

1.0 GENERAL

The Work covered by this Contract shall include, but shall not be limited to the furnishing of all materials, equipment, tools, machinery, supplies, temporary lighting, water, heating, transportation, labour and superintendence necessary for the construction of the work as herein specified and shown on the Drawings.

The Contractor shall read and be governed by the Bid Form, Instructions to Bidders, Addenda, Consent of Surety, Bid Security, Agreement, Definitions, Supplementary General Conditions, General Conditions, General Requirements, and complete Specifications and Drawings of this project.

The complete Work under this Contract shall be governed by the dictates of good practice and shall be complete in all details of materials and methods even if not minutely specified. The Work shall be properly coordinated with the requirements of all work specified in other sections.

2.0 SCOPE OF WORK

The work covered by this Contract shall include mobilization and demobilization, the furnishing of all materials, labour, equipment, tools, supplies, temporary lighting and heating, transportation, quality control, Division 1 requirements, labour and superintendence necessary for the construction of the work as herein specified and shown on the Drawings.

Work under this Contract covers supply and installation of all materials and construction of the following:

2.1 Fencing

- .1 Removal of vegetation (including tree clearing) and clearing to limits indicated on the Drawings and confirmed on the site.
- .2 Remove and dispose ungulate fence and gates.
- .3 Supply and install 2588 mm high ungulate fence pressure treated line posts spaced every 4877 mm, corner posts, and brace posts.
- .4 Supply and install pre-fabricated metal vehicle gates.
- .5 Construct pedestrian access points.
- .6 Supply and install park boundary signs every 100 m (lin).

2.2 Interpretation

If a Contractor finds discrepancies in or omissions from the Drawings, specifications or other documents or has any doubt as to the meaning or intent of any part thereof, the contractor shall at once inform Departmental Representative, who may send a written instruction or explanation. Every request for an interpretation shall be made in writing.

Discussions at Bid briefings or other oral discussions shall not become part of the Bid Documents unless confirmed by Amendment.

2.3 Location of Work

The Work is located in Elk Island National Park, 35 km east of the City of Edmonton, Alberta.

3.0 MATERIAL SUPPLY

The Contractor shall supply all new materials necessary for the construction of the work as herein specified or shown on the Drawings.

4.0 CONTRACT SCHEDULE AND COMPLETION

- .1 Provide within five working days after Contract award, construction bar chart schedule in weekly increments showing anticipated progress stages, significant milestones, inspections by outside parties and final completion of Work within time period required by Contract and Bid documents.
- .2 The Contractor shall commence the Work and proceed with diligence to perform the Work in accordance with the agreed upon schedule in sufficient time to complete the Work on or before the completion date specified in the contract.
- .3 Interim reviews of work progress based on work schedule will be conducted as decided by Departmental Representative and schedule updated by the Contractor in conjunction with and to approval of Departmental Representative.
- .4 Scheduling shall be in accordance with the General Conditions, Supplementary Conditions and General Requirements.

5.0 DOCUMENTS REQUIRED

Maintain at job site, one copy each of following:

- .1 Latest version of Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed shop Drawings.
- .5 Change orders.
- .6 Other modifications to Contract.
- .7 Field test reports.
- .8 Copy of latest approved Work Schedule.
- .9 Manufacturers' installation and application instructions.
- .10 Permits, licenses and land use regulations.
- .11 Up-to-date Record Drawings.

6.0 SITE CONDITIONS

The Contractor shall thoroughly examine the site of the work before submitting the Bid, to satisfy himself as to the local conditions and nature of work. The Contractor shall not seek nor receive any compensation for failing to thoroughly investigate the site conditions and their effect on the tendered unit rates.

Prior to commencing actual construction, check field conditions to obtain actual dimensions required to ensure correct execution of the Work, and notify Departmental

Representative, in writing, of all matters which could prejudice proper execution of the work.

Commencement of construction shall constitute acceptance of existing conditions and verification of dimensions.

No extra charges will be allowed for Work resulting from conditions which would have been evident upon a thorough examination of the site.

7.0 CONSTRUCTION LAYOUT

All Work is to be laid out by the Contractor. This shall include, but not be limited to, batter boards, sight rails, stakes and marks, and bench marks as required.

8.0 RESPONSIBILITY FOR WORK

Departmental Representative will not be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or for the supervision of the Contractor's performance of this Contract, or for the Contractor's failure to perform the work in accordance with the Contract. However, if at any time Departmental Representative is of the opinion that the number of workers, pieces of equipment or quality of machinery, tools, plant and equipment or articles is insufficient to meet the schedule, he may so advise the Contractor in writing. The Contractor shall promptly make the necessary changes to ensure that the schedule is adhered to.

Pursuant to the provisions of the General Conditions of the Contract, while it is intended that the Contractor shall be allowed in general to carry out the Contract in such manner that may appear to be the most desirable, Departmental Representative may with discretion direct the order in which and points at which the work shall be undertaken. This control shall be exercised in the interest of the Departmental Representative and it is intended that an agreement be reached between all parties prior to the commencement of the Contract. A schedule of work shall be drawn up for this purpose by the Contractor.

Whenever in the Contract the terms "as ordered", "as directed", "as required", "as allowed" or terms of the like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of the like effect or import are used to describe requirement, direction, review or judgement of Departmental Representative as to the work, it is intended that such requirement, direction, review or judgement will be solely to evaluate the work for compliance with the Contract unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be construed to indicate that Departmental Representative shall have authority to supervise or direct performance of the work.

9.0 MOBILIZATION / DEMOBILIZATION

- .1 Mobilization shall include the necessary work and operation including, but not limited to, the movement of personnel, equipment, supplies and incidentals to the Work, the establishment of facilities necessary to undertake the Work and for expenses incurred for other work and operations which must be performed prior to the commencement of the Work.
- .2 Demobilization shall include the dismantling and removal from the site of all of the Contractor's equipment and materials, clean-up of the site, and transportation of labour from the site.

- .3 There will be no separate payment made for mobilization and demobilization. The cost is to be included in Lump sum.

10.0 CONTRACTOR'S USE OF SITE

- .1 Use of site: Contractor to be provided access for execution of work in accordance with General Conditions and Special Provisions, except as follows:
 - .1 The Contractor and stored materials shall not interfere with the Departmental Representative's access to the site for operation, maintenance and repair of existing facilities. Provide temporary access to existing facilities as may be required and move materials as requested by the Departmental Representative.
 - .2 The Contractor shall not operate any of the existing facilities without a representative of the Departmental Representative present.
 - .3 At all times cooperate with the Departmental Representative.
- .2 The Contractor shall be responsible for site security for the duration of the Contract. Where security is reduced by work of Contract, provide temporary means to maintain security.
- .3 Obtain and pay for use of additional storage or work areas as required.

11.0 PROJECT MEETINGS

- .1 Departmental Representative will arrange and set times for project meetings and will record and distribute minutes.
- .2 The Contractor's site superintendent and representatives of the subcontractors shall attend the meetings at the request of Departmental Representative.

12.0 PERMITS, LICENSES, CERTIFICATES AND FEES

- .1 Contractor shall pay for all permits, licenses, certificates and all fees required for performance of the Work in accordance with General Conditions and Supplementary Conditions.

13.0 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain Departmental Representative's approval for actual location.
- .4 Submit field Drawings to indicate relative position of various services and equipment when required by Departmental Representative.

14.0 WATER SUPPLY

- .1 Supply all water necessary for the work and obtain written permission from the

Departmental Representative prior to using any Park Facility.

- .2 The Contractor shall be held responsible for any damage done to the Park Facility or surrounding area.
- .3 Make an Agreement with the Departmental Representative for the payment of water used.

15.0 CONTRACTOR SUBMISSION REQUIREMENTS

- .1 A list of the documents and information to be submitted by the Contractor is presented in the table at the end of this Section. Please note that this list does not necessarily include all required submissions.
- .2 Submit all information and documents by the dates indicated, unless otherwise directed by the Parks Canada.

16.0 HAUL ROADS

- .1 The Contractor shall be responsible for damage and/or spillage on all roads used for hauling materials and equipment to and from the site subject to Departmental Representative being satisfied such damage or spillage was a direct result of the actions of the Contractor or one of the Contractor's agents in the performance of the work required under this Contract.
- .2 Upon notification by Departmental Representative that the remedial work is necessary, immediately clean and/or restore the affected areas designated by Departmental Representative.
- .3 Obtain approval from the Departmental Representative prior to using any road as a haul road.

17.0 CONSTRUCTION SIGNAGE AND SAFETY

The Contractor shall supply and maintain, at their own expense, all barriers, fences, warning signs and other precautions to protect the workers and general public against accident or injury. All excavations or obstructions shall be clearly marked between sunset and sunrise with proper warning flares or lights. Local or Municipal bylaws governing warning flares or lights shall be strictly observed.

Signage shall be erected indicating an open excavation and to adequately protect the general public against accident or injury. Signs and notices for safety and instruction shall be in both official languages.

All signs, barricades, and warning devices shall meet Strathcona County and/or Regional Transportation Advisory Committee (RTAC) requirements and satisfaction of Departmental Representative. The Contractor shall obtain any permits required by the Departmental Representative with respect to this work.

Upon notification by Departmental Representative, the Contractor shall remove the construction sign to a location designated by Departmental Representative.

18.0 WORKING HOURS, NIGHT WORK AND HOLIDAYS

The acceptable working hours for the Contractor shall be from 7:00 AM to 19:00 PM, 7 days per week.

Night work will only be allowed if written permission is given beforehand by the Departmental Representative. When work is carried out at night, the Contractor shall supply, at their own cost, a sufficient number of electric or other approved lights to enable the work to be done in a safe and satisfactory manner.

The Contractor shall not work on any other day normally observed as a holiday, without the approval of the Departmental Representative.

