of site and facilities through the Departmental Representative's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.
- .6 The Contractor shall comply with the instructions of the Departmental Representative for use of temporary utilities and construction facilities.
- .7 The Contractor shall coordinate field 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.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 Change Orders.
 - .6 Other Modifications to Contract.
 - .7 Field Test Reports.
 - .8 Traffic Management Plan.
 - .9 Health and Safety Plan.
 - .10 WHMIS.
 - .11 Environmental Protection Plan.
 - .12 Quality Control Plan and field test reports.
 - .13 Copy of accepted Work schedule and most recent updated schedule.
 - .14 Labour conditions and wage schedules.
 - .15 Equipment rate schedule and applicable versions of the relevant rate guides

.16 Health and Safety Plan and Other Safety Related Documents.

.17 Other documents as specified.

1.7 SUBMITTAL SCHEDULE

- .1 In accordance with 01 33 00 – Submittal Procedures.
- .2 The Contractor shall 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.
- .3 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.

1.8 PROJECT SCHEDULES

- .1 The Contractor shall submit preliminary construction progress schedule in accordance with Section 01 32 16.07 to Departmental Representative coordinated with Owner's project schedule.
- .2 After review by the Departmental Representative, the Contractor shall revise and resubmit the schedule to comply with revised project schedule.
- .3 During progress of Work, the Contractor shall revise and resubmit the schedule as directed by the Departmental Representative.
- .4 In addition to the project schedule, the Contractor shall submit weekly schedules during the weekly meeting to the Departmental Representative showing the Work planned for the following week on a day by day basis.

1.9 CONSTRUCTION PROGRESS MEETINGS

- .1 During course of Work prior to project completion, the Contractor shall schedule progress meetings weekly in agreement with the Departmental Representative.
- .2 The Contractor, major Subcontractors involved in the Work, and the Departmental Representative are to be in attendance. Meeting to be chaired by the Departmental Representative who will record the minutes of the meeting.
- .3 Agenda to include following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review environmental issues.
 - .3 Review Traffic Control and Emergency Response Protocol issues.
 - .4 Review site safety and security issues.
 - .5 Review issues as Prime Contractor and co-ordination with other contractors.
 - .6 Review of Work progress since previous meeting.
 - .7 Discuss field observations, problems, and conflicts.
 - .8 Review off-site fabrication delivery schedules.
 - .9 Review submittal schedules: expedite as required.
 - .10 Corrective measures and procedures to regain projected schedule.
 - .11 Revisions to construction schedule.
 - .12 Review Weekly Progress schedule, during succeeding work period.
 - .13 Review of quality reports since previous meeting.

- .14 Review construction budget: Progress payments, variances from contract.
- .15 Other business.

1.10 SUBMITTALS

- .1 The Contractor shall submit product data to Section 01 33 00 for review for compliance with the Contract Documents.
- .2 The Contractor shall submit requests for payment for review, and for transmittal to the Departmental Representative. Payment request shall be on last day of the month.
- .3 The Contractor shall submit requests for interpretation of the Contract Documents, and obtain instructions through the Departmental Representative.
- .4 The Contractor shall process substitutions through the Departmental Representative.
- .5 The Contractor shall process change orders through the Departmental Representative.
- .6 The Contractor shall deliver closeout submittals for review and preliminary inspections, for transmittal to the Departmental Representative.

1.11 CLOSEOUT PROCEDURES

- .1 In accordance with Section 01 33 00.
- .2 The Contractor shall notify the Departmental Representative when the Work is considered ready for Substantial Performance.
- .3 The Contractor shall accompany the Departmental Representative on a preliminary inspection to determine items listed for completion or correction (deficiencies).
- .4 The Contractor shall comply with the Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance.
- .5 The Contractor shall notify the Departmental Representative of completion of the deficiencies list when the work as determined in the Departmental Representative's final inspection has been completed.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 This Work shall be incidental to 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 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. Bar Charts should be derived from commercially available computerized project management system.
- .3 Baseline: Original approved plan for Project.
- .4 Construction Work Week: Monday to Sunday, inclusive, will provide seven 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 The Contractor shall ensure the Project Schedule is practical and remains within specified Contract duration.
- .2 The Contractor shall 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 The Contractor shall include an allowance in the schedule for Work performed and paid for as Prime Cost Sum. Refer to Section 01 21 00 – Allowances for a list of activities.
- .4 The Contractor shall plan to complete Work in accordance with prescribed Project Schedule.

- .5 The Contractor shall limit activity durations to maximum of approximately 14 working days, to allow for progress reporting.
- .6 The Contractor shall 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.
- .7 The Contractor shall include the requirements of Section 01 14 00 - Work Restrictions and Section 01 35 43 – Environmental procedures.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00.
- .2 The Contractor shall submit to the Departmental Representative within 10 working days of Award of Contract, Bar (GANTT) Chart as a Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative in accordance with 01 33 00 Submittal Procedures.

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 The Contractor shall structure the schedule to allow orderly planning, organizing and execution of the Work as a Bar Chart (GANTT).
- .2 The Departmental Representative will review and return revised schedules within 5 working days.
- .3 The Contractor shall revise impractical schedule and resubmit within 5 working days.
- .4 The accepted revised schedule will become Master Plan and be used as baseline for updates.

1.7 PROJECT SCHEDULE

- .1 The Contractor shall develop a detailed Project Schedule derived from Master Plan.
- .2 The Contractor shall ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Permits.
 - .3 Submittals:
 - .1 Project Schedule
 - .2 List of subcontractors, suppliers and Departmental Representative
 - .3 Contractor Chain of Command including Sub-Contractors and Departmental Representatives
 - .4 Prime Contractor / co-ordination with other Contractors Plan
 - .5 Work Plan
 - .6 Environmental Protection Plan

- .7 Traffic Management Plan
- .8 Site access / Detour Plan
- .9 Emergency Response Protocol
- .10 Site Specific Health and Safety Plan, incl. MSDS sheets
- .11 On site Contingency and Emergency Response Plan
- .12 Management of Owner-supplied material Plan
- .13 Survey Plan
- .14 Quality Control Plan
- .15 Shop Drawings
- .4 Mobilization
- .5 Additional Work as and when requested
- .6 Interim Inspection
- .7 Site Clean-up / De-mobilization

1.8 PROJECT SCHEDULE REPORTING

- .1 The Contractor shall update the Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress. The Contractor shall provide weekly Progress Reports to the Departmental Representative.
- .2 The Contractor shall include as part of Project Schedule, narrative reports identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- .3 Provide Weekly Progress Reports that identify completed work and Work planned for the following week in accordance with 01 33 00 Submittal Procedures.

1.9 PROJECT MEETINGS

- .1 The Contractor shall discuss the Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Meetings in accordance with 01 31 00 Project Management and Coordination.

Part 2 PRODUCTS

- .1 Not used.

Part 3 EXECUTION

- .1 Not used.

END OF SECTION

Part 4 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 This work shall be considered incidental to contract and no payment shall be made for this item.

1.2 ADMINISTRATIVE

- .1 The Contractor shall submit to the Departmental Representative all submittals listed for review. The submissions shall be prompt and in orderly sequence so as to not cause a 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 Work affected by submittals shall not proceed until review is complete and approval has been given by the Departmental Representative.
- .3 The Contractor shall 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 The Contractor shall review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of the 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 The Contractor shall notify the Departmental Representative in writing at the time of submission, identifying any deviations from requirements of the Contract Documents stating reasons for deviations.
- .7 The Contractor shall verify the field measurements and affected adjacent Work is consistent.
- .8 The Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 The Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 The Contractor shall keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
 - .2 Submit drawings stamped and signed by professional engineer registered or licensed in Saskatchewan, Canada.
 - .3 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 co-

ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .4 Allow 5 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
 - .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .4 Subcontractor.
 - .5 Supplier.
 - .6 Manufacturer.
 - .7 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .8 Details of appropriate portions of Work as applicable:
 - .9 Fabrication.
 - .10 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .11 Setting or erection details.
 - .12 Capacities.
 - .13 Performance characteristics.
 - .14 Standards.
 - .15 Operating weight.
 - .16 Wiring diagrams.
 - .17 Single line and schematic diagrams.
 - .18 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by the Departmental Representative.
- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by the Departmental Representative.
- .15 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by the Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, 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.
- .20 The review of shop drawings by Parks Canada is for sole purpose of ascertaining conformance with general concept.
- .3 This review shall not mean that Parks Canada approves detail design inherent in shop drawings, responsibility for which 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 requirements of construction and Contract Documents.
- .4 Without restricting generality of 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 sub-trades.

1.4 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, The Contractor shall submit their Workers' Compensation Board status.
- .2 The Contractor shall submit transcription of insurance immediately after award of Contract.

1.5 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
 - .1 The Contractor shall submit the following plans and programs to the Departmental Representative for review a minimum of four (4) 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 road segment or location in order to meet stages specified in Section 01 11 00. 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.
 - .2 List of subcontractors, suppliers and consultants, their role and their key personnel, including names and positions, addresses, telephone, email and cellular telephone numbers.
 - .3 Contractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone and cellular telephone numbers. The list shall include the names and telephone/cellular telephone numbers for contact persons who are available on a 24-hour basis in the event of emergencies.
 - .4 Work Plan, describing in detail for each activity by location, the Contractor's intended methods of construction, and materials, equipment and manpower use to meet stages specified in Section 01 11 00. The Work Plan has to be linked to the Project Schedule.
 - .5 Environmental Protection Plan in accordance with the requirements of Section 01 35 43.
 - .6 Quality Control Plan in accordance with Section 01 45 00 – Quality Control.
 - .7 Traffic Management Plan, in accordance with the requirements of Section 01 35 00.06 - Special Procedures for Traffic Control.
 - .8 The Contractor shall develop an "Emergency Procedures Protocol" in consultation with Parks Canada. Parks Canada will supply the Contractor with a template with contact names and numbers to be used for this purpose.
 - .9 Site Access and Detour Plans. It shall include but not be limited to, Engineered Drawings and procedures for accessing all areas of the Work or for any proposed detours or lane closures.

