

SECTION 01 11 00	SUMMARY OF WORK
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Reference Documents:

Parks Canada National Best Management Practices

Basic Impact Analysis

Basic Impact Analysis – Additional Conditions

Part 1 General**1.1 PRECEDENCE**

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

1.2 DEFINITIONS

- .1 Any reference to “Parks Canada Agency”, “Parks Canada”, “PCA” or “Owner”, shall refer to Parks Canada Agency and shall include any affiliate or sub group of Parks Canada and their duly appointed Representatives that shall include the Departmental Representative.
- .2 BNP means Banff National Park of Canada

1.3 RELATED SECTIONS

- .1 Section 01 29 01 – Site Occupancy

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- .1 In preparation for and during construction of the 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 scope of work, the work of the Contract generally comprises the following:
 - .1 Install wildlife-permeable bison fencing, including gates, as shown on the drawings and as directed by the Departmental Representative.
 - .2 Supply and stockpile wildlife fencing materials.
 - .3 Miscellaneous Additional Work as directed by the Departmental Representative.

1.5 PROJECT LOCATION

- .1 The project is located in BNP in Alberta. The following are key locations relative to the project:

Red Deer Boundary (Helicopter access only)
Tyrrell Creek (Helicopter access only)
Dormer Boundary (Helicopter access only)
Stoney Creek (Helicopter access only)
Cascade Fire Road
Sawback Creek (Helicopter access only)
North Fork Cascade (Helicopter access only)
Elkhorn Summit (Helicopter access only)
Divide Creek (Helicopter access only)

Drummond Creek (Helicopter access only)
Badger Pass (Helicopter access only)

1.6 CONTRACT METHOD

- .1 Construction Work under Combined Price Contract.

1.7 WORK SEQUENCE

- .1 Schedule work progress to allow Owner/Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 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.
- .3 The Contractor shall:
 - .1 **Complete all preliminary clearing by April 30, 2017.**
 - .2 **Complete all Work by October 31, 2017.**

1.8 CONTRACTOR USE OF PREMISES

- .1 Contractor has unrestricted use of site, subject to Section 01 14 00 and Section 01 29 01, until Contract Completion date.
- .2 Coordinate use of premises with the acceptance of the Departmental Representative.
- .3 Obtain additional storage or work areas needed for operations under the Contract with the acceptance of the Departmental Representative.
- .4 The Contractor and each sub-contractor shall purchase a business license from the PCA office in Banff, prior to commencement of the contract.

1.9 OWNER OCCUPANCY

- .1 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate back country trail usage.

1.10 CONSTRUCTION SIGNAGE

- .1 No signs or advertisements, other than warning signs on trails, are permitted on site.
- .2 Signs and notices for safety and instruction shall be in both official languages.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off-site on completion of project or earlier if directed by the Departmental Representative.

1.11 SETTING OUT OF WORK

- .1 The Departmental Representative will identify location of all work sites. The Contractor shall be responsible for all other layout of work.

- .2 The Contractor shall not permanently mark any infrastructure or feature during their setting out of the work. They shall fully remove any set out marks, markers, or other identifiers that they installed, prior to demobilizing from the Work Sites.

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 specification sections in other Divisions of this Specification.

1.2 RELATED SECTIONS

- .1 Section 01 32 16.07 - Construction Progress Schedules Chart.
- .3 Section 01 35 43 - Environmental Procedures.

1.3 EXISTING SERVICES

- .1 Provide for pedestrian, cyclist, railway and vehicular traffic for the duration of the construction.

1.4 USE OF THE WORK SITE

- .1 The Work Sites specified in the Contract shall only be used for the purposes of the Work.
- .2 The Work Sites will be made available by PCA to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract. 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 An office-tool trailer can be set up at a location designated by the Departmental Representative in accordance with Section 01 35 43 - Environmental Procedures.
- .4 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary and at their cost for the performance and inspection of the Work.
- .5 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and the Environmental Procedures for the Contract. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .6 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at its expense.

1.5 WORKING TIMES

- .1 Work in BNP is permitted during daylight hours from 07:00am to 10:00pm.

1.6 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.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, streams and rivers. 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 river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project.

