Replacement of perimeter lighting
La Macaza Institution

Project N°: 550-2-352-3521
O/Ref.: 171-16209-00

2018-07-16

SPECIFICATION

FOR TENDER

These documents cannot be used for construction or fabrication purposes

2018-07-18

WSP Canada Inc.
480, de la Cité Boulevard, Suite 200
Gatineau (Quebec) J8T 8R3

Telephone: (819) 243-2827
FAX : (819) 243-2019

Gatineau, July 2018

SPECIFICATIONS

DIVISION 26 ELECTRICAL

DIVISION 31 EARTHWORK

DIVISION 32 EXTERIOR IMPROVEMENTS

ANNEX

Part 1 General

1.1 REFERENCES

.1 Canadian Highway Bridge Design Code, CSA S6;

.2 Manuel de conception des structures de signalisation, d'éclairage et de signaux lumineux, (Signal, Lighting and Light Signal Structure Design Manual) MTQ ;

.3 Manuel des structures de signalisation – Inventaire, inspection et entretien, (Signal Structures Manual – Inventory, Inspection and Maintenance) MTQ ;

.4 Le code de construction du Québec, Chapter V – Electricity (C22.10).

1.2 DESCRIPTION OF THE WORK

.1 The project includes the following work: (The list below is not necessarily exhaustive and in no way releases the Contractor from the obligation of carrying out the project in its entirety according to generally accepted practices as well as the intentions and general principles as described in these specifications and drawings).

.1 Dismantle the catenary perimeter lighting system in place and the double brackets, and preserve the lighting poles;

.2 Provide, install and connect double brackets to LED on 57 poles;

.3 Replace the cables in the poles, between the poles and up to the main power source;

.4 Repair the bases and poles;

.5 Perform all other related work.

1.3 SECURITY SCREENING

.1 All workers shall undergo security screening in order to be granted a security classification as required by the Correctional Service of Canada and Public Works and Government Services Canada.

.2 Section 01 35 13 provides a detailed description of the procedures involved in the security screening.

.3 At the start of work, a job-site special meeting will be held with institution representatives to define the instructions governing security and site operation in a correctional environment.

1.4 CODES

.1 The specifications will require that the work and materials comply with the National Building Code of Canada (NBC) and all other applicable provincial or local codes. The strictest requirements shall apply in case of contradiction or discrepancy.

.2 The work shall be performed in a manner that meets or exceeds the following requirements:

.1 Contract documents

.2 Specified standards and codes as well as other documents cited as references

1.5 REQUIRED DOCUMENTS

.1 A copy of the following documents shall be kept at the job site:

.1 Contract drawings;
.2 Specifications;
.3 Amendments;
.4 Amended shop drawings;
.5 Modification orders;
.6 Other contract amendments;
.7 On-site test reports;
.8 Approved work schedule;
.9 Manufacturer installation and start-up instructions;
.10 License of occupation of public space.

1.6 WORK SCHEDULE

.1 The successful bidder shall initiate work immediately upon receiving notice that the contract has been awarded. The work covered by this document, including measures to correct construction deficiencies, must be completed within the schedule specified herein. Failure to comply with the schedule shall be dealt with as provided for in the Standard Acquisition Clauses and Conditions (SACC) Manual, Public Works and Government Services Canada (PWGSC).

.2 Within 5 business days of contract award, submit a work schedule for the various project phases and the completion date, which must be within 16 weeks of contract award.

.3 Within 5 business days of contract award, submit security screening applications for approval.

.4 The work sequence is as follows:

.1 Start-up meeting and schedule submission, shop drawings, technical data sheets, samples, and security screening applications for approval.
.2 Approval of documents submitted .
.3 Construction start-up.
.4 Start of works:
.5 Submission of operating and maintenance manuals for approval.
.6 Provisional acceptance.
.7 Correction of deficiencies
.8 Final approval

.5 Within five (5) business days of contract award, the Contractor shall provide, in a format acceptable to the Project Manager, a work schedule indicating:

.1 Dates for submitting shop drawings, lists of materials, and samples.
.2 Delivery dates for the equipment and materials.