- .10 Survey Plan describing the Contractor's intended methods of surveying during this project and any requirements of the initial layout survey by the Departmental Representative.
 - .11 Health And Safety Plan - The Contractor shall have a Certificate of Recognition (COR) or Small Employer Certificate of Recognition (SECOR) and 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.
 - .12 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
 - .13 The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of the submittals in writing.
 - .14 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, 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.
- .3 Construction Phase Submittals
- .1 The Contractor shall submit the following documents on an ongoing basis during the project as required:
 - .1 Monthly Progress Reports in accordance with Section 01 32 16.07.
 - .2 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 road segment or 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.
 - .3 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 made available for review by the Departmental Representative upon request. A summary of all Quality Control inspections conducted to date shall be submitted by the Contractor with each request for payment.
 - .4 Shop Drawings.
 - .5 Progress Photographs:
 - .1 Format: Electronic: jpg files, minimum three (3) mega pixels.
 - .2 Submission requirements: one (1) set of electronic files.

Parks Canada Agency

Grasslands National Park

- .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 CD or USB with all electronic pictures as part of closeout package.
- .6 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.
- .2 The Contractor shall submit copies of reports or directions issued by Federal and Provincial health and safety inspectors to the Departmental Representative.
- .3 The Contractor shall submit copies of incident and accident reports to the Departmental Representative.
- .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 with the Specifications, and under Section 01 78 00.

Part 2 **PRODUCTS**

- .1 Not used.

Part 3 **EXECUTION**

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 Cost of all Traffic Control, including temporary marking, layout, and removal, described in Section 01 35 00.06 and Section 01 74 11, shall be paid under **“Lump Sum Price - Item 15 – Traffic Accommodation”**, and no additional payment will be made for the duration of the Contract.
- .2 The Contractor shall receive payment for traffic management on a monthly basis prorated by the number of months working on site, not to exceed the total lump sum bid price for Traffic Management.
- .3 Payment for traffic control will commence once the Contractor has implemented their accepted Traffic Management Plan and setup is accepted by the Departmental Representative.
- .4 Cost of keeping existing roadway, clean, free of pot holes while Contractor is on site shall be considered incidental to **“Lump Sum Price - Item 15 – Traffic Accommodation”**, and no additional payment will be made for the duration of the Contract.
- .5 Cost of snow removal for Contractor to access or do the work identified in the Contract while Contractor is on site shall be considered incidental to **“Lump Sum Price - Item 15 – Traffic Accommodation”**, and no additional payment will be made for the duration of the Contract. This excludes snow removal on provincial highways.

1.2 REFERENCES

- .1 The Contractor shall provide traffic control in accordance with current edition of:
 - .1 Saskatchewan Ministry of Highways and Infrastructure (MHI) - Traffic Control Devices Manual for Work Zones.
 - .2 Manual of Uniform Traffic Control Devices for Canada, (MUTCD) distributed by Transportation Association of Canada.

1.3 QUALITY CONTROL

- .1 All Quality Control shall be performed by the Contractor as per Section 01 45 00.

1.4 GENERAL

- .1 The Contractor shall develop and implement a Traffic Management Plan in accordance with the requirements of the current edition of the Saskatchewan Ministry of Highways and Infrastructure Standard – Traffic Control Devices Manual for Work Zones, except where specified otherwise.
- .2 The Contractor shall design, supply, erect, move and maintain all traffic control devices, signs, temporary pavement marking, and 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.
- .3 Roadway shall be maintained during construction and left in good condition at the end of all construction phases to the satisfaction of the Departmental Representative.
- .4 All temporary signs that are used for longer than one day shall be mounted on wood posts.

- .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 Reference Documents.
- .6 Temporary marking used shall be acceptable to the Departmental Representative. These temporary markings shall be in accordance with the current Ministry of Highways and Infrastructure Standard – Traffic Control Devices Manual for Work Zones.
- .7 All temporary markings will be removed at the Contractor's expense prior to the completion of the Contract.
- .8 The Contractor shall coordinate traffic management procedures and any planned road closures with other Contractors, Stakeholders, PCA, DFO, and Border Services working in the area.

1.5 PROTECTION OF PUBLIC TRAFFIC

- .1 The Contractor shall 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 The Contractor shall provide the Traffic Control Plan to the Departmental Representative one week prior to the start of construction for review. This plan shall be updated regularly in response to any incidents or changes in conditions, be the weather, work, traffic, or otherwise.
- .3 The Contractor shall submit a Traffic Management Plan prior to commencement of work. Roadway closures lasting two days per site will be allowed where active work is being conducted, but must be planned for prior to the closure of the roadway and approved by the Departmental Representative. The Contractor shall coordinate roadway closures with the Departmental Representative to ensure that areas that are not being worked on remain open to the public.
- .4 Emergency vehicles (i.e., ambulance, RCMP, Park Warden) shall be granted immediate passage at all times, even through closed sections of roadway.
- .5 The Contractor shall provide competent flag persons, properly equipped, and trained satisfying Saskatchewan Regulations.
- .6 The Contractor shall also provide competent supervision and/or contract personnel as required during non-working hours to ensure that safety flares, flashing beacons, signs, lights, etc. are in proper working order.
- .7 The Departmental Representative will monitor the traffic control measures, and 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 when required.

1.6 INFORMATIONAL AND WARNING DEVICES

- .1 The Contractor shall 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 which requires road user response.
- .2 The Contractor shall supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in the Traffic Management Plan submitted by the Contractor and approved by the Departmental Representative. All temporary signs that are used for longer than two days shall be mounted on wood posts.

- .3 Place signs and other devices to standards and in locations recommended in the MHI Standard Traffic Control Devices Manual for Work Zones.
- .4 Signs shall be wind resistant.
- .5 As situations on site changes, the Contractor shall update the Traffic Management Plan outlining signs and other devices required for the project and submit for the approval of the Departmental Representative.
- .6 The Contractor shall continually inspect and maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location and shall record this information on a sign log.
 - .2 Cleaning, repairing or replacing signs as required ensuring clarity and reflectance.
 - .3 Removing or covering signs which 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, MHI Standard Traffic Control Devices Manual for Work Zones:
 - .1 When public traffic is required to pass working vehicles or equipment, which block all or part of travelled roadway.
 - .2 When vehicles are entering or exiting Worksite access points.
 - .3 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.
 - .4 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.
 - .5 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .6 For emergency protection when other traffic control devices are not readily available.
 - .7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
- .2 Delays to public traffic due to Contractor's operators shall be a maximum of 20 minutes where the roadway has not been closed.
- .3 No stoppage of traffic will be allowed for the periods listed in Section 01 14 00 – Work Restrictions.
- .4 During hours of darkness, the Contractor shall determine requirements but as a minimum, flag persons shall be additionally equipped with a red signal hand-light of sufficient brightness to be clearly visible to approaching traffic and flagging stations shall be illuminated by overhead lighting. Signs indicating hazardous conditions and signs requiring increased attention shall be marked with flashers.

1.8 OPERATIONAL REQUIREMENTS

- .1 The Contractor shall 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 Speed limit reduced to 30 km/h in work zones in work periods.
- .2 The Contractor shall maintain existing conditions for traffic or pedestrians crossing right-of-way.
- .3 No stoppage of traffic shall be allowed during inclement weather or when hazardous road conditions are present; ice, snow, winter conditions unless previously approved by the Departmental Representative.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Safety Data Sheets (SDS) formerly known as Material Safety Data Sheets (MSDS).
- .3 Province of Saskatchewan, Occupational Health and Safety Regulations

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan in accordance with this section and 01 33 00 – Submittal Procedures.

1.4 SAFETY ASSESSMENT

- .1 The Contractor shall perform a site specific safety hazard assessment related to project.

1.2 MEETINGS

- .1 The Contractor shall schedule and administer a Health and Safety meeting with Departmental Representative prior to commencement of Work.
- .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.
- .3 After contract award and prior to commencement of any Work under the contract, the Project Manager will hold a health and safety meeting with the Contractor. At this meeting, the Contractor is required to complete and sign an Attestation to certify the Contractor with Occupational Health and Safety and will comply with the requirements set out in the Attestation and the terms and conditions of the contract.

1.5 REGULATORY REQUIREMENTS

- .1 The Contractor shall do Work in accordance with National Parks Act and the Saskatchewan OH&S Legislation.

1.2 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with WorkSafe Saskatchewan (Occupational Health and Safety).

1.3 GENERAL REQUIREMENTS

- .1 The Contractor shall develop written site-specific Health and Safety Plan based on the hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce the plan until final demobilization from site. The Contractor's Health and Safety Plan must address project specifications.
- .2 The Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with corrections of deficiencies or concerns.

1.4 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 The Contractor shall 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 The Contractor shall 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.

1.5 COMPLIANCE REQUIREMENTS

- .1 The Contractor shall comply with the Saskatchewan Employment Act and all General Safety Regulations required in the Province of Saskatchewan.
- .2 The Contractor shall comply with Canada Labour Code, and Canada Occupational Safety and Health Regulations.

1.6 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.

1.7 HEALTH AND SAFETY COORDINATOR

- .1 The Contractor shall employ and assign to the Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Co-ordinator must:
 - .1 Have minimum 1 year site-related working experience specific to activities associated with 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.

1.8 POSTING OF DOCUMENTS

- .1 The Contractor shall 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.

1.9 CORRECTION OF NON-COMPLIANCE

- .1 The Contractor shall immediately address health and safety non-compliance issues identified by any party or by the Departmental Representative.
- .2 The Contractor shall provide the Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 The Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.10 WORK STOPPAGE

- .1 The Contractor shall give precedence to safety and health of public and site personnel and protection of the environment over cost and schedule considerations for Work, as shall be included in the Contractor's Health and Safety Plan.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

Part 1 **GENERAL**

1.1 MEASUREMENT PROCEDURES

- .1 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.
- .2 The cost of environmental and aesthetic protection in accordance with this Section 01 35 43 – Environmental Procedures shall be paid under “**Lump Sum Price - Item 17 – Environmental Protection**”, and shall include all supply, install, repairs, and removal of siltation and erosion control measures to meet the requirements of the BIA. No additional payment will be made for the duration of the Contract.
- .3 50% of Lump Sum Contract Price for “**Lump Sum Price - Item 17 – Environmental Protection**” to be paid when initial installations are complete.
- .4 The remainder of the Lump Sum Price for “**Lump Sum Price - Item 17 – Environmental Protection**” to be paid when work is complete and all materials, equipment, 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.