1.7 PROTECTION OF PERSONS AND PROPERTY

- .1 Comply with Occupational Health and Safety Act, General Safety Regulation, Alberta.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health 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 Sites.
- .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 PCA so directs, shall promptly reimburse to PCA the costs resulting from such loss or damage.

1.8 USE OF PUBLIC AREAS

- .1 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Sites 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 Sites 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.
- .2 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.

1.9 WASTE DISPOSAL

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

1.10 WORK STOPPAGE

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

Project No.

Wildlife-Permeable Bison Fencing

Section 01 14 00

Parks Canada Agency

Banff National Park

**WORK
RESTRICTIONS**
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Part 2 Products

.1 Not used.

Part 3 Execution

.1 Not used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 11 00 – Summary of Work

1.2 DESCRIPTION

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

1.3 MEASUREMENT PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 Payment will be made under “Lump Sum Price Item 1 – Mobilization / Demobilization”
 - .2 50% of Lump Sum 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, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.
 - .4 Payment of only 5% of the Contract Amount will be scheduled as outlined above. If the amount bid for mobilization and demobilization is greater than 5% of the Contract Amount, payment of the remainder of the amount will be authorized when the whole of the Work under 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 specification sections in other Divisions of the Specification.

1.2 RELATED SECTIONS

- .1 SACC R2850D GC 5.10
- .2 Section 01 11 00 – Summary of Work Section
- .3 Section 01 14 00 – Work Restrictions Section

1.3 DEFINITION OF OCCUPANCY

- .1 The Contractor shall be permitted to lease and occupy sites when working in BNP free of charge from the date of award of the contract up to and including the Contract Completion Date.
- .2 The Contractor's occupancy of the sites identified in the Contract will be deemed to have ended, when the following conditions are met:
 - .1 All the Work identified under the Contract, has been completed.
 - .2 All sites' clean up and any outstanding deficiencies for the work identified under the 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.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 – Work Restrictions.
- .3 Section 01 32 16.07 - Construction Progress Schedules Chart.
- .4 Section 01 35 43 - Environmental Procedures.
- .5 Section 01 45 00 – Quality Control.
- .6 Section 01 77 00 – Close out Procedures.
- .7 Section 01 78 00 – Close out Submittals.

1.2 MEASUREMENT PROCEDURES

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

1.3 COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, construction facilities, and construction Work, with progress of Work of other Contractors, and Work by Owner, under instructions of the Departmental Representative.
- .2 Coordinate field engineering and layout work with the Departmental Representative.
- .3 During construction, coordinate use of site and facilities through Departmental Representative's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.

1.4 PROJECT MEETINGS

- .1 The Contractor shall provide physical space and make arrangements for meetings at or near the Work Sites for all meetings that take place in relation to the Contract from their mobilization until their demobilization.
- .2 The Contractor will attend or otherwise ensure the attendance of their staff, subcontractors, consultants, suppliers, or other key parties all other meetings identified in the Contract or reasonably requested by the Departmental Representative in an effort to resolve specific issues as they may arise.
- .3 Comply with Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.
- .4 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.

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. Meeting to be chaired by the Departmental Representative who will also record the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Agenda to include following:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work, progress scheduling in accordance with Section 01 32 16.07.
 - .3 Schedule of submittals in accordance with Departmental Representative.
 - .5 Site safety and security in accordance with Sections 01 14 00, and 01 35 43.
 - .6 Environmental procedures in accordance with Section 01 35 43.
 - .7 Quality Control in accordance with Section 01 45 00.
 - .8 Administrative procedures for proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .9 Arrangements for supply of Owner-furnished materials.
 - .10 Monthly progress payment procedures, 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.

1.6 ON-SITE DOCUMENTS

- .1 The Contractor is to maintain at job site, one copy each of the following:
 - .1 Contract Drawings if part of tender
 - .2 Specifications
 - .3 Addenda
 - .4 Reviewed Shop Drawings and mix designs
 - .5 Change Orders
 - .6 Other modifications to Contract
 - .7 Safety Plan
 - .8 WHMIS
 - .9 Environmental Protection Plan
 - .10 Quality Control Plan and field test reports
 - .11 Copy of approved Work schedule and most recent updated schedule
 - .12 Labour conditions and wage schedules
 - .13 Equipment rate schedule and applicable versions of the relevant rate guides
 - .14 Applicable current editions of municipal regulations and by-laws

1.7 SUBMITTAL SCHEDULE

- .1 Contractor is to prepare a schedule of the required submissions and the date the submissions will be made. Include columns for Actual Date of Submission, Review Comments Received, Final Submission and Final Acceptance Received. Provide this schedule to the Departmental Representative in Excel format.
- .2 The Owner and/or Departmental Representative 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 Submit preliminary construction progress schedule in accordance with Section 01 32 16.07 to Departmental Representative.
- .2 After review, revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work revise and resubmit as directed by the Departmental Representative.