19.0 REMOVE AND DISPOSE OF MATERIALS

- .1 Materials to be removed and disposed shall be removed, hauled and disposed of at the Contractor's expense.
- .2 All materials in excess of that needed for completion of the project shall be removed from site upon excavation.
- .3 All the necessary approvals and/or permits shall be obtained from the Parks Canada of the disposal site, and any governing authority prior to dumping any material.

20.0 EMERGENCY SITUATIONS

In emergency situations, endangering life or public property, the Departmental Representative shall proceed with repairs and thereupon advise the Contractor of the failure, and resulting costs shall be paid by the Contractor.

21.0 CLEARING OF SITE

- .1 Complete all clearing of bush, levelling, etc., for the proper execution of the work under this Contract.
- .2 All refuse, bush, etc., shall be disposed of in a manner satisfactory to Departmental Representative.
- .3 The Contractor shall become fully aware of the conditions in the work area prior to submitting their Bid.

22.0 TRAFFIC ACCOMMODATION

- .1 Prior to construction, provide a Traffic Accommodation strategy and Work Safety Plan indicating all proposed detour routes and schedules. The plan must be approved by the governing authority and Departmental Representative prior to construction.
- .2 Traffic control shall be in accordance with the provisions of the Uniform Traffic Control Devices of Departmental Representative.

- .3 Supply and maintain all barriers, fences, warning signs and other precautions to protect the workers and general public against accident or injury.
- .4 All excavations or obstructions shall be clearly marked between sunset and sunrise with proper warning flares or lights.
- .5 Local or Municipal Bylaws governing warning flares or lights shall be strictly observed.
- .6 Should any of the Contractor's work cause interference with any existing public roads, lanes or pedestrian accesses, the Contractor shall provide and maintain detour roads and shall post such signs, lights, barriers, etc., as may be required for public convenience in accordance with governing local or municipal standards.
- .7 Where construction occurs within the right-of-way of Provincial Highways, provide and maintain warning and/or detour signs as required by Alberta Infrastructure.
- .8 As construction proceeds, clean up all streets and ditches and make them passable and useable.
- .9 Clean up streets after the work in each block is finished.

23.0 NOISE AND DUST CONTROL

- .1 The Contractor shall be responsible for controlling objectionable dust conditions in areas of construction as a result of traffic, construction equipment, or wind.
- .2 All equipment shall be equipped with suitable muffling systems.
- .3 The Contractor shall be cognizant of and abide by Noise Bylaws which affect any work in the area.

24.0 EXISTING FENCES, TREES AND BUILDINGS

- .1 No trees whatsoever shall be cut down without the written permission of Departmental Representative.
- .2 Trees, shrubbery, fences, poles and all other private property and surface structures shall be protected unless their removal is shown on the Drawings or authorized by Departmental Representative.

25.0 RELICS AND ANTIQUITIES

Give immediate notice to the Departmental Representative if evidence of historical or archaeological finds are encountered during construction, and await the Departmental Representative's written instructions before proceeding with the Work in this area.

26.0 EASEMENTS

This project is located in the National Park. There will be less temporary workspace due to trees on both sides of the fence at certain places. The Contractor shall manage the construction with limited workspace.

27.0 LANDSCAPING, GRAVEL AND CONCRETE WORKS REPAIRS

All landscaping, gravel and concrete works such as curb and gutter, gravel driveway, asphalt and concrete driveways that are removed during construction shall be repaired to their original condition or better.

28.0 EXISTING UTILITIES AND PIPELINES

- .1 The Contractor shall assume full responsibility for safeguarding all existing and relocated utility installations during the progress of the Work. While the Departmental Representative has made every effort to collect and present details concerning utility installations, no responsibility will be assumed by Departmental Representative for the correctness and completeness of the information, and the Contractor shall have no claim on that account. The existence, location, elevation, and condition of existing underground utilities or pipelines is not guaranteed, and notwithstanding any other provisions in the Contract, the Contractor shall be responsible for determining the location and elevation of all sewer, water and gas mains or lines, electric light, power or telephone conduits, or other structures or utilities or pipelines, by non-destructive means acceptable to the Departmental Representative.
- .2 There will be no separate payment made for all incidental work related to utility or pipeline coordination or temporary protection or protection required during the course of the contract (including warranty period) or repair of existing services damaged in the course of the Works.

29.0 DEWATERING AND DRAINAGE

- .1 Keep all portions of the Work properly drained during the construction and until completion.
- .2 The Contractor will be held responsible for all damage, directly resultant from their operations, which may be caused by or which may result from water backing up or overflowing through, from or along any part of the work.
- .3 The Contractor shall bear all costs related to the effective dewatering of excavations and all other pumping and drainage necessary for the proper construction of the Works, including keeping the pipes, structures and trenches free of undesirable accumulations of seepage, subsoil water, surface water or rainwater.
- .4 Dispose of all water drained or pumped as above by discharging it to drainage ditches or natural water course approved by Departmental Representative, but in compliance with all Municipal, Provincial and Federal regulations, ordinances, bylaws, etc., and provide documentation indicating that authority has been granted to discharge effluent water into any drainage ditch, brook, creek or river.
- .5 Keep all drainage channels and culverts free of silt, sand, debris and gravel and remove such deposits as required by Departmental Representative or any other Authority Having Jurisdiction.

- .6 Accept responsibility for any actionable damage, inconvenience or interference caused by the dewatering operations to the surrounding properties, houses, other building, roads, curbs, sidewalks, driveways, utilities, services or other improvements which may be affected by a lowering of the water table and bear all costs of repair, replacement, reinstatement or alteration of same.

30.0 SUBSURFACE INVESTIGATION DATA

- .1 Geotechnical information documents are not available for the project.

31.0 RECORD DRAWINGS

- .1 The Departmental Representative will provide one (1) additional set of construction Drawings for record drawing purposes just after Award of Contract.
- .2 Identify each Drawing as "Project Record Copy". Maintain Drawings in good condition and make available for inspection on site by Departmental Representative at all times.
- .3 Maintain project record Drawings and record accurately significant deviations from Contract documents caused by site conditions and change orders by Departmental Representative. The Contractor shall keep the "record" Drawings current as the job progresses.
- .4 Mark changes in red.
- .5 Record following information:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by Change Order or Field Instruction.
 - .3 Horizontal and vertical location of all concrete structures and all gravel access roads and turning pads.
 - .4 Horizontal and vertical locations of all reconstructed berms and structures.
- .6 At completion of project and prior to Issuance of Completion Certificate, sign and date prints as Certification of Accuracy and submit record Drawings.

32.0 FINAL CLEAN-UP

- .1 At the completion of the construction work, all areas on which work has been done shall be left in a neat and presentable condition.
- .2 All gutters and drainage ditches which have been blocked as a result of the work shall be repaired or restored to their original condition or better.
- .3 The Contractor, at their own expense, shall dispose of all surplus excavated material, trees, brush, rock, boulders and pieces of concrete or masonry, including those less than 0.5 m³ in volume, at a location approved by the Departmental Representative.

33.0 BACKFILL

Backfilling of trenches or fill areas will not be permitted unless Departmental Representative is onsite. The Contractor will notify Departmental Representative 24 hours in advance of backfilling scheduled for weekends or holidays.

34.0 SURFACE RESTORATION

All existing roadways, landscaping and other surface structures shall be restored. No separate payment will be made for any restoration and the costs are to be included in unit prices.

35.0 PRODUCTS

.1 Not applicable.

36.0 EXECUTION

.1 Not applicable.

CONTRACTOR SUBMITTAL SCHEDULE		
Specification Section	Description	Date Required
01 10 00	Copies of Permits/Licenses	Upon Departmental Representative's request
01 33 00	Material and Shop Drawing Schedule	15 days from Notice of Acceptance
01 32 17	Contract Work Schedule	15 days from Notice of Acceptance Revised schedule with each payment application
01 35 30	Safety Meeting Minutes	Upon Departmental Representative's request
01 35 30	Accident Reports	Promptly after incident
01 35 30	WHMIS Data Sheets	Upon delivery of materials to site
01 77 00	Record Drawings (1 set)	At project completion/prior to final inspection.

END OF SECTION

1.0 GENERAL

1.1 Departmental Representative to Administer

- .1 Departmental Representative will schedule and administer preconstruction meeting and progress meetings as required.
- .2 Departmental Representative will:
 - Prepare agenda for meetings.
 - Make arrangements for meeting locations.
 - Preside at meetings.
 - Record meeting minutes, identifying significant proceedings and decisions, and noting action by the parties.
 - Reproduce and distribute copies of the minutes to participants and affected parties not in attendance.
- .3 Contractor's superintendent, and senior representatives of major Subcontractors, to attend all meetings.
- .4 Representatives of Contractor, Subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

1.2 Preconstruction Meeting

- .1 Within 5 days after award of Contract, Departmental Representative will arrange a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative and major Subcontractors will be in attendance.
- .3 Agenda to include the following:
 - Appointment of official representative of participants in the Work.
 - Schedule of Work and progress scheduling.
 - Requirements for temporary facilities.
 - Site security.
 - Contemplated changes, change procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - Force account work procedures.
 - Record drawings.
 - Acceptance, and warranties.
 - Monthly progress claims, administrative procedures, photographs and holdbacks.
 - Insurances.
 - Safety Program.

1.3 Progress Meetings

- .1 Progress meetings will be held at least once a month, up to and including start-up and commissioning.
- .2 Contractor, major Subcontractors involved in Work, and Departmental Representative are to be in attendance.
- .3 Agenda to include the following:
 - Review and approval of minutes of previous meeting.
 - Review of Work progress since previous meeting.
 - Field observations, problems, conflicts.
 - Problems which impede construction schedule.
 - Review of off-site fabrication delivery schedules.
 - Corrective measures and procedures to regain projected schedule.
 - Revisions to construction schedule.
 - Progress, schedule, during succeeding work period.
 - Review submittal schedules: expedite as required.
 - Maintenance of quality standards.
 - Review of pending and proposed changes for effect on construction schedule and on completion date.
 - Safety issues.
 - Environmental Issues (including, but not limited to a summary of locations where temporary erosion and sedimentation control measures are in place and success of measures.
 - Issues.
 - Other business.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Requirements Included

- .1 Construction schedule.
- .2 Shop drawings and product data.
- .3 Samples.
- .4 Record drawings and all pertaining reports.
- .5 Certificates.