1.2 REFERENCES

- .1 Basic (Environmental) Impact Assessment
- .2 Parks Canada National Best Management Practices - Roadway, Highway, Parkway, and Related Infrastructure

1.3 SUBMITTALS

- .1 The Contractor shall describe environmental mitigation measures to implement to ensure that all work is in compliance with this Section 01 35 43 – Environmental Procedures in their Environmental Protection Plan (EPP).
- .2 Submittals in accordance with 01 33 00 – Submittal Procedures.

1.4 NATIONAL PARK REGULATIONS

- .1 The Contractor shall ensure that all work is performed in accordance with the ordinances, laws, rules and regulations set out in the Canada National Parks Act and Regulations.
- .2 All Contractor's vehicles are required to display a vehicle work pass from Parks Canada. These permits may be obtained free of charge from the Departmental Representative, PCA Environmental Officer or at the Park Gate, once a business license has been obtained.

1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act (CEAA) Guidelines Order of 2003 and subsequent amendments. The Contractor shall comply with the environmental protection mitigations as identified in the Basic Impact Assessment (BIA).

- .2 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.
- .3 Where there is a discrepancy or inconsistency between the BIA and other documents, the BIA takes precedence over other documents.
- .4 Refer to the BIA for the Work included with this tender. The Contractor's EPP is to include all environmental protection procedures and recommendations from this BIA.

1.6 START-UP AND ENVIRONMENTAL BRIEFING

- .1 All staff employed at the construction site will be subject to an approximately half hour briefing regarding their individual and collective responsibilities to ensure avoidable adverse environmental impacts do not arise from their activities and personal choices. **Employees must attend this briefing before beginning their work at the site.** Each employee, having received the briefing, will be issued a certification sticker to be displayed on their hard hat. All Employees must attend this briefing before beginning work at the site. It is recognized 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 Environmental Surveillance Officer (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 monitor 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 monitor 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.

1.7 CONSTRUCTION SITE ACCESS, RAP AND PARKING

- .1 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. Generally, personal vehicles shall be parked at least 10 metres distance from any watercourse and away from sensitive vegetation.
- .2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.
- .3 Prior to commencing any activity not expressly covered or allowed in the project BIA the Contractor may be required to first obtain a Restricted Activity Permit (RAP) in consultation with the ESO and Departmental Representative.

- .4 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.
- .5 Contractor shall list RAPs they require in the EPP.
- .6 The Contractor is required to submit an application form to the Departmental Representative for each required RAP.
- .7 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 information.
- .8 Following the application submission, the Contractor may be required to provide further details regarding the Work to PCA.
- .9 Submission of a RAP application to the Departmental Representative does not permit the Contractor to commence the restricted activity.

1.8 PROTECTION OF WORK LIMITS

- .1 The Contractor shall ensure that workers and equipment do not trespass outside the project limits to the satisfaction of the Departmental Representative and the ESO.

1.9 EROSION CONTROL

- .1 Erosion control measures that prevent sediment from entering any waterway, water body or wetland in the vicinity of the construction site are a critical element of the project and shall be implemented by the Contractor.
- .2 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating activities associated with the crossings. The Contractor shall prepare an Erosion Control Plan to the satisfaction of the Departmental Representative and the ESO.
- .3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively they are to be repaired. The Departmental Representative and ESO also will monitor erosion control performance.
- .4 The Contractor shall ensure that the site be secured against erosion during any periods of construction inactivity or shutdown.

1.10 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 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 the ESO 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, fuel, lubricants, 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. The Departmental Representative, the ESO and the **Public Safety Officer (306-298-2166 ext 228)** shall be notified immediately of any spill. If not available, **Jasper Dispatch shall be contacted at (780-852-6155)**. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers. In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .8 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.

1.11 EQUIPMENT MAINTENANCE, FUELING AND OPERATION

- .1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed outside GNP and that all equipment is clean and in good working order before delivery to the work site.
- .2 Equipment fueling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Any fueling closer than 100 metres to 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. Fueling personnel shall maintain presence at and immediate attention to the fueling 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 in 1.10.4 of Pollution Control above.

- .5 Equipment used on the project shall be fueled 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 GNP.
- .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 (including those on equipment) or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight in GNP. Alternatively, the Contractor may hire a security person employed to prevent vandalism.

1.12 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 outside of the work area. Some of the construction shall require working in 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) 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 the Contractor’s expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative and ESO.
- .4 The Contractor shall restrict vehicle movements to work limits.
- .5 Workers private vehicles are to remain within the construction footprint.

1.13 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. Contractor’s staff shall receive basic training in early response to wildfire events during the “environmental briefing”.

- .2 Water is not available within GNP, and shall not be withdrawn from watercourses without a permit. The Contractor shall be responsible for locating and hauling water into GNP from a source approved by the Departmental Representative.
- .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 manufacturer's 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. **Jasper Dispatch shall be contacted immediately at (780-852-6155).**The ESO, the Departmental Representative AND the **Fire Duty Officer (306-298-2166 ext 228)** shall be notified of any fire immediately.
- .6 Fires or burning of waste materials is not permitted.

1.14 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 The Contractor shall avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if wildlife 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 The Contractor shall 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 are not available, Jasper Dispatch shall be contacted.
- .4 If an active bird nesting colony or a migration staging area is located within the construction area, no work shall be permitted in that area without the presence of the ESO and the Departmental Representative.

1.15 RELICS AND ANTIQUITIES (ACCIDENTAL FINDS)

- .1 It is possible that 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 Artifacts, relics, antiquities and items of historical interest such as cornerstones, commemorative plaques, inscribed tablets, commemorative plaques, inscribed tablets, structural remains, tent platforms, 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 BIA, the BIA shall take precedence.

- .5 All historical or archaeological objects found in 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.

1.16 WASTE MATERIALS STORAGE AND REMOVAL

- .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 GNP. 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 which has been approved by the Departmental Representative. 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. **High winds in the area require that all garbage receptacles are not prone to tipping in high winds.**
- .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 GNP. 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 weather proof containers is mandatory.
- .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 Jasper Dispatch 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.

1.17 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 The Contractor shall prepare an EPP which details how the work limits will be marked and what procedures will be employed to ensure trespass outside these limits does not occur, to the satisfaction of the Departmental Representative and the ESO.
- .2 A Contractor's office and work headquarters material laydown, equipment parking and storage area will be permitted at Poverty Ridge as directed by the Departmental Representative.
- .3 The Contractor shall provide toilets and maintain them in a clean and sanitary condition at Poverty Ridge, or at work sites provided they are minimum 50m from watercourses, and minimum 15m from the road edge. These facilities shall not be used for the disposal of anything but human body wastes.

- .4 The National Park Act regulations prohibit anyone working within GNP from using public campground facilities.
- .5 Removal and storage of snow shall be arranged with the ESO and the Departmental Representative.
- .6 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 control measures for temporary access roads may also have to be initiated.
- .7 Security services at the construction site may be desirable or necessary during the contract, especially during quiet times. Fuel tanks or other potentially deleterious substance containers must be secured by the Contractor at their cost; to ensure they are tamperproof and cannot be drained by vandals.
- .8 Pets shall not be brought to or maintained at the construction site or worker's camp.

Part 2**PRODUCTS**

- .21 Products will conform with the minimum standard of the Saskatchewan MHI Environmental Best Practices for Erosion and Sediment Control:
[http://www.highways.gov.sk.ca/Doing%20Business%20with%20MHI/Ministry%20Manuals/Environment%20Stewardship/Practices/Erosion%20and%20Sediment%20Control/EP_ESC%20\(Feb%202012\).pdf](http://www.highways.gov.sk.ca/Doing%20Business%20with%20MHI/Ministry%20Manuals/Environment%20Stewardship/Practices/Erosion%20and%20Sediment%20Control/EP_ESC%20(Feb%202012).pdf)
- .22 Products not listed above shall be reviewed and approved by the ESO and the Departmental Representative.

Part 3**EXECUTION****1.2****CONSTRUCTION MATERIALS HANDLING AND ROAD CONSTRUCTION**

- .1 During grade construction conducted close to any watercourse, water body or wetland methods shall be employed to ensure materials are not pushed, fall or are eroded into the water or wetlands outside of the work area. Work within a 30 metre buffer of waterways or wetlands requires the close oversight of the ESO and the Departmental Representative.
- .2 Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage vegetation at that location. Materials shall be placed at storage sites or on the grade without spillage outside the working limits.

1.3**SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION**

- .1 The Contractor shall prepare an Erosion and Sedimentation Management Plan for the components of this contract that are undertaken in or in proximity to watercourses, wetlands or riparian environments. This plan shall be to the satisfaction of the Departmental Representative and ESO. If sediment ponds are required, they shall be designed to settle all sediment particles 0.02 mm or larger. The ponds shall also be designed to handle 1:5 year storm events, with overflow spill capacity for 1:10 year storm events and emergency spillway capacity for 1:100 year storm events.
- .2 An important desired end result is to allow 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.

1.4 EXCAVATING AND PLACEMENT

- .1 Excavation will be undertaken according to the drawings.
- .2 Materials shall be placed at storage sites without spillage outside the working limits. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage vegetation at that location.
- .3 All sediment control measures shall be implemented by the Contractor prior to the commencement of the work in the vicinity of water bodies, watercourses, and wetlands.
- .4 Special precautions may have to be taken during excavation in the vicinity of intermittent or active drainage channels. See “Specific Concerns”.
- .5 If sediments enter watercourses during any excavation nearby or at its banks, the Contractor shall ensure that sediment levels in the waters of the river or creeks do not exceed specified limits and meet the “desired end result” limits outlined. See “Specific Concerns”.
- .6 Fisheries protection windows shall be observed for watercourse in this contract and will guide the timing of the work so that stream disturbance is prevented as directed by the ESO.
- .7 If a pump-out sump to dewater excavation sites will be required, the Contractor is to prepare an EPP which details how the dewatering shall be undertaken, to the satisfaction of the Departmental Representative and the ESO. Special attention is to be given to the environmental sensitivity of the discharge area, freezing conditions operation, overflow avoidance, decanting and settlement pond reclamation. Water containing suspended materials shall not be pumped into watercourses, drainage systems or on to land, except with the permission of the Departmental Representative and the ESO.