1.9 CONSTRUCTION PROGRESS MEETINGS

- .1 During the course of the Work, the Contractor shall attend weekly construction meetings as scheduled, which will be chaired and documented by the Departmental Representative.
- .2 The agenda will include among other things, general construction, payment, scheduling, risk, quality, environmental, and safety management items as well as any other reasonably requested by the parties.

1.10 SUBMITTALS

- .1 Submit product data for review, and for compliance with Contract Documents.
- .2 Submit requests for payment for review, and for transmittal to Departmental Representative. Payment request is due on the last day of the month.
- .3 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.
- .4 Process substitutions through Departmental Representative.
- .5 Process change orders through Departmental Representative.
- .6 Deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative.

1.11 CLOSEOUT PROCEDURES

- .1 Notify Departmental Representative when Work is considered ready for Substantial Performance.
- .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.

- .3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance.
- .4 Notify Departmental Representative of completion of items of Work determined in Departmental Representative's final inspection.

Part 2 Products

- .1 Not used.

Part 3 Execution

- .1 Not used.

END OF SECTION

Part 1**General****1.1 RELATED SECTIONS**

- .1 Section 01 11 00 – Summary of Work
- .2 Section 01 14 00 – Work Restrictions

1.2 MEASUREMENT PROCEDURES

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

1.3 PRECEDENCE

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

1.4 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 Construction Work Week: Defined schedule calendar working days as per the allowable working times identified in the Contract.
- .3 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.
- .4 Master Plan: A summary-level schedule that identifies major activities and key milestones.
- .5 Milestone: A significant event in Project, usually completion of a major deliverable.
- .6 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.
- .7 Project Planning, Monitoring and Control System: Overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.5 REQUIREMENTS

- .1 Ensure the Project Schedule is practical and remains within specified Contract duration and all identified Milestones.

- .2 Ensure all the Work required for the Contract is identified in the Project Schedule. Refer to Section 01 11 00 – Summary of Work for a potential list of activities.
- .3 Plan to complete Work in accordance with prescribed Project Schedule.
- .4 Limit activity durations to maximum of approximately 14 working days, to allow for progress reporting.
- .5 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.
- .6 Include the requirements of Section 01 14 00 - Work Restrictions and Section 01 35 43 - Environmental procedures.

1.6 SUBMITTALS

- .1 Submit to Departmental Representative within 10 working days of Award of Contract, Master Plan for planning, monitoring and reporting of project progress.
- .2 Submit Project Schedule to Departmental Representative within 10 working days of receipt of acceptance of Master Plan.

1.7 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule. Completion of each Stage of Construction:
 - .1 Complete all preliminary clearing by April 30, 2017.**
 - .2 Complete all Work by October 31, 2017.**

1.8 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work.
- .2 Departmental Representative will review and return revised schedules within 5 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.9 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule separately identifies the Work by area and station.
- .3 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Contract Award
 - .2 Obtaining Permits

- .3 Pre-mobilization Submittals
- .4 Mobilization
- .5 Detours / Site Access
- .6 Layout
- .7 Preliminary Clearing
- .8 Fence and Gate Installation
- .9 Additional Work as and when requested
- .10 Interim Inspection
- .11 Site Clean-up / De-mobilization
- .12 Final Completion

1.10 PROJECT SCHEDULE REPORTING

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

1.11 PROJECT MEETINGS

- .1 Discuss 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

Part 2 Products

- .1 Not used.

Part 3 Execution

- .1 Not used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 14 00 – Work Restrictions
- .2 Section 01 35 43 - Environmental Procedures

1.2 MEASUREMENT PROCEDURES

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

1.3 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS) and Material Safety Data Sheets (MSDS).