1.2 Administrative

- .1 Provide submittals to Departmental Representative for review with reasonable promptness and in an orderly sequence so as to not cause delay in the Work. Departmental Representative shall be provided with a minimum of 14 days to review submittals. 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 At Departmental Representative's request, prepare and submit schedule fixing dates for submission and return of shop drawings, product data or samples.
- .3 Work affected by the submittal shall not proceed until review is complete.
- .4 Review submittals prior to submission to the Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and will be considered rejected.
- .5 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittals.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .7 Keep one reviewed copy of each submission on Site.
- .8 Contractor shall submit a dust control plan for the transport of materials to and from the construction site. The plan shall be submitted prior to the start of construction.
- .9 If the Departmental Representative deems the dust control measures undertaken to be inadequate, he/she retains the right to instruct the Departmental Representative to undertake appropriate dust control measures. The cost of such measures will be billed to the Contractor.

1.3 Construction Schedule

- .1 Refer to Section 01 10 00 - General Instructions.

1.4

Samples

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the Work.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify the Departmental Representative in writing, at the time of submission, of deviations in samples from requirements of Contract Documents.
- .4 Adjustments made on samples by the Departmental Representative are not intended to change the Contract Amount. If adjustments affect the value of Work, state such in writing to the Departmental Representative prior to proceeding with the Work.
- .5 Make changes in samples which the Departmental Representative may require, consistent with Contract Documents.

1.5

Record Drawings

- .1 Submit record drawings to Departmental Representative, per Section 01 77 00, upon completion of Work and prior to final inspection.

2.0

PRODUCTS

- .1 Not used.

3.0

EXECUTION

- .1 Not used.

END OF SECTION

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- 1.0 GENERAL
- 1.1 Reference Standard
- .1 Traffic regulations to be in accordance with Departmental Representative requirements.
- 1.2 Protection of Public Traffic
- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out work or haul materials or equipment.
- .2 When working on travelled way:
- .1 Place equipment in position to present minimum of interference and hazard to travelling public.
- .2 Keep equipment units as close together as working conditions will permit and preferably on same side of travelled way.
- .3 Do not leave equipment on travelled way overnight.
- .3 Do not close any lanes or any road without approval of Departmental Representative. Before re-routing traffic, erect suitable signs and devices in accordance with a manner acceptable to Departmental Representative. Provide sufficient crushed gravel to ensure a smooth riding surface during work.
- .4 Load trucks in a manner that will prevent spillage and tracking of soil or debris on roadways. Clean up immediately to the satisfaction of the Departmental Representative if spillage or tracking does occur. Clean haul routes as directed by the Departmental Representative. Failure to clean up haul routes may result in the Departmental Representative crews doing the cleaning without notice to the Contractor and the costs will be deducted from moneys due to the Contractor.
- 1.3 Informational and Warning Devices
- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from project work which may require road user response. Signs and notices for safety and instruction shall be in both official languages.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Part D, Temporary Conditions, of manual titled Uniform Traffic Control Devices for Canada.
- .3 Place signs and other devices in locations recommended in said manual.
- .4 Meet with Departmental Representative prior to commencement of work to prepare list of signs and other devices required for project.
- .5 Continually maintain traffic control devices in use by:
- .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
- .2 Removing or covering signs which do not apply to conditions existing from day-to-day.

1.4 Control of Public Traffic

- .1 Ten (10) days prior to undertaking any construction, the Contractor shall submit in writing, the intended system of routing traffic during construction, to the Departmental Representative. The Contractor's system of routing traffic will be reviewed by the Departmental Representative with the Contractor and any modifications requested, at any time, by the Departmental Representative, shall be immediately implemented.
 - .1 Restricted Activity on Roads
 - .1 Lane closure on Elk Island Parkway is not permitted without Departmental Representative consent.
 - .2 Prior to closing any lanes, commercial crossings, business or residential vehicular accesses, contractor to provide an alternate access with approval of the Departmental Representative. For all closures Contractor to obtain street closure permits prior to closing any street.
 - .3 Contractor to maintain one lane of traffic in a single direction at all times during underground utility construction. Contractor to use box trench construction method to minimize work zone area influence and to minimize traffic disruption.
 - .4 For sidewalk and concrete construction, curb lanes may be closed and must be fenced off to vehicular traffic, to allow for a safe walking area for pedestrians. At minimum, concrete mini barriers must separate vehicular traffic and pedestrian traffic for public safety.
 - .5 Maintain wheelchair access at all times.
 - .6 Traffic signs shall be erected and maintained to ensure safety of workers and public as required in Section 1.3.
- .2 The desire for this project is to minimize disruption to traffic (both public and service vehicles) to the greatest extent possible. Lane closures should be limited to those sections being actively worked on and should re-open to public traffic as soon as possible.
- .3 Provide competent flag persons, properly equipped as specified in manual of Uniform Traffic Control Devices for Canada, in following situations:
 - .1 When public traffic is required to pass working vehicles or equipment which may block all or part of travelled roadway.
 - .2 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.
 - .3 When workers 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.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

1.5 Public Transportation

- .1 Contractor must notify Departmental Representative, prior to construction, of any potential disruptions. Contractor and public transit officials to coordinate any rerouting required.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Occupational Health & Safety Act

The Prime Contractor is responsible to ensure that all contractors working on the worksite comply with the Occupational Health & Safety Act and applicable regulations.

The Contractor shall comply and ensure that all the Subcontractors comply with all applicable legislation. The Contractor shall enforce all the applicable safety rules and regulations to all individuals who will be on the site.

The following is a list of safety information to assist the Contractor in familiarizing with the Occupational Health & Safety Requirements. The Contractor warrants that the Contractor shall comply with all requirements of the Occupational Health & Safety Act as well as the relevant legislation in conducting work under this contract.

.1 Supervision:

.1 The Contractor shall advise the Departmental Representative in writing of the person or persons who will ensure compliance with applicable safety legislation. This list should include the site superintendent plus as many representatives as the Contractor determines are required to ensure appropriate supervision and the subsequent safe performance of all jobs on the site. Provision should be made to include twenty-four (24) hour emergency telephone number(s) on this list.

.2 Competent Workers:

.1 The Contractor shall ensure that workers on the site be adequately qualified and sufficiently experienced to perform work in a safe manner. Those workers who do not meet this criteria shall be supervised by someone who is competent. The Contractor shall provide or arrange for the necessary training to ensure sufficient workers on site are competent.

.3 Audit/Inspections:

.1 The Contractor shall conduct frequent inspections to ensure compliance with legislation. Any unsafe conditions or work practice observed shall be corrected as soon as possible. In the event of an imminent danger situation, Section 27 of the Occupational Health and Safety Act shall be followed. All reports provided by outside agencies (i.e. Alberta Government Health & Safety, etc.) shall be copied and a copy provided to the Departmental Representative within twenty-four (24) hours following the inspection.

.4 Reporting Procedures:

.1 All serious or potentially serious accidents or incidents as specified in the current Designation of Serious Injury and Accident regulation shall be reported as prescribed by Section 13 of the Occupational Health & Safety Act. Following this, the Departmental Representative shall be notified and a copy of the investigation report is to be provided as soon as practicable. Severe action including fines may be imposed by the provision authorities should a Contractor be found guilty of failure to

report an accident or having disturbed the scene of an accident prior to an investigation.

.5 First Aid and Emergency Planning:

.1 Each Contractor shall provide first aid services, equipment and supplies in accordance with the current First Aid Regulation. The Contractor shall establish an overall emergency plan (routes, equipment, emergency contracts, etc.) and inform all the workers on the worksite of the contents of the plan. If the worksite has an existing emergency plan, the Contractor shall familiarize all the workers under their control of the contents of the plan.

.6 Codes of Practice:

.1 The Contractor shall post at all worksites, codes of practice for confined space entry, respiratory protective equipment, designated chemicals, and others as required under the Occupational Health & Safety Legislation. Each code of practice must reflect the specific operation conduct at that particular site.

.7 Chemical Hazards:

.1 The Contractor shall ensure that all controlled products present at the worksite are stored, used and handled in accordance with Part 2 of the Chemical Hazards Regulations.

.1 Material Safety Data Sheets:

.1 The Contractor shall have all Material Safety Data Sheets accessible to all workers at the worksite for controlled products present at the worksite. The Contractor shall provide copies of the Material Safety Data Sheets to the Departmental Representative upon request.

.2 Labels:

.1 The Contractor shall ensure that all controlled products present at the worksite are identified with either supplier or worksite labels.

.3 Education:

.1 The Contractor shall ensure all workers are instructed in accordance with Sections 17 and 18, Part 1, of the Chemical Hazards Regulation.

.8 Personal Protective Equipment:

.1 The Contractor shall ensure that workers use appropriate personal protective equipment and are trained in its use and care in order to control or minimize hazards that can not be controlled by engineering or administrative practices.

.9 Safety Meetings:

.1 A meeting shall be held prior to the commencement of work for the purpose of review and clarification of safety procedures.