.3 Start-up and completion dates for the work described in each section of the specifications.

.4 Final completion date with respect to the completion date stipulated in the contract documents.

.6 Changes to milestones in the submitted schedule shall be at the discretion of the CSC Project Manager. The schedule shall be updated by the Contractor with the cooperation and approval of the CSC Project Manager.

.7 The following work shall be performed outside normal working hours: the PLC replacement. This work must be coordinated with the CSC Project Manager.

.8 The building will be maintained in operation during works. The residents are permanent 24 hours a day.

1.7 MEASUREMENTS FOR PAYMENT PURPOSES

.1 The Engineer must be informed sufficiently prior to the start of work so that he or she can make the measurements required for payment purposes.

1.8 CONTRACTOR'S USE OF THE SITE

.1 The institution must remain fully operational during construction. With this end in view, the CSC Project Manager or the institution's head of security can require the Contractor to halt work immediately on a temporary basis to prevent institution activities from being compromised.

.2 Use of premises: limited access to the job site. Work and affected engineering structures outside the construction site must be carried out by a crew accompanied by an escort provided by CSC (see section 01 35 13).

.3 Within 5 business days of contract award, submit a construction site plan.

.4 The license of occupation of public space is contractor’s responsibility.

.5 The Contractor shall perform the work so as to disturb the occupants as little as possible and, to the degree possible, ensure that normal use can be made of the facilities. The Contractor shall also cooperate with the CSC Project Manager to facilitate performance of the work. The work schedule shall be previously planned and authorized.

.6 Existing services in the buildings must be maintained during the project.

1.9 NOISY ENVIRONMENT AND CELL-PHONE USE

.1 No radios or "boom boxes" shall be tolerated at the job site.

.2 Cell telephones are prohibited within the perimeter of the penitentiary.

1.10 JOB-SITE MEETINGS

.1 Job-site meetings shall be held at times and places subject to the approval of the CSC Project Manager.

.2 The Project Manager shall organize job-site meetings, set their dates and times, and ensure that minutes are drafted and distributed.

1.11 LOCATION OF EQUIPMENT AND VARIOUS PIECES OF EQUIPMENT

.1 The location of various devices and pieces of equipment as well as the electrical outlets indicated on the drawings and in the specifications must be considered approximate.

.2 The Contractor shall install equipment and devices as well as distribution networks so as to limit hindrances and keep the largest amount of useful space possible while complying with manufacturer recommendations related to safety, access, and maintenance.

1.12 CONCEALED WORK

.1 Unless indicated otherwise, pipes, conduits, ducts, and wiring in floors, walls, and ceilings in finished areas shall be concealed.

1.13 DRILLING AND SEALING

.1 The Engineer's approval shall be obtained before cutting or drilling in bearing members or inserting sleeves.

.2 Drilling and sealing shall be performed so as to ensure that connections are exact and with no play.

.3 Holes and openings must be clean, straight, and smooth.

.4 When the addition of a new structure requires modifications to an existing one, all required drilling, sealing, and other repairs shall be carried out to restore the existing structure to its condition prior to the work.

1.14 EXISTING SYSTEMS

.1 When connections must be made to existing systems, the work shall be carried out at times determined by local authorities and performed so as to minimize disruption of pedestrian and vehicular traffic.

.2 Should installations be discovered during the course of work, the Engineer shall be immediately informed and a written report containing the observations provided to him.

1.15 MODIFICATIONS, ADDITIONS, OR RENOVATION OF EXISTING BUILDINGS

.1 The Contractor shall perform the work so as to disturb the occupants as little as possible and, to the degree possible, ensure that normal use can be made of the facilities. The Contractor shall also cooperate with the CSC Project Manager to facilitate performance of the work.