Province of Alberta

Occupational Health and Safety Act

1.4 SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within seven (7) days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job specific safe work procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety meetings.
 - .9 Occupational Health and Safety communications and record keeping procedures.
 - .10 Results of site specific safety hazard assessment.
 - .11 Results of safety and health risk or hazard analysis for site tasks and operation.
 - .12 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and authority having jurisdiction, weekly.
 - .13 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .14 Submit copies of incident and accident reports.
 - .15 Submit copies of Material Safety Data Sheets (MSDS) to Departmental Representative.
 - .16 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within ten (10) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within five (5) days after receipt of comments from Departmental Representative.

- .17 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .18 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.
- .19 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.5 FILING OF NOTICE

- .1 **File Notice of Project with Provincial authorities prior to beginning** Work and provide a copy to the Departmental Representative.

1.6 SAFETY ASSESMENT

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

1.7 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work. This meeting may be combined with the Organization and Start-Up meeting identified elsewhere.
- .2 At this meeting the Contractor is required to complete and sign an Attestation to certify the Contractor will comply with the requirements set out in the Attestation and the terms and conditions of the contract
- .3 A copy of the "Attestation and Proof of Compliance with Occupational Health and Safety (OHS)" can be obtained from the Departmental Representative.
- .4 PCA recognizes that federal Occupational Health and Safety legislation places specific responsibilities upon PCA as owner of the work place. In order to meet those requirements, PCA 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 PCA work places, including on PCA property.

1.8 REGULATORY REQUIREMENTS

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

1.9 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with Alberta Occupational Health and Safety.

1.10 GENERAL REQUIREMENTS

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

1.11 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.12 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, General Safety Regulation, Alberta and British Columbia when working in that province.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.13 UNFORSEEN 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.

1.14 HEALTH AND SAFETY COORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Co-ordinator must:
 - .1 Have working knowledge of occupational safety and health regulations.
 - .2 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.
 - .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .4 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.15 POSTING OF DOCUMENTS

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

1.16 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.17 WORK STOPPAGE

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

Part 2 Products

- .1 Not used.

Part 3 Execution

- .1 Not used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 All Divisions 01, 02 and 32 Sections

1.2 PRECEDENCE

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

1.3 MEASUREMENT PROCEDURES

- .1 The cost of environmental and aesthetic protection in accordance with this Section 01 35 43 – Environmental Procedures will not be measured separately for payment and will be considered incidental to the Work.

1.4 SUBMITTALS

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

1.5 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 For the Work in BNP, the Contractor and any sub-Contractors shall obtain a business license from the PCA Administration Office in Banff prior to commencement of the contract.

1.6 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.
- .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 Refer to the Detailed Environmental Impact Analysis (DEIA), and PCA National Best Management Practices (National BMPs) for the Work included with this tender. The Contractor is required to implement all recommendations and mitigations, and follow all procedures and processes whether supply, construction, administration or otherwise as described by the DEIA, and National BMPs.

1.7 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 impact does not arise from their activities and personal choices.
All Employees must attend their briefing before beginning their 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 (SO) through the Departmental Representative. Also, some subtrades 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 SO. A copy of their summary will be provided to each sub-trade worker joining the work force at the site.

- .2 PCA will have an SO attending the site to monitor the construction activity for conformance with these specifications. The SO or alternate designated PCA staff member will present the "environmental briefing". The SO'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 SO has authority to enforce National Parks Act violations, direction to the Contractor will be the duty of the Departmental Representative.

1.8 EQUIPMENT MAINTENANCE, FUELLING AND OPERATIONS

- .1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) outside the National Parks before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative and the SO. Except for chain saws, any fuelling closer than 100 metres from streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
- .3 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.

1.9 FIRE PREVENTION AND CONTROL

- .1 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented.
- .2 Fires or burning of waste materials are not permitted. This specific restriction extends to the removal of vegetation debris and despite all other notes, takes precedence over the any interpretation of the National BMPs that may suggest burning of any waste on site is permitted.
- .3 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The SO and the Departmental Representative shall be notified of any fire immediately.

1.10 WILDLIFE

- .1 During the Environmental Briefing all personnel shall be instructed by the SO on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .2 Avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if bears, cougars, wolves, elk or moose display aggressive behaviour or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.
- .3 Notify the SO 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.