- .10 Safety Committees:
 - .1 The Contractor may be required to establish worksite committees acceptable to the Departmental Representative for the purpose of discussing safety related issues.
- .11 Worksite Classification/Procedure Development:
 - .1 The Contractor shall develop procedures for demolition, hot work, explosives, work over water, ground thawing, pesticide application, radioactive material, lasers, electrical or substance isolation (blanking, lockouts), carcinogenic material, and other hazards as required for the Work. These procedures shall be made available upon request. The Contractor shall ensure that these procedures outline safe work practices that will address health and safety concerns and the workers on the site and exposed or potentially exposed to these hazards shall be familiar with and follow the safe work practices prescribed.
- .12 Maintenance and Repair:
 - .1 The Contractor shall ensure that all equipment used on the worksite is maintained in such condition that it will not compromise the health and safety of workers.
- .13 Housekeeping:
 - .1 The Contractor shall ensure that the worksite is kept clean and free from hazards that may endanger workers or restrict safe access or egress.
- .14 Illumination:
 - .1 The Contractor shall ensure illumination at the worksite is sufficient to enable work to be done safely. Refer to the current CSA standard for guidance.
- .15 Powered Mobile Equipment:
 - .1 The Contractor shall ensure that powered mobile equipment meets the requirements of pertinent legislation. Personnel shall not be transported in a vehicle unless adequate seating is provided. Equipment fitted with roll over protective structures shall be equipped with seat belts and the seat belts shall be worn when the equipment is operated. Equipment requiring back-up alarms shall have the alarms maintained in good working order.
- .16 Traffic Hazards:
 - .1 The Contractor shall ensure that appropriate measures are taken to protect workers from the hazards created by traffic including the provision and wearing of safety vests where required.

.17 Hoisting and Rigging:

- .1 The Contractor shall ensure that all aspects of hoisting and rigging comply with applicable legislation. Only competent workers shall operate hoists, act as signaller, or perform rigging. The Contractor shall designate workers who will operate hoisting equipment or act as signaller for hoisting work. Log books for cranes and hoist shall be provided and maintained as required. Approved rigging shall be of sufficient strength, inspected thoroughly at the beginning of each shift and used in a safe manner.

.18 Movement of Equipment and Material:

- .1 The Contractor shall ensure that loads and materials are secured against unintentional movement that could adversely affect the safety of workers. Chemical substances regulated by the Transportation of Dangerous Goods regulation shall be handled in accordance with that regulation. The Contractor shall ensure workers are aware of the hazards associated with working around moving equipment and that appropriate measures are taken to protect the workers from injury.

.19 Fall Protection:

- .1 The Contractor shall ensure that fall protection (i.e. guard rail, safety harnesses, fall arresting device) is provided and used when workers would fall greater than 3.0 metres from a temporary work area or 1.2 metres from a permanent work area.
- .2 Openings that create a falling hazard must have a temporary cover with warning signs or guard rails and toes boards installed by the Contractor. Similarly, where open trench work is adjacent to a frequently used public thoroughfare, guard rails shall be erected and maintained.

.20 Ladders and Scaffold:

- .1 The Contractor shall ensure that ladders which meet the requirements of applicable legislation are provided when no other safe means of access or egress between levels is present. The Contractor shall ensure that a scaffold will be designed to support four (4) times the load it will carry and that the erection, maintenance, and dismantling is performed by a competent worker. Scaffolds shall be anchored at least every 4.6 metres vertically and 6.4 metres horizontally.
- .2 Scaffold planks shall be at least grade one 51 millimetres x 254 millimetres lumber that is inspected and load tested before installation at which time they should be secured to prevent movements. Free standing or rolling scaffolds shall be erected with a minimum of 3 to 1 height to base ratio.

.21 Excavations and Trenches:

- .1 The Contractor shall ensure that workers are protected from cave-ins by cutting back the walls or by installing temporary protective structures in trenches and excavations depending upon the nature of soil and the depth. Cut-backs in hard and compact solid (requiring use of rippers and heavy machinery) must be cut-back to not less than 30°. Other soils to not less than 45°. Typical utility involved streets and lanes shall NOT be considered hard and compact in native material unless stipulated by the Departmental Representative. The temporary protective structures shall be installed as outlined in the applicable legislation or as specified in plan designed and certified by a Professional Engineer and made available at the job site. Any additional loads (equipment, buildings, etc.) that may be imposed on the trench or excavations walls shall be taken into account when protecting workers from cave-ins.
- .2 Installation and removal of temporary protective structures shall be done in a safe manner. Workers shall install cross braces while on a ladder starting from the top and working down. Removal shall again be from a ladder starting from the bottom and working upward.

.22 Underground and Overhead Utilities:

- .1 The Contractor shall ensure that all underground utilities are located and procedures outlined in the Pipeline Act, Electrical Utilities Regulations, and other applicable legislation are followed. The Contractor shall ensure that workers are made aware of the location of overhead utilities, the dangers of contacting these utilities are communicated to all workers and the safe limits of approach as outlined in the legislation are maintained for workers and equipment.

.23 Hand and Power Tools:

- .1 The Contractor shall ensure that power and hand tools are properly maintained and that they are used in accordance with good industrial practices. Tools that are particularly hazardous, such as explosive actuated fastened tools, shall be operated only by workers who have received specific instruction on the safe use, limitations and maintenance of that tool.

.24 Compressed Gases:

- .1 The Contractor shall ensure that compressed gases are transported, used and stored in accordance with the manufacture's specifications. Cylinders shall have their contents clearly labelled (WHMIS) and the cylinders shall be secured to prevent being dislodged or damaged by equipment or moving materials.

- .25 Smoking:
- .1 The Contractor shall inform their workers of any smoking restrictions that may be in place on the worksite and ensure these restrictions are followed.
- .26 Sanitary Facilities:
- .1 The Contractor shall ensure that sanitary facilities shall be provided in accordance with applicable legislation. The provision of additional washing facilities (i.e. showers) may be required in accordance with the hazards associated with the materials on the worksite.
- .27 Hazardous Wastes:
- .1 The Contractor shall ensure that all hazardous wastes generated at the worksite are removed, transported and disposed of in accordance with applicable legislation. A copy of the necessary documentation (i.e. Hazardous Waste Manifest) must be supplied to the Departmental Representative upon request.
- .28 Fire Protection:
- .1 The Contractor shall ensure that an adequate number of the appropriate type and size of fire extinguishers are provided and maintained in accordance with applicable legislation. The fire extinguishers shall be clearly visible and readily accessible and the workers shall be trained in the use of the fire extinguishers provided.
- .29 Use and Storage of Flammable Substance:
- .1 The Contractor shall ensure that the hazards associated with the use of any flammable substance are clearly evaluated and procedures put in place to ensure the safety of workers, materials and equipment at the worksite. Flammables shall be stored in approved containers and rags contaminated with flammable substance shall be stored in suitable metal containers with adequate covers.
- .30 Site Security/Public Safety:
- .1 The Contractor shall ensure that access or movement at or adjacent to the worksite does not present hazards.

- .2 This may involve the use of fencing, barricading, lighting, signing, hoarding, locked covers over openings, workers on watch, "authorized entry only" provision, or other means as appropriate. The Contractor shall ensure that authorized personnel have access to the site.
- .3 The branch may request the Contractor to institute a means of identifying authorized workers on the site to assist in site security. Adverse weather conditions may require an increased awareness of public security and safety.
- .31 Key Control:
 - .1 The Contractor shall adhere to any key control system established by the Departmental Representative to protect the worksite.
- .32 Worker's Compensations Board:
 - .1 The Contractor and the Subcontractors shall have accounts in good standing with the Workers' Compensation Board. Proof of current account status shall be provided upon request.
- .33 Demolition:
 - .1 The Contractor shall ensure that before demolition work commences, a meeting will be held on site with the Contractor, the Departmental Representative, and other interested parties to discuss the coordination, scheduling, safety, and all other aspects of the work.
- .34 Asbestos:
 - .1 The Contractor shall ensure that when work requires the removal of asbestos material, procedures shall be developed and are site specific. Work to be executed by certified abatement personnel only.
- .35 Manhole and Vault Covers:
 - .1 The Contractor shall ensure that when work requires the temporary removal of a manhole or vault lid, the manhole or vault lid is not left open while unattended. The manhole or vault shall be adequately protected and covered if it becomes necessary to leave it unattended without its lid in place.

END OF SECTION

1.0 GENERAL

1.1 Fires

- .1 Fires and burning of rubbish on site not permitted.

1.2 Disposal of Wastes

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .3 Remove from site wastes and materials specified or designated by the Departmental Representative to be disposed of. Arrange for disposal sites.

1.3 Drainage

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .4 Maintain existing drainage facilities affected by the Work in good operating condition at all times during construction.

1.4 Site Clearing and Plant Protection

- .1 Protect trees and plants on site and adjacent properties where indicated.
- .2 Wrap trees and shrubs adjacent to construction work, storage areas and trucking lanes in burlap, and encase with protective wood framework from grade level to height of 2 m.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.

1.5 Pollution Control

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment to local authority's emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .4 Provide dust control during all truck transport activities.
- .5 Address releases of harmful and/or hazardous substances as required by the Environmental Enhancement and Protection Act, Water Act or any other applicable legislation or municipal bylaw.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

1.0 REQUIREMENTS INCLUDED

- .1 Not used.

2.0 COMPLIANCE WITH REGULATIONS

- .1 Ascertain requirements and regulations of local authorities (gas/power/telephone service providers, Federal authorities, Alberta Environmental Protection, etc.).
- .2 Comply with all such requirements and regulations as applicable to the Work.
- .3 Requirements set out in this Section are for guidance and information and are not necessarily complete.

3.0 PERMITS

- .1 Obtain all construction permits necessary for the Works.

4.0 WORK IN VICINITY OF OVERHEAD POWER LINES

- .1 Request power company to relocate, de-energize or guard any energized conductor where construction equipment may operate within 3.0 m or the stipulated safe operating distance of conductor (whichever is larger).
- .2 Obtain power company approval prior to operating any equipment within 3.0 m or the stipulated safe operating distance of energized conductor (whichever is larger).
- .3 Where practical, avoid storage of metallic pipe sections under high voltage overhead power lines.
- .4 If pipe sections must be stored under power lines, protect personnel from effects of induced currents by grounding pipe sections appropriately.