.2 At no time shall the safety measures be relaxed because of the work to be carried out under this contract. The Contractor shall take the steps required to ensure the level of safety required.

.3 The Contractor shall use only those elevators, freight elevators, conveyors, and escalators reserved for his or her use to move materials and personnel. Before the Contractor uses an elevator, the cabin walls shall be protected as directed by the Engineer. The Contractor accepts liability for any damage to such devices, for their safe and proper use, and for any overloading of the existing equipment.

.4 When work is to be carried out in occupied spaces, the Contractor shall provide and install whatever is required to protect the furnishings, equipment, and finish work; install

dust barriers, partitions, and temporary notices; and clean the area at the end of each work day.

1.16 SUPPLEMENTAL DRAWINGS

.1 The Engineer may provide supplemental drawings for clarification Such supplemental drawings shall be considered to have the same meaning and scope as the contract documents.

1.17 REMAINS AND ANTIQUES

.1 Remains, antiques, and other items of historical or scientific interest, such as cornerstones and their contents, commemorative plaques, and other objects bearing inscriptions discovered during the project.

.2 The CSC Project Manager shall be informed immediately; authorization in writing is required before work can be resumed.

.3 Remains, antiques, and other items of historical or scientific interest are the property of the Crown.

1.18 RESTRICTIONS RELATED TO TOBACCO USE

.1 Restrictions regarding the use of tobacco inside buildings shall be complied with. Smoking inside the buildings is prohibited.

1.19 ASBESTOS

.1 Removing sprayed or troweled-on asbestos can be a health risk. If, during the course of the work, the Contractor encounters materials that appear to be sprayed or troweled-on asbestos, he shall halt work and immediately inform CSC Project Manager. Work shall not be resumed unless so authorized in writing by the Project Manager.

1.20 OPERATING MANUAL

.1 The Contractor shall submit, for approval, three (3) copies of an operating manual containing the following items:

- .1 Table of contents
- .2 List of suppliers and their contact information
- .3 Warranties
- .4 Approved shop drawings
- .5 Operating and maintenance guides
- .6 As-built drawings

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to occupants, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.4 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for pedestrian, personnel and vehicular traffic.

1.5 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work Monday to Friday from 07:00 to 18:00 hours.

.2 Submit schedule in accordance with Section 01 32 16.07- Construction Progress Schedule - Bar (GANTT) Chart.

.3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.4 Keep within limits of work and avenues of ingress and egress.

.5 Ingress and egress of Contractor vehicles at site is limited to the periphery of the site. If vehicles must enter the secure area, they shall be authorized by the Departmental Representative in accordance with Section 01 35 13 – CSC Security Requirements.

.6 Deliver materials outside of peak traffic hours unless otherwise approved by Departmental Representative.

1.6 SECURITY

.1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

.2 Security clearances:

.1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.

.2 Obtain requisite clearance, as instructed, for each individual required to enter premises.

.3 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

.3 Security escort:

.1 Personnel employed on this project must be escorted when executing work at all times.

.2 Submit an escort request to Departmental Representative at least 14 days before service is needed. For requests submitted within time noted above, costs of security escort will be paid for by Departmental Representative. Cost incurred by late request will be Contractor's responsibility.

.3 Any escort request may be cancelled free of charge if notification of cancellation is given at least 4 hours before scheduled time of escort. Cost incurred by late request will be Contractor's responsibility.

.4 Calculation of costs will be based on average hourly rate of security officer for minimum of 8 hours per day for late service request and of 4 hours for late cancellations.