1.11 RELICS AND ANTIQUITIES

- .1 Artifacts, relics, antiquities and items of historic interest such as cornerstones, commemorative plaques, inscribed tablets and similar objects found on the work site shall be reported to the SO or the Departmental Representative immediately. The Contractor and workers shall wait for instructions before proceeding with their work.
- .2 All historic or archaeological objects found in National Parks are protected under the National Parks Act and Regulations and are the property of PCA. The Contractor and workers shall protect any articles found and request direction from the SO or the Departmental Representative.

1.12 WASTE MANAGEMENT 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 the National Parks. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers, and disposed of at an appropriate waste landfill site located outside the park. Construction waste storage containers, provided by the Contractor, shall be emptied by the Contractor when 90% full. Waste containers will have lids, and waste loads shall be covered while being transported.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials.
- .5 All efforts to prevent wildlife from obtaining food, garbage or other domestic wastes shall be made by the Contractor and contract staff while undertaking their work in National Parks. Such wildlife attractants shall not be stored at the work site overnight. Lunches,

coolers and food products, including waste food products, shall be securely stored away from access by animals. Daily removal of food scraps, food wrappers, pop cans or other attractive products to bear proof containers is mandatory. It is incumbent on the Contractor to notify Parks Canada and make specific arrangements to have garbage collected by Parks Canada when using existing Parks Canada receptacles.

- .6 The Contractor and workers shall immediately report any circumstances related to food/garbage (e.g. overflowing container or strong smell) and wildlife to the SO or the Departmental Representative.

1.13 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 A Contractor’s office, equipment parking, and storage area will be permitted designated by the Departmental Representative.
- .2 Removal and storage of snow shall be arranged with the SO and the Departmental Representative.
- .3 Pets shall not be brought to or maintained at the construction site.

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 specification sections in other Divisions of this Specification.

1.2 RELATED SECTIONS

- .1 All sections in Divisions 01, 02 and 32.

1.3 MEASUREMENT PROCEDURES

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

1.4 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 may 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.

1.5 REJECTED WORK

- .1 Remove defective Work, whether the result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Departmental Representative.

1.6 REPORTS

- .1 Submit one (1) electronic copy of all inspection and test reports to Departmental Representative.

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 45 00 - Quality Control.

1.2 REFERENCE STANDARDS

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 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 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 Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .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 Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

1.4 AVAILABILITY

- .1 Immediately after signing contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In the event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason,

Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 STORAGE HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.6 TRANSPORTATION

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

1.7 MANUFACTURER'S INSTRUCTIONS

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

1.8 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative whose decision is final.

1.9 CO-ORDINATION

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

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

1.10 REMEDIAL WORK

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

END OF SECTION

Part 1 General**1.1 PRECEDENCE**

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

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 32 16.07 - Construction Progress Schedules Chart.

1.4 REFERENCES

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

1.5 LAYOUT REQUIREMENTS

- .1 The Departmental Representative shall identify location of all work sites. The Contractor shall be responsible for all other layout work as identified in this Section, elsewhere in the Contract and as required to complete the Works to the required standards.
- .2 The Contractor shall provide at their own cost, any survey activities as required and including, but not limited to, the following:
 - .1 String line or other markings for the alignment or grade control of construction equipment
 - .2 Layout of fencing and clearing limits
 - .3 Any trail repair and rehabilitation
 - .4 All other activities required to complete the Works

1.6 RECORDS

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

1.7 SUBMITTALS

- .1 On request of Departmental Representative, 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 PRECEDENCE**

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

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 01 77 00 - Closeout Procedures.

1.4 PROJECT CLEANLINESS

- .1 Maintain the whole of the Work Site in accordance with Section 01 35 43 – Environmental Procedures, the Departmental Representative’s reasonable requests
- .2 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by PCA or other Contractors.
- .3 The Contractor is required to regularly clean and tidy the Work Site so as to maintain a regular state of cleanliness.
- .4 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.

1.5 FINAL CLEANING

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

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTOIN

Part 1 General**1.1 PRECEDENCE**

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

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 74 11 - Cleaning.
- .2 Section 01 78 00 - Closeout Submittals.

1.4 INSPECTION AND DECLARATION

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

Part 2 Products

- .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 specification sections in other Divisions of this Specification.

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 45 00 - Quality Control.
- .2 Section 01 71 00 - Examination and Preparation.
- .3 Section 01 77 00 - Closeout Procedures.