END OF SECTION

1.0 GENERAL

1.1 Symbols on Drawings

.1 Refer to Drawings for explanation of symbols.

1.2 Abbreviations

.1 Symbol or Abbreviation

A	ampere	6	centreline
AB	anchor bolt	CL	clearance
ABS	acrylonite butadiene styrene (plastics)	cm	centimetre
AC	alternating current	CMP	corrugated metal pipe
Ac	asbestos cement (pipe)	Cr	chrome
AFC	automatic frequency control	CSG	casing
AF	audio frequency	CSK	countersink
A h	ampere hour	CTR	centre
Al	aluminum	Cu	copper
AM	amplitude modulation	cu	cubic
AUX	auxiliary	CULV	culvert
AVG	average	CV	control valve
AWG	American wire gauge	CW	cold water
BBL	barrel		
BLDG	building	dB	decibel
BM	bench mark	DBL	double
BPD	barrels per day	DC	direct current
BRKR	breaker	DIA	diameter
BSMT	basement	DIM	dimension
Btu	British thermal unit	DL	deadload
BWV	backwater valve	DWG	drawing
CB	catch basin	DWV	drain waste vent (plastics)
cc	cubic centimetre		
CCRED	concentric reducer	ECCRED	eccentric reducer
Cd	Cadmium	EHV	extra high voltage
CDN	Canadian	EJCTR	ejector
CDT	conduit	ELB	elbow
CHC	continuous high chair	EMT	electrical metallic tubing
CI	cast iron	EP	epoxy (plastics)
CIP	cast iron pipe	EPDM	ethylene propylene dienemonomer (plastics)
CJ	construction joint	EQ	equal
		ESP	external static pressure

FBM	board foot (foot, board measure)	kg	kilogram
F/C	flanged by compression	km	kilometre
FDN	foundation	km/h	kilometres per hour
Fe	iron	kN	kilonewtons
FF	flat-face	kPa	kilopascals
FLTR	filter	kV	kilovolt
FM	frequency modulation	kVA	kilovolt ampere
FS	forged steel	kW	kilowatt
FSD	flat side down	kW/h	kilowatt per hour
FSL	full surface level		
FSU	flat side up	L	litre
ft	foot	lb	pound
ft/min	foot per minute	LIN	linear
ft/s	foot per second	LL	liveload
		lm	lumen
g	gram	LP	low pressure
g/m ²	grams per square metre	Lpm	litres per minute
GA	gauge	Lps	litres per second
GALV	galvanized	LR	long radius
GRD	electrical ground	lx	illuminance
ha	hectare	m	metre
HC	high chair	mA	milliamperes
HDW	hardware	MAX	maximum
HF	high frequency	m ³ /d	cubic metres per day
HGR	hanger	mg	milligram
HORIZ	horizontal	mg/L	milligrams per litre
hp	horsepower	MH	manhole
HP	high pressure	migd	million imperial gallons per day
hr	hour		
HV	high voltage	MIN	minimum
HW	hot water	MJ	megajoules
HYD	hydrant	mm	millimetre
Hz	hertz	MPa	megapascals
		m/s	metres per second
ID	inside diameter	MTG	mounting
ig	imperial gallons	MW	megawatt
igpm	imperial gallons per minute		
ig/s	imperial gallons per second	N	newton
imp	imperial	NIC	not-in-contract
INV	invert	NPT	National pipe thread
IP	iron pipe	NTS	not-to-scale

oc	on-centre	STA	station
OD	outside diameter	STD	standard
		SW	switch
Pa	pascal	TDH	total differential head
PE	polyethylene	TLLD	total load
pH	hydrogen-ion concentration	TWP	township
PI	point-of-intersection	TYP	typical
ppb	parts per billion		
ppm	parts per million	UGRD	underground
Pt	platinum	UHF	ultra high frequency
PVC	polyvinyl chloride (plastics)	US	American
		UV	ultraviolet
R	radius	V	volt
RED	reducer or reducing	VCT	vitified clay tile
RF	raised-face	VERT	vertical
REINF	reinforce(d)	VHF	very high frequency
REQ	required		
RGE	range	W	watt
RO	rough opening	WCB	water curb box
rpm	revolutions per minute	WOG	water, oil and gas
RR	railroad		
RW	raw water	yd	yard
R/W	right-of-way		
RWL	rainwater leader		
SAN	sanitary (sewer)	°C	degree Celsius
SCH	schedule	°F	degree Fahrenheit
SPEC	specification	Φm	micrometre
sq	square		
sq.m.	square meter		
SR	short radius		

2.0 PRODUCTS

.1 Not used.

3.0 EXECUTION

.1 Not used.

END OF DOCUMENT

1.0 GENERAL

1.1 Latest Editions

- .1 All references to specifications, standards, or methods of technical associations refer to the latest adopted revision, including all amendments, in effect on the date of submission of bids, except where a date or issue is specifically noted.

1.2 Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ARI	Air-Conditioning and Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWMAC	Architectural Woodworkers Manufacturers Association of Canada
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CAN	Canadian National Standard
CBM	Certified Ballast Manufacturers
CBTIC	Clay Brick and Tile Institute of Canada
CEC	Canadian Electrical Code
CEMA	Canadian Electrical Manufacturers Association
CGA	Canadian Gas Association
CGRA	Canadian Good Roads Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CITC	Canadian Institute of Timber Construction
CLA	Canadian Lumbermen Association
CMAA	Crane Manufacturers Association of America
CMHC	Canada Mortgage and Housing Corporation
CPCA	Canadian Painting Contractors Association
CPCI	Canadian Prestressed Concrete Institute
CRCA	Canadian Roofing Contractors Association
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSSBI	Canadian Sheet Steel Building Institute
CUA	Canadian Underwriters Association
CWB	Canadian Welding Bureau
CWC	Canadian Wood Council
CSPI	Corrugated Steel Pipe Institute
DIN	Deutsches Institut Normung
EI	Edison Electric Institute
EIB	Electrical Inspection Branch
EEMAC	Electrical and Electronic Manufacturers of Canada

FFPC	Federal Fire Prevention Committee
FMEC	Factory Mutual Engineering Corporation
FM	Factory Mutual Engineering Corporation
IAO	Insurers' Advisory Organization
IBRM	Institute of Boiler and Radiator Manufacturers
IEC	International Electrotechnical Commission
IEE	Institution of Electrical Engineers (U.K.)
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IGMAC	Insulated Glass Manufacturers Association of Canada
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Standardization Organization
LEMA	Lighting Equipment Manufacturers Association
LTIC	Laminated Timber Institute of Canada
MMA	Millwork Manufacturers Association
NACE	National Association of Corrosion Engineers
NAAMM	National Association of Architectural Metal Manufacturers
NBC	National Building Code of Canada
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLGA	National Lumber Grade Authority
NWTI	National Wood Tank Institute of the USA
OECI	Overhead Electrical Crane Institute
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RLM	RLM Standards Institute
RTAC	Road and Transportation Association of Canada
SAE	Society of Automotive Engineers
SBI	Steel Boilers Institute
SJI	Steel Joist Institute
SSPC	Steel Structures Painting Council
TTMAC	Terrazzo, Tile and Marble Association of Canada
ULC	Underwriters' Laboratories of Canada
USFG	United States Federal Government
WCB	Workers' Compensation Board

1.3 Conformance

- .1 Conform to these standards, in whole or in part as specifically requested in Specifications.
- .2 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves the right to have such products or systems tested to prove or disprove conformance.
- .3 The cost for such testing will be born by Departmental Representative in the event of conformance with Contract Documents or by Contractor in the event of non-conformance.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

.1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Related Documents

- .1 Particular requirements for surveying, inspection, and testing to be carried out by local survey firm or testing laboratory designated by the Departmental Representative are specified under various Sections.

1.2 Inspection and Testing of Work

- .1 Work included: From time to time during progress of the Work, the Departmental Representative may require that Quality Assurance Survey or Testing be performed to determine that materials and workmanship provided for the Work meet the specified requirements. **This Quality Assurance work is in addition to and does not replace the Contractor's responsibility for Quality Control.**
- .2 Related Work Specified Elsewhere: Requirements for testing may be described in various sections of these specifications. Where no testing requirements are described, but the Departmental Representative decides that testing is required, the Departmental Representative may require testing to be performed under current pertinent standards for testing.

1.3 Independent Quality Assurance

- .1 Departmental Representative will appoint, and reimburse Contractor for services of an Independent Land Survey Firm and an Independent Testing Laboratory or Agency to perform whatever Quality Assurance surveying, testing, and inspection is deemed necessary by the Departmental Representative to confirm the compliance of the Work within the Contract Documents.
 - .1 Submit receipts and proof of payment to Departmental Representative for approval.
 - .2 Payment will be made only for tests requested and approved by Departmental Representative, supported by proof of payment as described in Clause 1.3.1.1.
- .2 Departmental Representative will not pay for or reimburse Contractor for any services related to surveying, inspection, or testing of the following:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Additional tests specified in Clause 1.3.3.
- .3 Where tests or inspections by designated testing laboratory reveal work not in accordance with Contract requirements, the Contractor shall pay costs for additional tests or inspections as Departmental Representative may be required to verify acceptability of corrected work.
- .4 Where tests or inspections are called prematurely or the testing laboratory is delayed by the Contractor, the Contractor shall pay all additional costs incurred.

1.4 Laboratories/Agencies

- .1 Independent Survey and Inspection/Testing Agencies will be approved by the

Departmental Representative for the purpose of inspecting and/or testing portions of the Work. Costs of such services will be recovered from the Quality Assurance Cash Allowance.