1.5 CULVERT INSTALLATION

- .1 All culverts shall be installed using best management practices for working in or near water that will result in a minimum amount of sedimentation and damage to the riparian area of the watercourse. The Contractor shall prepare a plan for the installation of each culvert, a minimum one (1) week prior to doing the work for approval by the Departmental Representative and ESO.
- .2 The culvert shall be installed using best management practices for placement, including consideration of aquatic ecology.
- .3 It is preferable to install the culvert during periods of low discharge (e.g. during the fall / winter). The use of sediment control measures may be necessary to ensure that excessive amounts of sediments do not enter watercourses.
- .4 It may be necessary to exclude fish from the immediate construction site while the culvert is being installed. If this practice is necessary, fish shall be salvaged from within the exclusion area by the ESO, and construction should be carried out expediently to minimize the time spent working in the drainage. No costs will be borne by the Contractor for the fish salvage.

1.6 FINE GRADING, TOPSOIL PLACEMENT, AND SEEDING

- .1 The Contractor shall be required to perform final shaping of cut slopes, fills and landscapes disturbed in the construction of the Works. These slopes shall be covered by

stripped soil. Environmental concerns related to these activities largely focus on erosion prevention and sediment control. The Contractor shall present a plan for placement, spreading, and stabilization of reclamation materials that controls erosion and prevents sedimentation, to the satisfaction of the Departmental Representative and ESO.

- .2 No seeding shall be included in this work.

1.7 SPECIFIC CONCERNS RELATIVE TO SENSITIVE SITES AND ACTIVITIES

- .1 Roadway 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 mobile spill kit, sized according to the equipment in the Contractor's operation, shall be kept at hand during construction at these sensitive sites in proximity to watercourses.

END OF SECTION

PART 1 GENERAL

1.1 MEASUREMENT PROCEDURES

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

1.2 REFERENCES

- .1 Saskatchewan Ministry of Highways and Infrastructure Standard Specifications Manual
- .2 Saskatchewan Ministry of Highways and Infrastructure Standard Test Procedures Manual
- .3 Canadian Standards Association (CSA) CAN/CSA-A23.2-04, Methods of Test and Standard Practices for Concrete

1.3 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 concrete, reinforcing steel, structural backfill, corrugated steel culverts, miscellaneous metals, 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 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.
- .3 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.
- .4 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.
- .5 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
- .6 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	Standard Proctor by: ASTM D698	1 per change in material or 1 per week, whichever is more frequent

CONSTRUCTION TYPE	TEST TYPE	MINIMUM FREQUENCY OF TESTS
	Field density by: ASTM D1556 – Sand Cone ASTM D2167 – Balloon ASTM D2922 - Nuclear	1 per 1000 m ² per lift, spaced randomly across full width of embankment
	Proof Roll and or Rutting Test	As required by the Departmental Representative
Road structure construction with granular materials	Standard Proctor by: ASTM D698	1 for each material type and 1 for each accepted change in material gradation.
	Field density by: ASTM D1556 – Sand Cone ASTM D2167 – Balloon ASTM D2922 - Nuclear	3 tests per 50 m per lift; on centreline and on lt and rt fog lines
	Proof Roll and or Rutting Test	As required by the Departmental Representative
Culvert Installation	Field Density	Minimum three per 300 mm lift per culvert, spaced through the length and depth of the culvert backfill

**These are the minimum frequencies and the Contractor is responsible to assess the need to increase testing frequency, where aggregate source is not uniform or any other condition exists that may warrant it. QC frequencies may be reduced below this level, subject to the Departmental Representative's authorization, should the Contractor's QC plan be proven very effective.*

** Passing the minimum quantity of QC tests does not relieve the Contractor from the obligation of meeting the Contract requirements and any identified non-compliant works or products shall be rectified by the Contractor at their cost.*

1.4 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 Specification compliance.
- .4 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.
 - .5 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.
 - .6 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.

1.5 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 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.

1.6 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.

1.7 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.

1.8 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.

1.9 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.
 - .2 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.
 - .3 The Departmental Representative will accept or reject the proposed resolution and corrective action proposal.
 - .4 Payment for the Work itself may be withheld until the NCR issue is resolved.
- .3 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.
- .4 The Completion Certificate will not be issued if there are any unresolved Non-Conformance Reports.
- .5 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.

1.10 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.

1.11 REJECTED WORK

- .1 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.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 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.

1.12 REPORTS

- .1 Submit one (1) electronic copy of all inspection and test reports to Departmental Representative in accordance with Section 01 33 00 Submittals Procedures.

1.13 TESTS AND MIX DESIGNS

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

1.14 MILL TESTS

- .1 Submit mill test certificates as required of specification sections.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

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

1.2 INSTALLATION AND REMOVAL

- .1 The Contractor shall provide construction facilities in order to execute work expeditiously.
- .2 The Contractor shall remove from site all such work after use.

1.3 SITE STORAGE / LOADING

- .1 The Contractor shall restrict work and operations of employees to those necessitated by the Contract Documents. The Contractor shall not unreasonably encumber the premises with products.
- .2 The Contractor shall 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 The Contractor shall provide and maintain adequate access and parking at the project site in areas approved by the Departmental Representative.
- .2 If authorized to use existing roads for access to project site, the Contractor shall maintain such roads for duration of Contract and make good damage resulting from the Contractors' use of roads.

1.5 SECURITY

- .1 If required by the Contractor, the Contractor shall 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 theft and vandalism to equipment have occurred within the Park.

1.6 SITE OFFICE – DEPARTMENTAL REPRESENTATIVE

- .1 No Site Office is required for this contract, but one may be provided by the Contractor if desired.

1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 The Contractor shall provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 The Contractor shall locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

1.8 SANITARY FACILITIES

- .1 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations, ordinances and the EPP.
- .2 The Contractor shall post notices and take such precautions as required by local health authorities. The Contractor shall keep the area and premises in sanitary condition.

1.9 CONSTRUCTION SIGNAGE

- .1 To be in accordance with 01 35 00.06 Special Procedures for Traffic Control.

1.10 POWER & WATER

- .1 Water is not available within GNP. The Contractor shall be responsible for locating and hauling water into GNP as approved by the Departmental Representative.
- .2 Power is not available on site. The Contractor shall supply power for offices, lights, tools, etc.

Part 2 PRODUCTS

- .1 Not used.

Part 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 MEASUREMENT PROCEDURES

- .1 The work concerning temporary barriers and enclosures shall be incidental to the Contract and will not be measured for payment.

1.2 INSTALLATION AND REMOVAL

- .1 The Contractor shall provide temporary controls in order to execute the Work expeditiously.
- .2 The Contractor shall remove from site all such work after use.

1.3 GUARDRAILS AND BARRICADES

- .1 The Contractor shall provide secure, rigid guard rails and barricades around excavations as required.

1.4 ACCESS TO SITE

- .1 The Contractor shall provide and maintain access roads, as may be required for access to, or around the Work.

1.5 PUBLIC TRAFFIC FLOW

- .1 The Contractor shall provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform the Work and protect the public in accordance with 01 35 00.06 Special Procedures for Traffic Control.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

Part 2 PRODUCTS

- .2 Not used.

PART 3 EXECUTION

- .1 Not used

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT 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 The Contractor shall conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, the Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 The cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .5 The Contractor shall 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 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in the Work shall be new, not damaged or defective, and of the best quality (compatible with specifications) for the purpose intended. If requested, the Contractor shall furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. The Contractor shall remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of the Contract Documents.
- .4 Unless otherwise indicated in specifications, the Contractor shall maintain uniformity of manufacture for any particular or like item throughout the Work.

1.4 AVAILABILITY

- .1 Immediately after signing Contract, the Contractor shall review the product delivery requirements and anticipate any foreseeable supply delays for any items. If delays in supply of products are foreseeable, the Contractor shall notify the Departmental Representative, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the Work
- .2 In the event of failure to notify the Departmental Representative at commencement of the Work, and should it subsequently appear that the Work may be delayed for such lack of notification, the 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 The Contractor shall handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

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

1.6 TRANSPORTATION

- .1 The Contractor shall pay costs for transportation of products required in the performance of the Work.

1.7 MANUFACTURER'S INSTRUCTIONS

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

1.8 QUALITY OF WORK

- .1 In accordance with 01 45 00 – Quality Control.
- .2 The Contractor shall ensure quality of the Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. The Contractor shall immediately notify the Departmental Representative if required Work is such as to make it impractical to produce required results.
- .3 The Contractor shall not employ anyone unskilled in their required duties. The Departmental Representative reserves right to require dismissal from site, workers deemed by the Departmental Representative to be incompetent or careless.

- .4 Decisions as to standard or fitness of quality of the Work in cases of dispute rest solely with Departmental Representative whose decision is final.

1.9 CO-ORDINATION

- .1 The Contractor shall ensure cooperation of workers in laying out the Work. The Contractor shall maintain efficient and continuous supervision.
- .2 The Contractor shall be responsible for coordination and placement of openings, sleeves and accessories.

1.10 CONCEALMENT

- .1 The Departmental Representative will inspect all work prior to any concrete pours or fill. The Contractor shall notify the Departmental Representative a minimum of 24 hours before any pour or fill for inspection.

1.11 REMEDIAL WORK

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

1.12 FASTENINGS

- .1 The Contractor shall provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 The Contractor shall prevent electrolytic action between dissimilar metals and materials.
- .3 The Contractor shall 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.
- .4 The Contractor shall 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 The Contractor shall keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 PROTECTION OF WORK IN PROGRESS

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

Part 2 PRODUCTS

- .1 Materials and products shall be in accordance with the most current version of the Saskatchewan Government Ministry of Highways and Infrastructure Standard Specifications, or as directed by the Departmental Representative.