1.4 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.

1.5 AS-BUILT SUBMITTALS

- .1 In addition to requirements in General Conditions, maintain a copy of the following documents on-site prior to providing the Departmental Representative with one final record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Field test records.
 - .6 Inspection certificates.
- .2 Prior to submittal, store record documents and samples in field office apart from documents used for construction.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of the Specification. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.6 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque Drawings and in copy of the Specification.
- .2 Record information concurrently with construction progress.
- .3 Specifications: legibly mark each item to record actual construction, including:
 - .1 Changes made by Addenda and change orders.

1.7 FINAL SURVEY

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

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 specification sections in other Divisions of this Specification.

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 35 43 – Environmental Procedures.

1.4 REFERENCES

- .1 National Fire Code of Canada 1995.

1.5 DEFINITIONS

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

1.6 SUBMITTALS

- .1 Submit product data in accordance with the Departmental Representative.
- .1 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
- .2 Submit hazardous materials management plan to Departmental Representative that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.7 STORAGE AND HANDLING

- .1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4 All explosives must be mixed outside of the Park and delivered to the site. No storage of explosives shall be allowed within the National Parks.

- .5 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.
- .6 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers which are in good condition.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
 - .6 Store hazardous materials and wastes in a secure storage area with controlled access.
 - .7 Maintain a clear egress from storage area.
 - .8 Store hazardous materials and wastes in a manner and location which will prevent them from spilling into the environment.
 - .9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.
 - .10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .7 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products**2.1 MATERIALS**

- .1 Only bring on site the quantity of hazardous materials required to perform Work.
- .2 Maintain MSDSs in proximity to where the materials are being used. Communicate the location to personnel who may have contact with hazardous materials.

Part 3 Execution**3.1 DISPOSAL**

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.

- .3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 35 43 – Environmental Procedures

1.2 REFERENCES

- .1 Unit Price Table

1.3 DESCRIPTION

- .1 Wildlife fencing shall be installed at the 11 remote sites in backcountry of Banff National Park as indicated in the drawings and as directed by the Departmental Representative. The work may include all or some of the following:

- .1 Supply of fencing components including galvanized wires, wire strainer, tension springs, metal T-posts, sucker rods or U-channel, lumber, and metal swing gates.
- .2 Clearing of 1.5 m wide fence lines
- .3 Installation of posts where live trees of diameter greater than 8 inches are not available to be used as posts
- .4 Installation of braces at section ends
- .5 Installation of a visual barrier across rivers and creeks
- .6 Installation of gates

1.4 MEASUREMENT PROCEDURES

- .1 General
 - .1 Mobilization and demobilization required for this Work shall be incidental to “Lump Sum Price Item 1”, and no additional payment will be made.
 - .2 Payment for accommodation for fencing crew at the Tim Barton’s camp for construction of the Red Deer Boundary Fence shall be made under “Lump Sum Price Item 2”
 - .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 Clean up disposal of all waste materials shall be considered incidental to this Work.
- .2 Installation of Wildlife-Permeable Bison Fencing – Galvanized Wire
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of five strands of twisted, two-standard 12.5-

gauge galvanized wire in accordance with the Contract Documents or as directed by the Departmental Representative.

- .2 Payments will be made per linear meter of wire supplied as per Contract Documents under “Unit Price Item 1”
- .3 Installation of Wildlife-Permeable Bison Fencing – Braces on Trees
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of fence section braces on trees in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of braces supplied as per Contract Documents under “Unit Price Item 2”
- .4 Installation of Wildlife-Permeable Bison Fencing – Metal Drill Stem Brace
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of metal drill stem braces on trees in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of braces supplied as per Contract Documents under “Unit Price Item 3”
- .5 Installation of Wildlife-Permeable Bison Fencing – Metal U-channel Brace
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of metal u-channel braces on trees in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of braces supplied as per Contract Documents under “Unit Price Item 4”
- .6 Installation of Wildlife-Permeable Bison Fencing – 4’ lumber
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of 4’ long 2”x4” lumber on trees in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of 4’ lumber supplied as per Contract Documents under “Unit Price Item 5”
- .7 Installation of Wildlife-Permeable Bison Fencing – 7.5’ T-post or Sucker Rod
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of 7.5’ metal t-post or sucker rod driven 2.5’ into the ground in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of 7.5’ metal t-post or sucker rod supplied as per Contract Documents under “Unit Price Item 6”