- .2 The cost of transportation (including shipping charges) shall be borne by the Contractor and not recoverable from the engineering testing cash allowance for materials testing.
- .3 The Contractor and Subcontractor mark-up for the engineering Quality Assurance Cash Allowance shall be included in the Contractor's contract price. The Contractor shall not be allowed to recover the costs of any tests or retests, which indicate the result does not exceed the minimum specified.
- .4 The Contractor shall pay the full cost of all testing required for the approval of materials such as pipe, aggregates, and fittings. The cost of such testing will not be recoverable from the Quality Assurance Cash Allowance.

1.5 Contractor Responsibility for Quality Control

- .1 It is the Contractor's responsibility to carry out whatever quality control surveys, inspections, and testing is required to ensure that the Work is in conformance with the Contract Documents and its associated costs.
- .2 The Contractor cannot rely on the surveys, inspection, or testing that will be carried out by the Independent Survey Firm or Independent Testing Agency for quality assurance by the Departmental Representative; the intention of this surveying and testing is for determination by the Departmental Representative of satisfactorily completed work for Progress Payment.
- .3 All costs required to ensure quality control shall be borne by the Contractor.

1.6 Access to Work and Plant

- .1 Allow the Survey and Inspection/ Testing Agencies access to all portions of Work on site and manufacturing and fabrication plants, as may be necessary to carry out their work. Cooperate to provide reasonable facilities for such access.

1.7 Procedures for Inspection and Testing

- .1 If Work is designated for special tests, inspections, or approvals in the Contract Documents, or by the Departmental Representative's instructions or the laws or ordinances of the Place of the Work, give the Independent Testing Agency and Departmental Representative timely notice requesting inspection. Inspection by the Independent Testing Agency will be made promptly. Arrange for inspections by other authorities and give the Departmental Representative timely notice of the date and time.
- .2 Submit necessary samples and/ or materials required for testing, as specifically requested in the Specifications. Submit with reasonable promptness and in an orderly sequence, so as to cause no delay in Work.
- .3 Provide workers and facilities to obtain and handle samples and/or materials on-site. Provide sufficient space to facilitate the storage and curing of test samples.
- .4 If defects are revealed during survey, inspection and/ or testing, the appointed

agency will request additional survey, inspection and/ or testing to ascertain full degree of defects. Correct defects and irregularities as advised by the Departmental Representative. Pay costs for retesting, re-surveying, and re-inspection.

- .5 The Contractor shall correct defects and irregularities and pay all costs for all additional testing and surveying.

1.8 Covered Work

- .1 If the Contractor covers or permits to be covered work that has been designated for inspections or approvals before they are made, uncover such work, have the inspections or tests satisfactorily completed, and make good such work.
- .2 The Departmental Representative may order any part of the Work to be examined if such work is suspected to be not in accordance with the Contract Documents. If, upon examination, such work is found not in accordance with the Contract Documents, correct such work and pay for cost of examination and correction. If such work is found in accordance with the Contract Documents, the Departmental Representative shall pay the cost of examination and replacement.

1.9 Rejected Work

- .1 Defective work, whether the result of poor workmanship, use of defective products or damage through carelessness or other acts of omission of the Contractor, and whether incorporated in the work or not, which has been rejected by the Departmental Representative as failing to conform to the Contract Documents shall be removed promptly from the work and replaced or re-executed by the Contractor in accordance with the Contract Documents at the Contractor's expense.
- .2 Other work destroyed or damaged by such removals, replacement or re-execution shall be promptly made good at the Contractor's expense.

1.10 Reports

- .1 Submit four (4) copies of inspection and test reports promptly to the Departmental Representative for all requested Quality Assurance Testing as requested by the Departmental Representative.

1.11 Tests and Designs

- .1 Furnish to the Departmental Representative test results and mix designs as specifically requested in the Specifications.
- .2 The cost of test results and mix design shall be borne by the Contractor.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

- 1.0 GENERAL
- 1.1 Section Includes
 - .1 Temporary utilities.
 - .2 Construction facilities.
 - .3 Temporary controls.
- 1.2 Access
 - .1 Prior to closing lanes, commercial crossings, business or residential vehicular accesses, Contractor to provide alternate access. Contractor to obtain street closure permits prior to closing any street.
 - .2 Maintain existing roads used for project site access for the duration of the Contract and make good any damage resulting from Contractor's use of these roads.
 - .3 Clean roadways used by Contractor's equipment.
 - .4 Do not obstruct hydrants, valve or control pit covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility controls, warning systems, and appurtenances.
 - .5 Prior to final inspection, obtain and submit to Departmental Representative written signed releases from owners of all roads used for Site access, verifying that roads have been adequately restored and left in a satisfactory condition.
 - .6 Trim loads of trucks hauling excavated material, cement, sand, stone, gravel, debris or other loose material before leaving the site, and ensure that the bodies of such vehicles are tight so that no spillage of loads occurs.
- 1.3 Installation/Removal
 - .1 Provide temporary utilities in order to execute the work expeditiously.
 - .2 Make necessary applications to Authorities having jurisdiction, obtain required permits, and pay all fees and related charges.
 - .3 Remove from site all such work after use.
 - .4 Restore site to clean, sanitary condition.
- 1.4 Storage Sheds
 - .1 Provide adequate weathertight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
 - .2 Maintain storage sheds in a neat, clean condition.
 - .3 All storage sheds to be located within designated work zone within fenced area.

1.5 Sanitary Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Disinfect facilities frequently.
- .4 Remove contaminated soil and material and replace with fresh, clean material.
- .5 Dispose of sanitary wastes, in accordance with the applicable regulations, and subject to approval of Departmental Representative.
- .6 Provide all sanitary supplies required for use by the Contractor's work force and staff of Departmental Representative.
- .7 Prohibit the committing of nuisance. Promptly discharge any employee violating such provision.
- .8 All sanitary facilities to be located within designated work zone within fenced area.

1.6 Site Enclosures

- .1 Hoarding
 - .1 Provide barricades and covered walkways required by governing authorities for public rights-of-way.
 - .2 Provide secure, rigid guard railings and barricades around deep excavations.
 - .3 All work areas shall be completely fenced off at all times using temporary fencing. Fencing shall be rigidly supported, steel grade with a minimum height of 1.8 m. The Contractor shall maintain the fencing throughout the project duration.

1.7 Power

- .1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.
- .2 Install temporary facilities for power, such as pole lines and underground cables, to approval of local power supply authority.
- .3 Locate temporary power at designated location, or at an acceptable location subject to approval of Departmental Representative.

- 1.8 Water Supply
- .1 Arrange for connection with appropriate utility company, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.
 - .2 Locate temporary water supply at a location acceptable to Departmental Representative.
- 1.9 Maintenance and Public Utilities
- .1 Arrange work to avoid interruption of utilities serving the public. Pay for damage.
 - .2 Where interruption of public utilities is unavoidable, obtain prior approval for interruption from responsible authority.
 - .3 As required by utility authority, establish and pay for temporary relocation of utility during construction.
- 1.10 Materials to be Salvaged
- .1 Remove, clean, deliver, unload and neatly stockpile at the Departmental Representative yard materials which are specified or designated by the Departmental Representative to be salvaged.
 - .2 Repair or replace at Contractor's expense salvaged materials damaged during removal, unloading or in transit.
- 1.11 Equipment, Tool and Materials Storage
- .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
 - .2 Any equipment, tools, and materials must be stockpiled or situated within fenced work zone.
- 1.12 Security
- .1 Provide and pay for responsible security personnel to guard the site and contents of the site after working hours and during holidays.
- 1.13 Construction Cleaning
- .1 Maintain the work in tidy condition, free from the accumulation of waste products and debris, other than that caused by the Departmental Representative or other contractors.
 - .2 Remove waste material and debris from the site and deposit in waste container at the end of each working day.
 - .3 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.
 - .4 Promptly clean up any spillage that occurs on site roads, access roads or public roads, or other areas where construction vehicles are travelling.

- .5 If Contractor is negligent in maintaining cleanliness of roads, Departmental Representative will arrange for cleaning to be done at Contractor's expense.
- .6 Contractor shall not dump waste products, either personal or construction related, into trenches and backfill.
- .7 Contractor to supply, maintain and empty garbage bins along construction site.
- .8 Contractor is encouraged to enforce that recyclable materials be separated and disposed of properly.

1.14 Open Excavations

- .1 All open excavations to be fenced off and/ or covered with steel plates.
- .2 Open excavations impeding on modified traffic flow must be backfilled immediately after utility repair or covered with a steel plate capable of supporting traffic loads, to ensure traffic flow is reinstated.

1.15 Site Signs and Notices

- .1 Safety and Instruction Signs and Notices:
 - .1 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN3-Z321-77.
- .2 Maintenance and Disposal of Site Signs:
 - .1 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 Departmental Representative.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTIONS

- .1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Requirements Included

- .1 Location, protection, removal, and replacement of existing structures and utility works.
- .2 Existing structures and utility works being all existing pipes, ducts, ditches, or other works forming a part of sewerage, drainage, water, telephone, electrical, gas, or other utility systems as well as sidewalks, curbs, poles, fences, buildings, and other man-made things that may be encountered during construction.

2.0 COORDINATION

2.1 Coordination

- .1 Coordinate the protection of all utilities.

3.0 WORKMANSHIP

3.1 Location of Structures and Utility Works

- .1 Locate existing surface and underground structures that may affect the work or may be damaged during construction.
- .2 The existence, location and elevation of utilities and structures are not guaranteed. Determine the existence, location and elevation of all sewer, water, and gas mains, services or lines, electric light, power, cable T.V. or telephone conduits, or other such structures or utilities. Notify the appropriate company, department or persons on intention to carry out operations in the vicinity of any structure or utility, at least one week in advance of any such operations being carried out.