Part 3

EXECUTION

- .1 Work shall be in accordance with the most current version of the Saskatchewan Government Ministry of Highways and Infrastructure Standard Specifications, or as directed by the Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 MEASUREMENT PROCEDURES

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

1.2 REFERENCES

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

1.3 RECORDS

- .1 The Contractor shall maintain a complete, accurate log of control and survey work as it progresses.
- .2 The Contractor shall record locations of maintained, re-routed and abandoned Utility service lines.

1.4 QUALIFICATIONS OF SURVEYOR

- .1 Qualified surveyor, acceptable to Departmental Representative.

1.5 SUBMITTALS

- .1 On request of Departmental Representative, the Contractor shall submit documentation to verify accuracy of layout work.

PART 2 PRODUCTS

- .1 Not Used.

PART 3 EXECUTION

- .1 Not Used.

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

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

1.2 PROJECT CLEANLINESS

- .1 The Contractor shall maintain the Work in tidy condition, free from accumulation of waste products and debris, including that caused by the Owner, Departmental Representative, or other Contractors.
- .2 The Contractor shall remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. No burning of waste materials on site is permitted.
- .3 The Contractor shall clear snow and ice from access to work areas during active construction periods and when access to environmental protection facilities required outside active construction times.
- .4 The Contractor shall make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 The Contractor shall provide any on-site weather proof containers required for collection of waste materials and debris.
- .6 The Contractor shall remove waste material and debris from site at end of each working day.
- .7 The Contractor shall dispose of waste materials and debris off site. Any landfill or waste disposal location or company must be approved by the Departmental Representative prior to the disposal of material.
- .8 The Contractor shall store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 The Contractor shall provide adequate ventilation during use of volatile or noxious substances.
- .10 The Contractor shall use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 The Departmental Representative and Environmental Surveillance Officer 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.

1.3 FINAL CLEANING

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

- .4 The Contractor shall remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative.
- .5 The Contractor shall make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 The Contractor shall dispose of waste materials and debris off site. Any landfill or waste disposal location or company must be approved by the Departmental Representative prior to the disposal of material.
- .7 The Contractor shall inspect finishes, and ensure specified workmanship and operation.
- .8 The Contractor shall remove dirt and other disfiguration from exterior surfaces.
- .9 The Contractor shall sweep and wash clean paved areas.

Part 2 PRODUCTS

- .1 Not Used.

Part 3 EXECUTION

- .1 Not Used.

END OF SECTION

Part 1 GENERAL

1.1 MEASUREMENT PROCEDURES

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

1.2 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: The Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 The Contractor shall notify the Departmental Representative in writing of the satisfactory completion of the Contractor's Inspection and that required corrections have been made.
 - .2 The Contractor shall then request the Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: The Departmental Representative and the Contractor will perform inspection of the Work to identify obvious defects or deficiencies. The Contractor shall correct the Work accordingly.
- .3 Completion: The Contractor shall submit a written certificate that the following has 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, The Contractor shall 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

- .1 Not used.

Part 3 EXECUTION

- .1 Not used.

END OF SECTION

PART 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 This work shall be incidental to 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.

1.3 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, the Contractor shall maintain at the site for Departmental Representative one record copy of each of the following:
 - .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 The Contractor shall store record documents and samples in field office apart from documents used for construction.
- .3 The Contractor shall label record documents and file in accordance with Section number listings in List of Contents of this Specification. Each document shall be labeled with "PROJECT RECORD" in neat, large, printed letters.
- .4 The Contractor shall maintain record documents in clean, dry and legible condition. Record documents shall not be used for construction purposes.
- .5 The Contractor shall keep record documents and samples available for inspection by the Departmental Representative.

1.4 RECORDING ACTUAL SITE CONDITIONS

- .1 The Contractor shall record information on set of black line opaque drawings, or in a set of the Specifications depending what the information may be.
- .2 The Contractor shall record information concurrently with construction progress. The Contractor shall not cover or conceal Work until the required information is recorded.
- .3 The Contractor shall legibly mark each item to record actual construction on the Contract Drawings and shop drawings including but not limited to:
 - .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 The Contractor shall legibly mark each item to record actual construction in the Specifications including but not limited to:

.1 Changes made by Addenda and change orders.

1.5 FINAL SURVEY

- .1 The Contractor shall submit a final site survey report, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.6 WARRANTIES AND BONDS

- .1 The Contractor shall separate each warranty or bond with index tab sheets keyed to a Table of Contents listing.
- .2 The Contractor shall list subcontractors, suppliers, and manufacturers, with name, address, and telephone number of the responsible principal.
- .3 The Contractor shall 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 the Owner's permission, The Contractor shall leave the date of the beginning of the warranty until the Date of Substantial Performance is determined by the Departmental Representative.
- .5 The Contractor shall verify that documents are in proper form, contain full information, and are notarized.
- .6 The Contractor shall co-execute or seal submittals when required.
- .7 The Contractor shall retain warranties and bonds until time specified for submittal.

PART 2 PRODUCTS

- .1 Not used.

PART 3 EXECUTION

- .1 Not used.

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCES

- .1 Export and Import of Hazardous Waste Regulations (EHW Regulations), SOR/92-637.
- .2 National Fire Code of Canada 1995.
- .3 Transportation of Dangerous Goods Act (TDG Act) 1992, (T-19.01).
- .4 Transportation of Dangerous Goods Regulations (TDGR), (SOR/85-77, SOR/85-585, SOR/85-609, SOR/86-526).

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, safety data sheets (SDS), and worker education programs. WHMIS is put into effect by a combination of federal and provincial laws.

1.4 SUBMITTALS

- .1 The Contractor shall submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Retain current Safety Data Sheet (SDS) for each hazardous material required on site. Submit SDS to Departmental Representative upon request.
- .3 The Contractor shall submit a hazardous materials management plan to the Departmental Representative that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.5 STORAGE AND HANDLING

- .1 The Contractor shall coordinate the storage of hazardous materials with the Departmental Representative and abide by requirements for labelling and storage of materials and wastes.
- .2 The Contractor shall store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 The Contractor shall store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

- .4 All explosives shall be mixed outside of the Park and delivered to the site. No storage of explosives shall be allowed within the National Parks.
- .5 The Contractor shall observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.
- .6 The Contractor shall 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 The Contractor shall ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 The Contractor shall 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 The Contractor shall 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, the Contractor shall ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site the Contractor shall:
 - .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 this 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 The Contractor shall only bring on site the quantity of hazardous materials required to perform Work.
- .2 The Contractor shall maintain SDS in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 EXECUTION

3.1 DISPOSAL

- .1 The Contractor shall dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines at a location approved by the Departmental Representative.
- .2 The Contractor shall recycle hazardous wastes for which there is an approved, cost effective recycling process available.
- .3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited. The Contractor shall dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .6 The Contractor shall minimize generation of hazardous waste to maximum extent practicable and shall take necessary precautions to avoid mixing clean and contaminated wastes.
- .7 The Contractor shall identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 The payment for quantity of Articulating Concrete Block Revetments supplied shall be the number of mats (including attached non-woven geotextile) delivered at the designed locations. Payment will be made under **“Unit Price - Item 7 – Supply Articulating Concrete Block Revetments”** and shall include cost of supply, loading, unloading, handling, and all required hardware and non-woven geotextile.
- .2 The payment for quantity of Articulating Concrete Block Revetments installed shall be the number of mats per finished unit (approximately 2.44m x 4.88m) installed at the designed locations. Payment will be made under **“Unit Price Item 8 – Install Articulating Concrete Block Revetments”** and shall include cost of handling, installation, connections, and finishing.
- .3 The payment for excavation shall be the volume of material removed from the designed location and stockpiled adjacent (within 100m) of the site as directed by the Departmental Representative. Payment will be made under **“Unit Price Item 2 – Common Excavation”** and shall include cost of excavating, handling, loading, unloading, and finishing.
- .4 The payment for topsoil excavation shall be the volume of material removed from the designed location and stockpiled adjacent (within 100m) of the site as directed by the Departmental Representative. Payment will be made under **“Unit Price Item 1 – Stripping of Topsoil and Placement in Stockpile”** and shall include cost of excavating, handling, loading, unloading, and stockpiling.
- .5 The payment for quantity of Earth Anchors shall be the number of anchor systems (arrowhead, cable and thimble, and connection) installed at the designed locations. Payment will be made under **“Unit Price - Item 9 – Supply & Install Earth Anchors”** and shall include cost of supply, loading, unloading, handling, install, and all required hardware and installation tools.

1.2 REFERENCES

- .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
- .2 CSA A23.4-[09], Precast Concrete-Materials and Construction.

1.3 SUBMITTALS

- .1 The Contractor shall submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for Articulating Concrete Block Revetments, and include product characteristics, performance criteria, physical size, mix design, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Saskatchewan, Canada.

1.4 STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's instructions.

Part 2 **PRODUCTS****1.5 MATERIALS**

- .1 Articulating Concrete Block Revetments shall be manufactured by IECS Environmental Inc. (IECS) to CC45 block or approved equivalent.
- .2 Each block shall consist of 47-52lbs/ft² per block & 139.7-152.4mm block height complete with a minimum of 20% open area.
- .3 Concrete Blocks to be wet cast / poured concrete, ensuring a constant 5-8% air entrainment within the approved concrete mix design.
- .4 The concrete mix design shall be designed to meet CSA A23.1 Exposure Class F-2 requirements. Contractor shall submit a mix design for each type of concrete proposed on this project and shall retain a third party testing agency to perform concrete sampling throughout the project. The Approved concrete mix design shall have a minimum compressive strength (28 day) of **25MPa**.
- .5 Articulating Concrete Block Revetments shall utilize a steel cable system interconnecting each block in both the longitudinal and transverse direction / the cables shall be stainless steel (302/304 stainless aircraft cable, 1x19 construction). Stainless steel (ss) cable clamps shall be used to connect adjoining mats. The standard placement of the ss clamps shall be 1.22m centers connecting adjoining mats together, 2 clamps on the 2.44m side of the mat, and 4 clamps on the 4.88m side of the mat.
- .6 Standard articulated concrete mat to have dimensions of 2.44m (8') Width by 4.88m (16') Length unless otherwise approved by the Departmental Representative.
- .7 The use of variable sizes of mats will be deemed acceptable only if supported by manufacture representative and approved by the Departmental Representative.
- .8 Articulated concrete blocks shall have a non-woven needle punched geotextile attached to the underside of the mat unless otherwise approved by the Departmental Representative.
- .9 Geotextile to be attached during manufacturing ensuring intimate contact direct to underside of mattress as per manufacturer production methods, including surplus for overlap as required by the manufacturer.
- .10 Arrow style Earth Anchors shall be manufactured by American Earth Anchors, to the 6AL-60TH specifications, or approved equivalent.
- .11 Each anchor shall consist of the 6" (15cm) arrow head in galvanized aluminum, ¼" galvanized steel aircraft cable, the galvanized steel thimble, and any additional hardware and connections.