- .8 Installation of Wildlife-Permeable Bison Fencing – U-channel Post
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of u-channel post in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number u-channel post supplied as per Contract Documents under “Unit Price Item 7”
- .9 Installation of Wildlife-Permeable Bison Fencing – Heavy Duty Gate
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of 8’ wide and 14’ wide heavy duty 5-bar metal swing gates in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made for number of gates supplied as per Contract Documents under “Unit Price Item 8” and “Unit Price Item 9” for the 8’ and 14’ wide doors respectively.
- .10 Installation of Wildlife-Permeable Bison Fencing – Cable with Curtain of Rubber Slats or Equivalent Material
 - .1 The Work under this item includes all labour, equipment and materials for the supply, delivery and installation of ¼” cable with curtain of rubber slats or equivalent material in accordance with the Contract Documents or as directed by the Departmental Representative.
 - .2 Payments will be made per linear meter of cable supplied as per Contract Documents under “Unit Price Item 10”

1.5 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 01 45 00.

Part 2 Products

- .1 Not Used.

Part 3 Execution

3.1 METHODOLOGY

All fences will be constructed to the following specifications:

- a) Five strands of twisted, two-stranded 12.5-gauge galvanized wires at the following heights from ground: 20", 32", 42", 52", 60".
- b) Each strand of each fence section tightened with galvanized ratchet-style wire strainer with toothed spool.
- c) Heavy duty fence tension springs fitted on the topmost and bottom 2 strands on each section of fence.
- d) Where slope exceeds 25° no fifth (top) strand is required (i.e. 4 wires is sufficient on steep slopes).
- e) All fencing staples to be 9-gauge, barbed, and 1.75" long.
- f) All five wires to be attached to posts using double staple-lock-cotter-pin configuration or equivalently strong and easy-to-adjust system.
- g) Posts:
 - i. Live trees > 8" diameter to be used as posts wherever possible (14'-20' spacing). Trees used as posts will require four-foot long sections of 2"X4" dimensional lumber to be attached to the trunks with 4"-long screws (2 per tree) to protect trees from fencing staples and wire;
 - ii. Metal T-posts, sucker-rods or U-channel to be used wherever trees aren't available along fence lines at 14'-20' post spacing. Metal posts to be driven at least 2.5' into the ground;
- h) Braces at section ends:
 - i. Where trees are used as section ends a single, four-foot-long section of 2"X4" dimensional lumber is to be used on backside of tree to take the majority of stress of the wire loops off the tree. Each wire loop will also be threaded through rubber, garden-type hose for additional tree protection;
 - ii. Where adequate live trees aren't available for section ends metal 2^{7/8"} pipe drill-stem braces or metal U-channel braces or wood post braces (two posts plus cross-beam) will be required. Posts for these braces will be pounded/dug 2.5' into the ground. Braces to be at least 5' high above-ground level;
- i) Gates:
 - i. Where fences intersect horse/hiker trails, 5-bar heavy duty metal swing gates of varying widths are to be installed so the top rail is 5' high from ground level. Swing gates will include a spring mechanism to ensure they close.
- j) Fencing across rivers and creeks:
 - i. Fence sections will be required across rivers and creeks at four sites. Braces will be constructed on either side of the water's edge which will anchor a 1/4" cable that can be tightened/loosened to adjust height where it spans the river/creek. From this cable a curtain of 5'-lengths of plastic chain will be hung every 4 inches to create a strong visual barrier. This hanging curtain of plastic chain will allow for fluctuating water levels and passage of fish, waterfowl, flood debris and watercraft.

3.2 MANUFACTURERS' INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 ERECTION OF FENCE

- .1 Erect fence along lines as directed by Departmental Representative and as indicated in Appendix A.