In the case of sanitary, storm sewer and water lines:

Parks Canada

In the case of roads and transportation:

Parks Canada

In the case of telephone conduits or lines:

Telus Communications

In the case of electric power conduits or overhead power lines:

ATCO Electric or Fortis

In the case of gas mains or lines:

ATCO Gas

In the case of Cable TV lines:

Shaw Cable

In particular, the Contractor is cautioned that all opening and closing of existing water main valves are to be carried by Parks Canada.

- .3 Provide the Departmental Representative with letters from the appropriate authority of the utility or utilities involved stating that the Contractor has made satisfactory arrangements with the utility organization for the location, protection and inspection of the utility involved.
- .4 On request from the Departmental Representative, excavate and uncover underground structures and utilities for the purpose of establishing line or grade for proposed installation of piping or other works.

3.2 Protection of Structures and Utilities

- .1 Protect from damage. In the event of damage resulting from the construction operation, repair to a condition which is at least the equivalent of that which existed prior to construction.

3.3 Emergency Situations

- .1 In emergency situations resulting from the construction operation, where life or property are endangered, immediately take whatever action is possible to eliminate the danger and notify the appropriate authorities of the situation.

3.4 Access Maintained

- .1 Maintain access for existing roadways, hydrants, valve or control pit covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility control, warning systems, and appurtenances thereof.

3.5 Support of Structures and Utility Works

- .1 Protect existing structures and utilities against damage from settlement by means of supports or compaction of backfill as approved by the Departmental Representative. Where necessary, supports shall remain in place following backfill of excavations.
- .2 Compact backfill which is placed under or adjacent to existing structures and utilities which have been undermined during excavation in a manner which will prevent damage of the structure or utility from settlement. Backfill with approved crushed granular material less than 50 mm in diameter.

3.6 Drainage Facilities

- .1 Keep clear existing culverts, enclosed drains, flumes and ditches, and other drainage structures affected by the work. When it is necessary to temporarily remove an existing drainage structure, provide suitable temporary ditches or other approved means of handling the drainage during construction.

- .2 Replace culverts and drain pipes at the time of backfilling to line and grade as directed by the Departmental Representative.

END OF SECTION

1.0 GENERAL

1.1 Requirements Included

- .1 Product quality, availability, storage, handling, protection, transportation.
- .2 Manufacturer's instructions.
- .3 Workmanship, co-ordination, protection of work in progress.
- .4 Quantities.
- .5 Ownership.

1.2 Products and Materials

.1 Quality

- .1 Products, materials, equipment and articles (referred to as Products throughout the 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, furnish evidence as to type, source and quality of Products provided.

.2 Availability

- .1 Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of Products are foreseeable, notify the 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 the Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Departmental Representative reserves the right to substitute more readily available products of similar character, at no increase in Contract Amount.

.3 Storage, Handling and Protection

- .1 Handle and store Products in a 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 seals and labels intact. Do not remove from packaging or bundling until required in the Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged Products at own expense and to the satisfaction of the Departmental Representative.

- .5 Contractor to identify location for stockpiles. Stockpiles must be either located offsite in designated areas approved by Departmental Representative or stockpiled on site in a manner such that stockpile is fenced off from public traffic and while maintaining traffic flow under modified traffic restrictions as detailed in this contract.
- .4 Transportation
 - .1 Pay costs of transportation of Products required in the performance of Work.
- 1.3 Manufacturer's Instructions
 - .1 Unless otherwise indicated in the specifications, install or erect Products in accordance with manufacturer's instructions.
 - .2 Notify the Departmental Representative, in writing, of conflicts between the specifications and manufacturer's instructions, so that the Departmental Representative may establish the course of action.
 - .3 Improperly installed or erected Products, shall be removed and re-installed at no increase in Contract Amount.
- 1.4 Workmanship
 - .1 General
 - .1 Execute work by workers experienced and skilled in the respective duties for which they are employed. Notify Departmental Representative immediately if required Work is such as to make it impractical to produce required results.
 - .2 Do not employ any unfit person or anyone unskilled in their required duties. The Departmental Representative reserves the right to require the dismissal from the site, workers deemed incompetent, careless, insubordinate or otherwise objectionable.
 - .3 Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Departmental Representative, whose decision is final.
 - .2 Co-ordination
 - .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 Be responsible for co-ordination and placement of openings, sleeves and accessories.
 - .3 Protection of Work in Progress
 - .1 Adequately protect Work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Departmental Representative, at no increase in Contract Amount.

1.5 Quantities

- .1 Schedules of ungulate fence and gate removal and installation indicating quantity and/or dimension, which are shown on the Drawings or in the specifications, are intended only to assist the Contractor in the quantity takeoff. Quantities and dimensions shown therein are not guaranteed to be accurate and shall be checked by the Contractor prior to placing an order for such materials.
- .2 Claims for additional payment resulting from variations between quantities shown on the schedules and those actually installed will not be accepted.

1.6 Ownership

- .1 All materials provided by the Contractor for execution of the work will vest in and become the property of the Departmental Representative upon delivery to the Site, but will remain in the custody and at the risk of the Contractor until Final Completion.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Section Includes

- .1 Cleaning.
- .2 Project record documents.
- .3 Spare parts and maintenance materials.

1.2 Related Sections

- .1 General Conditions and Special Provisions.
- .2 Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 Progressive Cleaning

- .1 Maintain the Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Departmental Representative or other Contractors.
- .2 Make arrangements with and obtain permits from authorities having jurisdiction for off-site disposal of waste and debris.
- .3 Remove waste material and debris from the site at the end of each working day.
- .4 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.4 Final Cleaning

- .1 In accordance with the General Conditions and Special Provisions.
- .2 At the completion of the construction work, all areas on which work has been done shall be left in a neat and presentable condition.
- .3 All gutters and drainage ditches which have been blocked as a result of the work shall be repaired or restored to their original condition or better.
- .4 Dispose of all surplus excavated material, trees, brush, rock, boulders and pieces of concrete or masonry.
- .5 Rake clean surfaces of grounds.

1.5 Record Documents - Actual Site Conditions

- .1 Departmental Representative will provide one set of prints for record drawing purposes.
- .2 Maintain project record drawings current as work progresses and record neatly and accurately deviations from Contract Documents.

- .3 Record the following information:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by Change Order or Field Order.
- .4 Identify each set of drawings as "Project Record Drawings" and date and sign each set.
- .5 Record changes in red. Mark on one set of prints and at completion of project and prior to interim inspection, neatly transfer notations to second set and submit both sets to Departmental Representative.

1.6 Spare Parts and Maintenance Materials

- .1 Spare parts and maintenance materials provided shall be new, not damaged or defective, and of the same quality and manufacture as Products provided in the Work. If requested, furnish evidence as to type, source and quality of Products provided.
- .2 Defective Products will be rejected, regardless of previous inspections. Replace products at own expense.
- .3 Store spare parts and maintenance materials in a manner to prevent damage, or deterioration.
- .4 Provide spare parts, special tools, maintenance and extra materials in quantities specified in individual specification sections.
- .5 Provide items of same manufacture and quality as items in the work.

1.7 Inspection

- .1 Refer to the General Instructions for contractual requirements.
- .2 Accumulate all necessary data from subtrades and suppliers and present same in the specified format for the approval by the Departmental Representative.
- .3 Once the items of this section are completed and the Contractor has verified that the requirements of the Contract have been performed give five days' notice to the Departmental Representative, in writing, of satisfactory completion of the work and request an Interim Inspection.
- .4 The Interim Inspection will be performed by the Departmental Representative. A list of deficiencies and defects will be tabulated. If in the opinion of the Departmental Representative, the list indicates the project is excessively incomplete, an Interim Certificate of Completion will not be issued. Corrections shall be done expeditiously by the Contractor.
- .5 Once the Interim Certificate of Completion is issued and all deficiencies and defects have been corrected; request a Final Completion inspection, giving the Departmental Representative five days notice.
- .6 The Final Completion Inspection will be performed by the Departmental Representative. If the deficiencies and defects from the Interim inspection are completely corrected, a Final Certificate of Completion will be issued.

- .7 If the Contractor requests either an Interim or Final Completion Inspection when an Interim or Final Completion Certificate cannot be issued, the Contractor will pay expenses for additional visits by the Departmental Representative to re-perform the inspection.

2.0 PRODUCTS

- .1 Not used.

3.0 EXECUTION

- .1 Not used.

END OF SECTION

1.0 GENERAL

1.1 Definitions

.1 Clearing:

- .1 Clearing the areas within the limits of construction shall consist of cutting and disposing of trees, brush vegetative growth and logs above the ground surface.
- .2 Clearing limits along the existing fence line shall be within +/- 0.5 m on either side of the existing fence as indicated on the Drawings.
- .3 Clearing limits along the existing fence line at north side of West Gate and at west and east sides of the North Gate shall be 6.0 m wide on either side of the existing fence as indicated on the Drawings.

.2 Grubbing:

- .1 Grubbing shall not be required except where changes in ground contour require removal of stumps to properly grade the fence line. Grubbing shall consist of removal or close cut stumps within the clearing limits with minimum disturbance to the terrain outside the fence line.

1.2 Regulatory Requirements

- .1 Obtain necessary permits from Authorities Having Jurisdiction and adhere to Provincial, Federal and local bylaws regarding disposal of merchantable timber in the area.

1.3 Protection

- .1 Prevent damage to the fence, trees, landscape, natural features, bench marks, existing buildings, utility lines, site appurtenances, water courses and root systems of trees which are to remain. All damage incurred shall be repaired by the Contractor at their expense.
- .2 Apply tree paint approved by Departmental Representative, to cuts or scars suffered by vegetation designated to remain.

1.4 Measurement for Payment

- .1 Clearing and grubbing includes the supply of all labour, material, and equipment for clearing and grubbing all materials within the areas identified on the drawings or as required.

Work Includes:

- .1 Clearing and grubbing along the existing fence line.
- .2 Clearing and grubbing on the north side of West Gate and at west and east sides of North Gate.
- .3 Disposal of cleared and grubbed material.
- .4 All incidental work for which payment is not specified elsewhere.