Part 3 **EXECUTION****1.6 EXCAVATION**

- .1 The Contractor shall excavate and prepare areas to be graded to a smooth finish, free of any debris.

- .2 Any slope deformities including but not limited to stones, grade stakes, roots, etc. are to be removed or regraded to satisfaction of the manufacturer and the Departmental Representative.
- .3 There shall not be any depressions in the slope greater than 12.7mm in depth.
- .4 Subgrade shall either be native, non disturbed earth, or compacted to be a minimum of 95% of the Standard Proctor Maximum Dry Density (ASTM D698) or as specified by the manufacturer and Departmental Representative.

1.7 PLACEMENT

- .1 Articulating Concrete Block Revetments are to be lifted and placed in accordance with Manufacturers requirements.
- .2 Tie-ins and connections of multiple mats to follow design drawings and Manufacturers requirements.

1.8 ANCHORING

- .1 Mechanical anchoring of Articulating Concrete Block Revetments are to be achieved using arrow style Earth Anchors, installed as per Manufacturers requirements.

1.9 FINISHING

- .1 The Contractor shall grade surrounding areas to provide a flush finish to the surface of the installed mats. Topsoil and seeding as per drawings and specifications.

END OF SECTION

Part 1 GENERAL**1.1 REFERENCES**

- .1 Parks Canada Exterior Signage Standards and Guidelines (latest edition)
- .2 ASTM A276-91a, Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
- .3 ASTM B209M-92a, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .4 ASTM B210M-92a, Specification for Aluminum-Alloy Drawn Seamless Tubes.
- .5 ASTM B211M-92a, Specification for Aluminum and Aluminum-Alloy Bar, Rods and Wire.
- .6 ASTM D4956-13, Specification for Retroreflective Sheeting for Traffic Control.
- .7 CAN/CSA-G40.21-M92, Structural Quality Steels.
- .8 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .9 CAN/CSA-O80 Series-M89, Wood Preservation.
- .10 CSA O121-M1978, Douglas Fir Plywood.
- .11 CSA W47.2-M1987, Certification of Companies for Fusion Welding of Aluminum.
- .12 CGSB1-GP-12c-65, Standard Paint Colours:
- .13 CAN/CGSB-1.28-M89, Alkyd, Exterior House Paint.
- .14 CAN/CGSB-1.59-M89, Alkyd, Exterior Gloss Enamel.
- .15 CAN/CGSB-1.94-M89, Xylene Thinner (Xylol).
- .16 CAN/CGSB-1.99-92, Exterior and Marine Phenolic Resin Varnish.
- .17 CAN/CGSB-1.104-M91, Semigloss Alkyd Air Drying and Baking Enamel.
- .18 CAN/CGSB-1.132-M90, Zinc Chromate Primer, Low Moisture Sensitivity.
- .19 CGSB 1-GP-189M-78, Primer, Alkyd, Wood, Exterior.
- .20 CGSB 31-GP-3M-88, Corrosion Preventive Compound, Cold Application, Soft Film.
- .21 CGSB 62-GP-9M-80, Prefabricated Markings, Positionable, Exterior, for Aircraft Ground Equipment and Facilities.
- .22 CGSB 62-GP-11M-78, Marking Material, Retroreflective, Enclosed Lens, Adhesive Backing.

1.2 MEASUREMENT PROCEDURES

- .1 Temporary Traffic Control required for this Work as outlined in the Contractor's approved Traffic Management Plan shall be incidental to "**Lump Sum Price - Item 15 - Traffic Accommodation**" and no separate payment will be made to the Contractor
- .2 Mobilization and demobilization required for this Work shall be incidental to "**Lump Sum Price - Item 14 - Mobilization / Demobilization**", and no additional payment will be made.
- .3 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor shall separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures and Section 02 61 33 Hazardous Materials where applicable.
- .2 The Contractor shall divert unused metal and/or plastic materials to a recycling facility approved by the Departmental Representative.
- .3 Damaged signs and posts from any removals to be transported to a recycling facility approved by the Departmental Representative.

Part 2 PRODUCTS**2.1 MATERIALS**

- .1 The Contractor is responsible for supplying all materials associated with the installation of signage.
- .2 Traffic signs, posts and bases shall be supplied and installed in accordance with MHI Standard Specifications (latest edition).

Part 3 EXECUTION**3.1 INSTALLATION**

- .1 In accordance with MHI Standard Specifications (latest edition).
- .2 The Contractor shall load, haul and install supplied single post and aluminum signs and bases in the following manner:
 - .1 The Contractor is responsible for locating power / telephone / gas lines / services / utilities at all proposed sign locations.
 - .2 The Contractor is responsible for layout and measurements to ensure signs are installed as per the requirements.
 - .3 The Contractor is responsible for hauling all materials to and from each work site.

3.2 CLEANING

- .1 Upon completion, remove surplus materials, rubbish, tools and equipment barriers, in accordance with 01 74 11 - Cleaning

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION

- .1 This item consists of the excavation, handling, filling, compacting, and stockpiling of all materials in conformity with the lines, grades and dimension indicated on the drawings and as directed by the Departmental Representative and includes:
- .2 Stripping of topsoil and placement in windrows or stockpiles.
- .3 Roadway, and ditching excavation.
- .4 Construction of roadway ditches, embankments, permanent access and connecting roads, approaches, entrances, berms, approved haul roads and other earthworks necessary for the construction of the road.
- .5 Removal and disposal of unsuitable materials from excavations.
- .6 Excavation and placement elsewhere in the roadway or ditch of road base materials, stockpiling, or the removal of excess road base material.
- .7 Ditch regrading work.
- .8 Culvert excavation.
- .9 Transportation of excavated materials.
- .10 Finishing of top surfaces and slopes.
- .11 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 MEASUREMENT PROCEDURES

- .1 The quantity of Topsoil Stripping that payment will be made shall be the area in square metres measured in its original position from cross sections taken by the Contractor and confirmed by the Departmental Representative in areas of stripping or at the stockpile location(s) before and after placement. Payment will be made under **“Unit Price - Item 1 – Stripping of Topsoil and Placement in Stockpile”** and shall include cost of excavating and hauling.
- .2 The quantity of Excavation Common that payment will be made shall be the volume in cubic metres measured in its original position from cross sections taken by the Contractor and confirmed by the Departmental Representative in areas of excavation. Payment will be made under **“Unit Price Item 2 – Common Excavation”** and shall include cost of excavating, hauling, stockpiling, placement and compaction of embankment material at locations identified in the Contract Documents. Double handling, compaction and conditioning of subgrade for construction of the roadway embankment shall be considered incidental to the works. This item shall exclude any quantity paid for under **“Unit Price - Item 1 – Stripping of Topsoil and Placement in Stockpile”**, **“Unit Price Item 3 – Common Excavation – Hauled to Poverty Ridge Stockpile”**, and **“Unit Price - Item 12 – Salvage, Haul & Install Rip Rap”**.
- .3 The quantity of Excavation Common, that is required to be hauled and stockpiled at Poverty Ridge, that payment will be made shall be the volume in cubic metres measured in its original position from cross sections taken by the Contractor and confirmed by the Departmental Representative in areas of excavation. Payment will be made under **“Unit Price Item 3 – Common Excavation – Hauled to**

Poverty Ridge Stockpile” and shall include cost of excavating, loading, hauling, and stockpiling at locations in the Poverty Ridge yard. This item shall exclude any quantity paid for under **“Unit Price - Item 1 – Stripping of Topsoil and Placement in Stockpile”**, **“Unit Price Item 2 –Common Excavation”**, and **“Unit Price - Item 12 – Salvage, Haul & Install Rip Rap”**.

- .4 No overhaul will be paid for this Work.
- .5 Only material deemed as unsuitable by the Department Representative will be removed from the Park.
- .6 Obtaining, maintaining, reclamation of a disposal site outside of GNP and all incidentals associated with the removal and disposal of waste material is included for under this item and no separate payment will be made.
- .1 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 14 – Mobilization / Demobilization”**, and no additional payment will be made.
- .2 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 15 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .3 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor
- .4 No measurement or payment will be made for:
- .7 Excavating unnecessarily beyond lines established by Departmental Representative, with exception of unavoidable slide material. Do not measure slide material, when such slides are attributable to the Contractor’s negligence.
- .8 If overcut, no payment will be made for filling an area back to grade.
- .9 Construction and removal of detours.
- .10 Loading hauling, placing and compaction of boulders less than 1.5 cubic metres into large embankments.
- .11 Scarifying or benching existing slopes or existing road surfaces.
- .12 Removing non-compliant material previously placed by the Contractor.
- .13 Watering, drying or compacting.
- .14 Proof rolling.
- .15 Compaction of material (150 mm) below subgrade horizon in areas of cut.
- .16 Finishing.
- .17 Material or other Quality Control testing (compaction testing).

1.3 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
- .2 ASTM D698-00a, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,000 ft-lbf/ft³) (600 kN-m/m³).

1.4 DEFINITIONS

- .1 Rock Excavation: excavation of:
 - .1 Material from solid masses of igneous, sedimentary or metamorphic rock that, prior to removal, was integral with parent mass. Material that

cannot be ripped with reasonable effort from Caterpillar D9L or equivalent to be considered integral with parent mass.