END OF SECTION

Area	Fence length (m) & details	# Fence Sections	# Tree braces	# Metal drill stem braces	# Metal U-channel braces	# Tree Posts	# Metal T-posts or sucker rod	# Metal U-channel posts	# 8'-wide wire gates (trails)	# 14'-wide metal swing gates (fire roads)	Width of creek/river curtain (m)	Estimated days to construct	Nearby Accommodation	Estimated Helicopter hours and logistics*
Red Deer Boundary*	2000 Follows boundary cutline; 400m of fence already in place.	18	10	8	4	300	200	70		1	45	15	Commercial outfitter camp (500m away, truck accessible).	5 hrs Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Materials to be distributed along fence line in approx 10 loads from staging area.
Tyrrell Creek*	140m In canyon. 90m of fence already in place.	4	4	2		20	10				3	3	Park patrol cabin (Scotch) 5km away (1.5 hour walk).	2 hrs Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Only 1 load of materials required to heli sling in.
Dormer Boundary	870 Spans narrowest pinch-point of Dormer Valley between cliffs.	9	8	3		93	34	30	1		25	7	Fly-in tent camp at site (random camping zone).	5 hrs Staging area at Ya Ha Tinda Ranch. Estimated 3 loads to site plus redistribution of materials along fence line.
Stoney Creek	2500 Follows N side Stoney Ck; crosses Cascade River.	14	8	6	2	300	100	8		1	40	18	Park patrol cabin (Stoney) 1km away (half-hour walk).	4 hrs Staging area at Stoney patrol cabin 1km from fence line and is accessible by quad/snowmobile with trailer from Banff. Requires several loads to be heli-slung from staging to fence line.

Area	Fence length (m) & details	# Fence Sections	# Tree braces	# Metal drill stem braces	# Metal U-channel braces	# Tree Posts	# Metal T-posts or sucker rod	# Metal U-channel posts	# 8'-wide wire gates (trails)	# 14'-wide metal swing gates (fire roads)	Width of creek/river curtain (m)	Estimated days to construct	Nearby Accommodation	Estimated Helicopter hours and logistics*
Cascade 3-mile	50	2	2	2		10	5	2		1	N/A	1	N/A - 5km from Banff trailhead	N/A. Accessible by quad/snowmobile with trailer from Banff.
Sawback Creek*	100m In forest	4	4	2		14	7	2	1		N/A	2	Park patrol cabin (Flints) 1km away (half-hour walk).	2 hrs Staging area at Upper Bankhead Day Use near Banff. One heli-sling load for materials.
N Fork Cascade	100 North side of pass at bottom of shale slope.	3		3	3	4	15	6	1		N/A	3	Fly-in tent camp 2km away (half-hour walk-random camping zone).	3 hrs Staging area at Upper Bankhead Day Use near Banff. One heli-sling load for materials.
Elkhorn Summit East	530	6	6	2		40	30	2	1		N/A	4	Fly-in tent camp at site (random camping zone).	2 hrs Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Only 1 load of materials required to heli sling to site.
Elkhorn Summit West	260	5	4	1		30	10	1			N/A	3	Same tent camp as above	2 hrs Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Only 1 load of materials required to heli sling to site.

Area	Fence length (m) & details	# Fence Sections	# Tree braces	# Metal drill stem braces	# Metal U-channel braces	# Tree Posts	# Metal T-posts or sucker rod	# Metal U-channel posts	# 8'-wide wire gates (trails)	# 14'-wide metal swing gates (fire roads)	Width of creek/river curtain (m)	Estimated days to construct ¹	Nearby Accommodation	Estimated Helicopter hours and logistics ²
Divide Creek	82 On edge of burn in forest.	4	4	2		4		2	1		N/A	2	Park patrol cabin (Scotch) 4km away (1 hour walk)	1 hr Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Only 1 load of materials required to heli sling to site.
Drummond Creek	210 Ties into canyon	2	2	2		50	5	2	1		N/A	2	Park patrol cabin (Sandhills) 3km away (half-hour walk).	1.5 hrs Staging area at east Park boundary accessible by truck and trailer on restricted road from Ya Ha Tinda Ranch. Only 1 load of materials required to heli sling to site.
Badger Pass	100 Ties into steep slope with canyon on one side.	3	4			15	10		1		N/A	2	Fly-in tent camp 5 km away (designated backcountry campsite).	3 hrs Staging area at Upper Bankhead Day Use near Banff. One heli-sling load for materials.
TOTALS	7032	72	56	33	9	880	426	125	7	3	113	62		31.5 hrs

¹ Estimated days to construct assumes crew of four fit people.

² Estimated helicopter hours assumes use of helicopter base in Canmore, Alberta