1.7 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under sections as follows:

1.2 APPOINTMENT AND PAYMENT

.1 Departmental Representative will appoint and pay for services of testing laboratory except follows:

- .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 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
- .4 Mill tests and certificates of compliance.
- .5 Tests specified to be carried out by Contractor under supervision of Departmental Representative.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.3 CONTRACTOR'S/DESIGN-BUILDER'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

- .1 Provide access to Work for inspection and testing.
- .2 Facilitate inspections and tests.
- .3 Make good Work disturbed by inspection and test.
- .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.2 Notify Departmental Representative 48 hours minimum sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

- .1 Appointment of official representative of participants in the Work.
- .2 Schedule of Work: in accordance with Section 01 32 16.07- Construction Progress Schedules - Bar (GANTT) Chart.
- .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00- Submittal Procedures.
- .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00- Construction Facilities.
- .5 Delivery schedule of specified equipment.
- .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .7 Owner provided products.
- .8 Record drawings in accordance with Section 01 33 00- Submittal Procedures.
- .9 Maintenance manuals in accordance with Section 01 78 00- Closeout Submittals.

.10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00- Closeout Submittals.

.11 Monthly progress claims, administrative procedures, photographs, hold backs.

.12 Appointment of inspection and testing agencies or firms.

.13 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 Schedule meetings that shall take place at least once a week while the work is ongoing. The Departmental Representative shall call more, if necessary.

.2 Contractor, major Subcontractors involved in Work Departmental Representative are to be in attendance.

.3 Notify parties minimum 5 days before.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after the meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

.11 Review proposed changes for affect on construction schedule and on completion date.

.12 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Submit to Departmental Representative within 2 weeks of the contract award all documents and a sample for approval and/or information.

.3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule.

1.5 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award.
.2 Shop Drawings, Samples.
.3 Mobilization.
.4 Excavation.
.5 Lighting.
.6 Electrical.
.7 Testing and Commissioning.

1.7 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8 PROJECT MEETINGS

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

.2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

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

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

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

.7 Verify field measurements and affected adjacent Work are co-ordinated.

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

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

.10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.5 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.6 Accompany submissions with transmittal letter containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.7 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.8 After Departmental Representative's review, distribute copies.

.9 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.10 Submit 1 electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.11 Submit 1 electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been within 3 years of date of contract award for project.

.12 Submit 1copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.13 Submit 1electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.14 Submit 1 copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.15 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit 1copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.17 Delete information not applicable to project.

.18 Supplement standard information to provide details applicable to project.

.19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 SAMPLES

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

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

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

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

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

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

1.4 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00- Quality Control.

1.5 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copy monthly with progress statement.

.2 Project identification: name and number of project and date of exposure indicated.

1.6 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 PURPOSE

.1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

1.2 DEFINITIONS

.1 "Contraband" means:

.1 an intoxicant, including alcoholic beverages, drugs and narcotics,

.2 a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,

.3 an explosive or a bomb or a component thereof,

.4 currency over any applicable prescribed limit $50.00,

.5 any item not described in paragraphs .1 to .4 that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.

.2 "Unauthorized Smoking Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing or snuffing tobacco, cigarette making machines, matches and lighters.

.3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.

.4 "CSC" means Correctional Service Canada.

.5 "Director" means Director or Warden of the Institution as applicable or their representative.

.6 "Construction employees" mean persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.

.7 "Departmental Representative" means the Public Works and Government Services Canada (PWGSC) or the Correctional Service Canada (CSC) project manager depending on project.

.8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.

.9 "Construction zone" means the area as shown on the contract drawings where the contractor will be allowed to work. This area may or may not be isolated from the security area of the institution.

1.3 PRELIMINARY PROCEEDINGS

.1 Prior to the commencement of work, the contractor shall meet with the Director to:

.1 Discuss the nature and extent of all activities involved in the Project.

.2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.

.2 The contractor will:

.1 Ensure that all construction employees are aware of the CSC security requirements.

.2 Ensure that a copy of the CSC security requirements is always prominently on display at the job site.

.3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

1.4 CONSTRUCTION EMPLOYEES

.1 Submit to the Director a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.

.2 Allow two (2) weeks for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at the institution where the project is taking place.