- .2 Boulder or rock fragments measuring 1.5 cubic metres or more in volume.
- .2 Excavation Common: Excavation of materials that are not Rock Excavation or Stripping.
- .3 Embankment: Material derived from usable excavation and placed above original ground or stripped surface.
- .4 Unsuitable Material: Material unsuitable for embankment, embankment foundation or material surplus to requirements.
- .5 Topsoil: Material passing a 100 mm sieve capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

1.5 QUALITY CONTROL

- .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.
- .3 All Quality Control testing by the Contractor in accordance with 01 45 00 – Quality Control.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials 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 shall be in conformance with MHI Specifications and not to contain more than 3% organic matter by mass, frozen lumps, weeds, sod, roots, logs, stumps or other unsuitable material.
- .3 Material deemed unsuitable for the embankment construction may be placed as directed by the Departmental Representative between the toe of the embankment and the right-of-way boundary or in other areas to ensure positive drainage, or as designated by the Departmental Representative. If no on-site waste areas are designated, then the unsuitable material shall be removed and hauled to Poverty Ridge under Unit Price Item 3, or disposed outside of the National Park at the Contractor's expense. Any such material subsequently placed in an embankment, without the approval of the Departmental Representative, shall be removed and disposed of, as directed by the Departmental Representative, and no payment will be made for the removal or haul of such unsuitable material from the embankment.

PART 3 EXECUTION**3.1 COMPACTION EQUIPMENT**

- .1 Compaction equipment must be 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.

3.2 WATER DISTRIBUTORS

- .1 Apply water with equipment capable of uniform distribution.

3.3 EXCAVATING

- .1 Notify the Departmental Representative when unsuitable materials are encountered and remove to depth and extent as approved by the Departmental Representative.
- .2 Subcut below subgrade elevation in cut sections only as approved by the Departmental Representative. Compact top 300 mm below subcut to minimum 100% maximum dry density, ASTM D698 (AASHTO T99). Replace with acceptable embankment material and compact.
- .3 Treat ground slopes, where subgrade is on transition from excavation to embankment, at grade points in accordance with the Drawings.
- .4 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.
- .5 Maintain profiles, crowns and cross slopes to provide good surface drainage at all times.
- .6 Provide ditches as work progresses to provide drainage if needed.
- .7 Ensure positive drainage is maintained when completing regrading work.

3.4 EMBANKMENTS

- .1 This item consists of the construction of the subgrade in embankments and cuts to the lines, grades, cross-sections and dimensions indicated in 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 or 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.
- .6 Place and compact to full width in layers not exceeding 300 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.
- .7 Payment quantities will be calculated on Neat Line basis; overbuild will not be paid.

3.5 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 placed in 200mm compacted layers.
 - .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 1 metre. The placing of individual rocks and boulder exceeding 1.0 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.
- .4 Each layer shall be brought to its required degree of compaction throughout its entire width before successive layers are placed.
- .5 Compact each layer to minimum 98% maximum dry density, ASTM D698 (AASHTO T99). Top 300 mm of subgrade to be compacted to 100% maximum dry density, ASTM D698 (AASHTO T99).
- .6 Add water or dry as required to bring moisture content of materials to level required to achieve specified compaction.
- .7 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.

3.6 PROOF ROLLING

- .1 Proof roll using a loaded (maximum legal load) tandem truck with tires inflated to normal operation pressures.
- .2 Proof roll subgrade with inspection by the Departmental Representative.
- .3 Make sufficient passes with proof roller to subject surface to three separate passes of loaded tire. Departmental Representative to determine level of proof rolling.
- .4 Where proof rolling reveals areas of defective subgrade:
 - .1 Remove subgrade material to depth and extent as directed by the Departmental Representative.
 - .2 Backfill excavated subgrade with approved common excavation material and compact in accordance with Section 01 45 00 – Quality Control.
- .5 Where proof rolling reveals areas of defective subgrade, remove and replace in accordance with the appropriate sections. Removal of defective subgrade material shall be the Contractor's responsibility.

3.7 FINISHING

- .1 Shape entire roadbed to within 15 mm of design elevations but shall not be uniformly high or low.
- .2 Round top of back slope as shown on the Drawings.
- .3 Remove rocks over 150 mm in dimension from slopes and ditch bottoms.
- .4 Trim between constructed slopes and edge of clearing to provide drainage.

3.8 PROTECTION

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

END OF SECTION

Part 1 **GENERAL****1.1 MEASUREMENT PROCEDURES**

- .1 Measurement for Woven Geotextile shall be made per square metres supplied and installed to the satisfaction of the Departmental Representative. Payment shall be made under **“Unit Price - Item 6 – Woven Geotextile (Nilex 2002 or Approved Equivalent)”** and will include all materials, labour, and equipment necessary to complete the Work.
- .2 Measurement for Non-Woven Geotextile shall be made per square metres supplied and installed to the satisfaction of the Departmental Representative. Payment shall be made under **“Unit Price - Item 5 – Non-Woven Geotextile (Nilex 4535 or Approved Equivalent)”** and will include all materials, labour, and equipment necessary to complete the Work.
- .3 The supply and installation of additional geotextiles if required by the Departmental Representative shall be measured and paid under **“Lump Sum Price Item 16 – Prime Cost Sum”** and will include all materials, labour, and equipment necessary to complete the Work.
- .4 No allowance shall be made for seams and overlaps. Geotextile that is connected to the Articulating Concrete Block Revetments shall be incidental to Item 7 and will not be paid under Item 5.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D4491-99a, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .2 ASTM D4595-86(2001), Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - .3 ASTM D4716-01, Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
 - .4 ASTM D4751-99a, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 11.2-M89(April 1997), 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/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative following samples in accordance with 01 33 00 – Submittal Procedures for each type of geotextile used on the project:
- .3 Minimum length of 2 m of roll width of geotextile.
- .4 Minimum of 1 m seam with at least 300 mm of geotextile on both sides of seam.
- .5 Submit to Departmental Representative 4 copies of mill test data and certificate at in accordance with Section 01 33 00 - Submittal Procedures.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43, Environmental Procedures.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with the EPP.
- .4 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 PRODUCTS

3.1 MATERIAL

- .1 Woven geotextile shall meet or exceed the specifications of Nilex 2002 Woven Geotextile or approved equivalent.
- .2 Nonwoven geotextile shall meet or exceed the specifications of Nilex 4535 Non Woven Geotextile or approved equivalent.

Part 3 EXECUTION

3.2 INSTALLATION

- .23 Install as per manufacturers specifications.

3.3 **CLEANING**

- .24 In accordance with Section 01 74 11 – Cleaning.
- .25 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner and in accordance with Section 01 35 43 - Environmental Procedures.

3.4 **PROTECTION**

- .26 Vehicular traffic not permitted directly on geosynthetics.

END OF SECTION

Part 1 GENERAL**1.1 MEASUREMENT PROCEDURES**

- .1 The quantity of Rip Rap that payment will be made shall be the volume in cubic metres measured in its final position from cross sections taken by the Contractor and confirmed by the Departmental Representative at the culvert. Payment will be made under **“Unit Price - Item 12 – Salvage, Haul & Install Rip Rap”** and shall include cost of excavating, separating, hauling, stockpiling, and placement locations identified in the Contract Documents. This item shall exclude any rock material paid for under **“Unit Price Item 2 – Common Excavation”** that is stockpiled adjacent to the worksite and **“Unit Price Item 3 – Common Excavation – Hauled to Poverty Ridge Stockpile”**.
- .2 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price - Item 14 - Mobilization / Demobilization”**, and no additional payment will be made.

1.2 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor shall separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures and Section 02 61 33 Hazardous Materials where applicable.

Part 2 PRODUCTS**2.1 MATERIALS**

- .1 Rip Rap material salvaged for this scope shall be in accordance with Saskatchewan MHI Standard Specification 6000 – Specification for Hand Placed, and Random Rip-Rap.

Part 3 EXECUTION**3.1 INSTALLATION**

- .1 Place Rip Rap scour protection at the culvert ends as shown on the Drawings.

END OF SECTION

Part 1 **GENERAL****1.1 MEASUREMENT PROCEDURES**

- .1 Quantity of MHI Type 105 Traffic Gravel that payment will be made shall be the number of tonnes supplied and incorporated into the Work and accepted by the Departmental Representative, and shall include all labour, equipment and material required to satisfactorily complete this item of work. Payment will be under **“Unit Price - Item 4 – Supply & Install Type 105 Traffic Gravel”**.
- .2 Supply, loading, hauling, placing, compacting, and conditioning by wetting / drying will be incidental to the Work.
- .3 No overhaul will be paid for this Work.
- .4 Supply, installation, maintenance and calibration of weight scales and a scale house by the Contractor shall be considered incidental to the Contract and no additional measurement will be made for payment.
- .5 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 14 – Mobilization / Demobilization”**, and no additional payment will be made.
- .6 Traffic Control required for this Work shall be incidental to **“Lump Sum Price - Item 15 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .7 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

1.2 REFERENCES

- .1 Saskatchewan Highways and Transportation Standard Specification Manual (Latest Edition).

1.3 QUALITY CONTROL

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

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Granular material removed from roads and crossings shall remain property of the PCA and shall be stockpiled at locations approved by Departmental Representative.

Part 2 PRODUCTS**1.1 MATERIALS**

- .1 MHI Type 105 Traffic Gravel shall be supplied by the Contractor in accordance with Saskatchewan Highways and Transportation Standard Specification Manual (Latest Edition).

Part 3 EXECUTION**1.1 PLACING AND COMPACTION**

- .1 Contractor to place MHI Type 105 Traffic Gravel in accordance with Saskatchewan Highways and Transportation Standard Specification Manual (Latest Edition).