.2 Measurement:

.1 Clearing and grubbing will be measured in sq.m.

.3 Payment:

.1 Payment for clearing and grubbing is unit rate per sq.m.

.2 No payment will be made for clearing and grubbing of temporary roads, equipment areas, or working areas as required by the Contractor for their own use.

2.0 PRODUCTS

.1 Supply all labour, materials and equipment required for clearing and grubbing.

3.0 EXECUTION

.1 Undertake clearing and grubbing as required to complete the work. Coordinate extent of clearing and grubbing with Departmental Representative.

.2 All cut trees from clearing along fence line (+/- 0.5 m on either side) could be disposed of in adjacent bush providing that they are cut in 1.2 m length, dispersed in existing bush and in contact with the ground in a manner satisfactory to Departmental Representative.

.3 Clearing along the existing fence at north side of West Gate and west and east sides of North Gate (6.0 m wide on either side) shall be executed using mechanical tree mulcher. Mulch shall be salvaged and distributed as directed by Departmental Representative. On site burning is not permitted.

.4 Where the Contractor fails to observe clearing and grubbing restrictions and limitations, and causes damage to property beyond areas as indicated on the Drawings or as designated by Departmental Representative, such damages shall be the Contractor's liability and shall be corrected immediately at the Contractor's expense.

END OF SECTION

1.0 GENERAL

1.1 Description

- .1 The work covered by this specification shall consist of removal, disposal and installation of wire fencing, vehicle gates and pedestrian gates and shall conform to the approved Construction Drawings, most recent CSA standards and manufacturer's directions.

1.2 Measurement for Payment

- .1 Ungulate fencing shall be measured by the lineal metre complete in place including the length across installed gates measured by the Departmental Representative in the field. Payment will be made at the unit price bid per lineal metre and shall be full compensation for work including all labour, material (wire, line, corner and brace posts, fabric fasteners, hardware, etc.), equipment necessary to complete the work, and all incidental work for which payment is not specified elsewhere.
- .2 The installation of metal gates shall be measured for payment by the unit including installation of gate posts, braces and all incidental work necessary to complete the work.
- .3 Construction of pedestrian access gates shall be measured for payment by the unit including all labour, material, and all incidental work necessary to complete the work.
- .4 The unit of measure for fence removal shall be per lineal meter. The quantity paid shall be the number of lineal meters measured in place. Payment at the Contract price bid per lineal meter shall be full compensation for removal, piling, placing and hauling/ disposal of the materials, post hole filling, and for all equipment, tools, labour, and incidentals necessary to complete the work.
- .5 Clearing fence line: the removal of trees, brush or other obstacles will be measured and paid for in accordance with Section 31 11 00 – Clearing and Grubbing.

2.0 PRODUCTS

2.1 Pressure Treated Wood Posts and Braces

- .1 Pressure treated timber and lumber shall be #1 construction grade Spruce, Western Pine or Douglas Fir dressed and conforming to CSA Standards. Knots that are sound, well spaced, smoothly trimmed and which will not impair the strength of the posts or braces will be permitted, providing they do not exceed 38 mm in diameter on any face. Posts shall be naturally round and shall have all bark peeled or otherwise removed. Allowable taper from end to end of posts shall not exceed 38 mm in diameter.
- .2 Posts and braces shall be treated by pressure methods with alkaline copper quaternary (ACQ) or a chromated copper arsenate (CCA).

- .3 Posts and braces for the wire fence shall be minimum 150 mm diameter, 4267 mm and 3375 mm length and shall be spaced every 4877 mm. Corner posts should be 200 mm diameter and 4267 mm length as indicated on the approved Construction Drawings.

2.2 Woven Wire Fence

- .1 Woven wire galvanized fabric shall conform to CSA Standards.
- .2 Each roll delivered to the job site shall be legibly marked showing the length, name or mark and address of the Manufacturer.
- .3 All wire of a specified class for use on this project shall be of identical design unless otherwise specified by the Departmental Representative.
- .4 The knotted joint woven wire shall be minimum 3.5 mm diameter (number 12 gauge), galvanized. The woven wire shall comprise of 20 horizontal wires, assembled with vertical stay wires 152 mm apart to a height of 2438 mm. Each roll shall be 100 m long.

2.3 Fasteners

- .1 Fittings and hardware: to CAN/CGSB-138.2, cast aluminum alloy, galvanized steel, or ductile cast iron, or as per manufacturer's directions.

2.4 Gates

- .1 Rail prefabricated metal gate shall be made of 48 mm diameter tubing (14 gauge) spaced 184 mm vertically and 4877 mm wide and has to be sufficient to match the requirements as indicated on the approved Construction Drawings.

2.5 Boundary Signs

- .1 Park boundary signs identify the perimeter of a national park and shall consist of the Park Canada signature, a text message and the Parks Canada identifier (combination of beaver symbol and the "Canada" wordmark). Refer to the approved Construction Drawings.
- .2 Parks Canada signature shall be standard, pre-fabricated; text message – standard, prefabricated, black colour; Parks Canada identifier – standard, pre-fabricated, black colour; border – black colour; panel background – boundary marker yellow. Signature typeface shall be Helvetica Neue 75 ©. Substitutions with any other font are not acceptable.

2.6 Pedestrian Gate

- .1 Pedestrian gate shall be constructed using 38 mm x 140 mm and 38 mm x 87 mm alkaline copper quaternary (ACQ) pressure treated timber.

3.0 EXECUTION

3.1 Woven Wire Fencing Installation

- .1 Fencing shall be constructed in accordance with the approved Construction Drawings by Department Representative at the locations as designated on the approved Construction Drawings.
- .2 All trees, brush, existing fence and other obstacles which interfere with the construction of the fence shall be removed prior to commencing fence construction. Remove existing fence where indicated on the drawings and clear +/- 0.5 m on either side of the existing fence for new wire fence installation.
- .3 Grubbing is not required except where short and abrupt changes in ground contour require removal of stumps to properly grade the fence line. Remove or close cut stumps within the clearing limits. Perform clearing and grading (levelling) with minimum disturbance to the terrain outside the fence line.
- .4 Opening for gates shall be provided at locations indicated on the approved Construction Drawings.
- .5 Install corner post assembly where fence alignment changes 10 degree or more.
- .6 Bracing is required at all corners, ends, and gates. End bracing is required where the fence ends on each side of a gate opening. When the fence is more than 200 m between corner posts, install braced-line post assemblies every 200 m (on straight) and 100 m (on curves) in the fence line.
- .7 Over uneven terrain, additional bracing may be required between corner, end, and brace posts.
- .8 Maximum spacing of line posts should be 4877 mm on centre.
- .9 The posts shall be driven into the soil with power equipment (hand raised/ dropped weighted driver, machine driven ram with a friction, pneumatic or hydraulic drive) to the required depth of 1679 mm. Driven posts are installed small diameter end down and perpendicular to the soil surface.
- .10 Place the wire on the Elk Island National Park side of the line post. Ensure the wire is flush with the ground and there are no gaps due to terrain irregularities. Install and stretch the wire in sections running from one corner or brace post assembly to the next. Wires shall be parallel to the ground on uneven terrain.
- .11 All fence wire shall be pulled with hand stretchers, or tensioning apparatus capable of adjustment.
- .12 Use galvanized staples or the wire clips to attach wire to posts. Minimum staple size shall be 40 mm. Staples should be driven obliquely at a slight downward angle, allow 3 mm play for the wire to slide through the staple.
- .13 Do not tighten the fence staples or wire in order to achieve a uniform tension on the wires when strengthening the fence. At the end brace wrap free end of each line wire around the end post and wrap on itself, do not depend only on staples to hold the fence wire tension.
- .14 Fasten wire to line posts starting at the end farthest from the stretcher.

- .15 The knotted joint woven wire shall be joined by using a wrap - splice, which is required at each horizontal wire (20 joints). Leave 150 mm of line wire beyond the end stay. Lay together the end stay wires of each of the two sections to be spliced, then wrap the free ends tightly around the line wire with pliers or splicing tool. The line wire ends shall be twisted a minimum of four wraps around the corresponding wire and trimmed. The end of each wire should be bent perpendicular to the horizontal wire.
- .16 The Departmental Representative will not be responsible for access to certain areas in wet conditions and the Contractor may need to wait until late Fall to complete fence installation. For construction in wet conditions, fence and posts shall be installed at the bottom of water body.

3.2. Gate Installation

- .1 Gates should be installed where indicated on the approved Construction Drawings and as per detail drawing.
- .2 Level ground between gate posts and set gate bottom approximately 300 mm above ground surface.

3.3 Boundary Sign

- .1 Boundary signs shall be installed every 100 m and as indicated on the approved Construction Drawings and as per the detail drawing.

3.4 Pedestrian Gate

- .1 Pedestrian gates shall be constructed at the location indicated on the approved Construction Drawings and as per the detail drawing.

3.5 Remove and Dispose of Existing Fences and Gates

- .1 Where removal and disposal of existing fences and gates is specified, the Contractor shall completely remove the fence and gate, and at their own expense, dispose of all materials at locations acceptable to the Department Representative.
- .2 Direct hydraulic uplift or lever with a small arc on the post arm shall be utilized to remove existing posts. In all cases when removing posts, safety goggles and gloves should be used. Use caution as significant forces are involved. Posts may suddenly release and move towards the operator. The Contractor will not be allowed to abandon the bottom of the post in hole if it happens to brake. Some of the existing posts have been treated with creosote and must be disposed accordingly.
- .3 All holes resulting from the removal of the existing fence posts shall be filled with sand or granular material.

3.6 Touch Up

- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.

3.7 Cleaning

- .1 Clean and trim areas disturbed by operations. Dispose of surplus material as reviewed by Departmental Representative.

END OF SECTION