1.2 ACCEPTANCE PARAMETERS

- .1 The Contractor shall not proceed with surfacing or otherwise covering a section of Subgrade Work until the underlying work is accepted by the Departmental Representative. Acceptance will be based on the following:
 - .2 Finished surface to be within plus or minus 10mm of established grade and cross section but not uniformly high or low.
 - .3 Rut Resistance – Any aggregate supplied must, in addition to meeting the gradation requirements specified, not rut 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 600kPa. Any aggregate which does rut shall be removed and replaced, or blended with suitable aggregates, to meet both the gradation requirement and the rut resistance requirement
 - .4 Any areas where rutting or displacement occurs shall be either excavated or replaced and proof rolled or stabilized by the addition of suitable blending material incorporated uniformly into the base to the satisfaction of the Departmental Representative.
 - .5 The supply, load, haul, placing, proof rolling, and mixing of such stabilizing aggregates as necessary to correct deficiencies in aggregate stability shall be incidental to the Work for Base aggregates. Blending may be performed at the pit or quarry or on the road in a manner acceptable to the Departmental Representative.

1.3 PROTECTION

- .1 Maintain finished subgrade in condition conforming to this Section until succeeding material is applied or until acceptance by Departmental Representative.

END OF SECTION

Part 1 GENERAL**1.4 DEFINITION**

- .1 Topsoil to be native organic soils stripped from the Contract work area.

1.5 MEASUREMENT PROCEDURES

- .1 Measure placing of topsoil in cubic metres removed from stockpile.
 - .1 Stockpiles will be measured by Departmental Representative and volume of topsoil removed calculated by average end area method.
 - .2 Includes preparation of sub-grade for placing of topsoil.
 - .3 Includes finish grading.

1.6 PAYMENT PROCEDURES

- .1 Payment for stripping will be made in accordance with Section 31 24 13.
 - .2 Topsoil placement and finishing will be measured by the cubic metre as measure in original position (from stockpiles) acceptably installed within the areas indicated on the Drawings or as approved by the Departmental Representative. Payment for topsoil placement shall be full compensation for all labour, equipment, materials and incidentals required load, haul from stockpiles, screening (if required), place, fine grade, and prepare the topsoil materials in accordance with the requirements of the Specifications, Drawings and direction of the Departmental Representative. Payment will be made under “**Unit Price - Item 13 – Topsoil Placement & Grading**”.
 - .3 Payment for testing of topsoil to be paid under “**Lump Sum Price - Item 16 - Prime Cost Sum**”.

1.7 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .2 The Canadian System of Soil Classification, Third Edition, 1998.
 - .3 Canadian Council of Ministers of the Environment
 - .4 PN1340-[2005], Guidelines for Compost Quality.
 - .5 Canadian Green Building Council (CaGBC)
 - .6 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.
 - .7 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .8 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.8 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 LEED Submittals:
- .3 Submit erosion and sedimentation control plan for Credit SSp1 in accordance with LEED Canada-NC.

- .4 Quality control submittals:
- .5 Soil testing: submit certified test reports showing compliance with specified performance characteristics and physical properties as described in PART 2 - SOURCE QUALITY CONTROL.

1.9 QUALITY CONTROL

- .1 In accordance with Section 01 45 00.
- .2 Pre-installation meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements in accordance with Section 01 31 00 Project Managing and Coordination and 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.

1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 35 43 Environmental Procedures.

Part 2 PRODUCTS

2.1 TOPSOIL

- .1 Native topsoil to be stripped from on-site sources.
- .2 Contain no toxic elements or growth inhibiting materials.
- .3 Finished surface free from:
- .4 Debris and stones over 100 mm diameter.

2.2 SOIL AMENDMENTS

- .1 **The use of fertilizer will not be permitted within GNP.**

2.3 SOURCE QUALITY CONTROL

- .1 Advise Departmental Representative of sources of topsoil and manufactured topsoil to be utilized with sufficient lead time for testing.
- .2 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative if needed.
- .3 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 with the BIA and 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.
- .2 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .3 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .4 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
- .5 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
- .6 Remove debris that protrudes more than 75mm above surface.
- .7 Dispose of removed material off site.

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.
- .4 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.4 FINISH GRADING

- .1 Loosely grade to eliminate rough spots and low areas and ensure positive drainage.
- .2 Leave surfaces loose and clumpy, yet overall uniform and firm against deep footprinting to avoid soft spots, and encourage revegetation.

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 Dispose of materials, except topsoil not required, outside the Park.

END OF SECTION

PART 1 GENERAL**1.2 MEASUREMENT**

- .1 Supply and installation of polymer laminated corrugated steel pipe (CSP) culverts shall be measured per linear meter of culvert supplied and installed and shall include all labour, materials and equipment required to complete the Work to the satisfaction of the Departmental Representative. Payment for polymer coated CSP Culvert Supply and Installation will be made under **“Unit Price - Item 10 – Supply & Install 500mm Polymer Laminated CSP Culvert”**.
- .2 Removal and Disposal of existing corrugated steel pipe (CSP) culverts shall be measured per linear meter of culvert in place and shall include all labour, materials and equipment required to complete the work to the satisfaction of the Departmental Representative. Payment for CSP Culvert Removal and Disposal will be made under **“Unit Price - Item 11 – Remove & Dispose 500mm CSP Culvert”**.
- .3 Excavation shall be paid for under **“Unit Price - Item 2 – Common Excavation”**.
- .4 Pipe Surround for CSP culverts shall be paid under **“Unit Price - Item 4 – Supply & Install MHI Type 105 Traffic Gravel”**. Refer to Section 32 11 24 for payment details.
- .5 Native material excavated during culvert removal (if suitable) shall be used for culvert backfill above the pipe zone. Payment for placement, compaction, and conditioning of material by wetting or drying shall be paid under **“Unit Price - Item 2 – Common Excavation”**. This quantity shall be eligible for payment on initial excavation, and then again upon backfill and is the only case where double handling will be compensated.
- .6 Supply and installation of Riprap shall be measured and paid for under **“Unit Price - Item 12 – Salvage, Haul & Install Rip Rap”**. No payment for double handling.
- .7 Traffic Control during the survey, layout and construction of the culverts shall be incidental to **“Lump Sum Price - Item 15 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be paid under **“Lump Sum Price - Item 17 – Environmental Protection”**, and shall include all supply, install, repairs, and removal of siltation and erosion control measures to meet the requirements of the BIA. No additional payment will be made for the duration of the Contract.
- .9 Culvert installation must be coordinated with embankment, pavement and associated road construction activities. No payment will be made for re-excavation of embankment material required to install culverts.
- .10 No separate measurement will be made for couplings, fittings or end sections.

1.3 REFERENCES

- .1 CSA G401 01, Corrugated Steel Pipe Products.

1.4 SUBMITTALS

- .1 In accordance with 01 33 00 – Submittal Procedures.
- .2 Submit manufacturer's test data and certification.
- .3 Provisions for staged construction shall be shown in the shop drawings, including any temporary support required.
- .4 Certification to be marked on pipe.

1.5 STORAGE AND HANDLING

- .1 In accordance with 01 61 00 Common Product Requirements.
- .2 Handle and store pipe products in a manner to avoid damage, alteration, deterioration and soiling.
- .3 Store pipes on a clean and flat surface.
- .4 Where the material supplied is damaged, the Contractor shall immediately separate nested sections of the plate or pipe to facilitate more detailed inspection. Culvert material designated by the Departmental Representative as unacceptable, due to damage or failure to meet specified requirements, shall be immediately repaired or replaced by the Contractor.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on site bins for recycling in accordance with Section 01 35 43 - Environmental Procedures.
- .4 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 PRODUCTS**2.1 CORRUGATED STEEL PIPE**

- .1 Polymer Laminated Corrugated steel pipe: to CSA G401.
- .2 Culverts to be annular or spiral with annular ends. Coupling bands to be two piece annular bolted with minimum width of nine corrugations.
- .3 Minimum wall thickness to be 2.0 mm.
- .4 Corrugations to be 68 mm x 13 mm.
- .5 Design Code CHBDC S6-06.
- .6 Design Live Load CL-800.

2.2 GRANULAR BEDDING AND BACKFILL

- .1 The Contractor shall supply all granular material.

2.3 RIPRAP

- .1 Riprap material shall be in accordance with Saskatchewan MHI Standard Specification 6000 – Specification for Hand Placed, Grouted, and Random Rip-Rap as per Section 31 37 00.

PART 3 EXECUTION**3.1 CUT ENDS**

- .1 No ends will be cut onsite without the ability to repair polymer coating.

3.2 BEDDING

- .1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.
- .2 Place minimum thickness of 300 mm of approved granular material on bottom of excavation and compact to minimum 95% maximum density to ASTM D698.
- .3 Shape bedding to fit lower segment of pipe exterior so that width of at least 50% of pipe diameter is in close contact with bedding and to camber as indicated or as directed by Departmental Representative, free from sags or high points.
- .4 Place bedding in unfrozen condition.

3.3 LAYING CORRUGATED STEEL PIPE CULVERTS

- .1 Begin pipe placing at downstream end.
- .2 Ensure bottom of pipe is in contact with shaped bed or compacted fill throughout its length.
- .3 Do not allow water to flow through pipes during construction except as permitted by Departmental Representative.

3.4 JOINTS

- .1 Match corrugations of coupler with pipe sections before tightening.
- .2 Insert and tighten bolts.
- .3 Tap couplers firmly with a rubber mallet or similar non-marring tool as they are being tightened, to take up slack and ensure snug fit.
- .4 Repair spots where damage has occurred to coating in the field by applying two coats of paint approved by the CSP supplier. Allow each coat to dry before placing second coat, bedding or backfill.

3.5 BACKFILLING

- .1 Backfill around and over culverts as indicated or as directed by Departmental Representative.
- .2 Place granular backfill material, in 150 mm layers to full width, alternately on each side of culvert, so as not to displace it laterally or vertically.
- .3 Compact each layer to 98% maximum density to ASTM D698 taking special care to obtain required density under haunches. Hand tamp where necessary to obtain compaction.

- .4 Protect installed culvert with minimum 900 mm cover of compacted fill before heavy equipment is permitted to cross. During construction, width of fill, at its top, to be at least twice diameter or span of pipe and with slopes not steeper than 2H:1V.
- .5 Place backfill in unfrozen condition.
- .6 Place Rip Rap scour protection at the culvert ends as shown on the Drawings.

3.6 CULVERT/STRUCTURE REMOVAL

- .1 Culvert removal shall be as indicated on Drawings or as directed by the Departmental Representative and shall include removal and disposal of sections to a suitable disposal facility located outside of the National Park.

END OF SECTION