.3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all time while employees are at the institution.

.4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.

.5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:

.1 appear to be under the influence of alcohol, drugs or narcotics.

.2 behave in an unusual or disorderly manner.

.3 are in possession of contraband.

1.5 VEHICLES

.1 Drivers of delivery vehicles for material required by the project shall not require security clearances but must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or Commissionaires while in the Institution.

.2 All unattended vehicles on CSC property shall have windows closed; doors and trunks shall be locked and keys removed. The keys shall be securely in the possession of the owner or an employee of the company that owns the vehicle.

.3 No trailer shall be permitted to be left outside the hours of work.

.4 The director may limit at any time the number and type of vehicles allowed within the Institution.

1.6 PARKING

.1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

1.7 SHIPMENTS

.1 All shipments of project material, equipment and tools shall be addressed in the Contractor's name to avoid confusion with the institution's own shipments. The contractor must have his own employees on site to receive any deliveries or shipments. CSC staff will NOT accept receipt of deliveries or shipments of any material equipment or tools for the contractor.

1.8 WORK HOURS

.1 Work hours within the Institution are: Monday to Friday 07:30 AM to 4:00 PM.

.2 Work will not be permitted during weekends and statutory holidays without the permission of the Director. A minimum of three days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waved by the Director.

1.9 OVERTIME WORK

.1 No overtime work will be allowed without permission of the Director. Give a minimum forty-eight (48) hours advance notice when overtime work on the construction project is necessary and approved. If overtime work is required because of an emergency such the completion of a concrete pour or work to make the construction safe and secure, the contractor shall advise the Director as soon as this condition is known and follow the directions given by the Director. Costs to Canada for such events may be attributed to the contractor.

.2 When overtime work, weekend statutory holiday work is required and approved by the Director, extra staff members may be posted by the Director or his designate, to maintain the security surveillance. The actual cost of this extra staff may be attributed to the contractor.

1.10 TOOLS AND EQUIPMENT

.1 Maintain on site a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required.

.2 Throughout the construction project maintain an up-to-date list of tools and equipment specified above.

.3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridge-driven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.

.4 Store all tools and equipment in approved secure locations.

.5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor.

.6 Scaffolding shall be secured and locked when not erected and when erected, shall be secured in a manner agreed upon with the director.

.7 All missing or lost tools or equipment shall be reported immediately to the Director.

.8 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:

.1 At the beginning and conclusion of every construction project.

.2 As per Director's requirement.

.9 If propane or natural gas is used for heating the construction, the institution will require that an employee of the contractor supervise the construction site during non-working hours.

1.11 PRESCRIPTION DRUGS

.1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

1.12 SMOKING RESTRICTIONS

.1 Contractors and construction employees are not permitted to smoke inside correctional facilities or outdoors within the perimeter of a correctional facility and must not possess unauthorized smoking items within the perimeter of a correctional facility.

.2 Contractors and construction employees who are in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist, will be directed to leave the institution.

.3 Smoking is only permitted outside the perimeter of a correctional facility in an area to be designated by the Director.

1.13 CONTRABAND

.1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.

.2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.

.3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.

.4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

1.14 ELECTRONIC APPLIANCES

.1 Cell phones, laptops, USG flash drives and other electronic appliances are not permitted within the perimeter of the institution unless prior approval of the Director is received.

1.15 SEARCHES

.1 All vehicles and persons entering institutional property may be subject to search.

.2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband or unauthorized items, he may order that person to be searched.

.3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

1.16 ACCESS TO AND REMOVAL FROM INSTITUTIONAL PROPERTY

.1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

1.17 MOVEMENT OF VEHICLES

.1 The contractor shall advise the Director twenty four (24) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.

.2 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or Commissionaires working under the authority of the Director.

.3 Vehicles shall be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the institution.

.4 Private vehicles of construction employees will not be allowed within the security perimeter of medium or maximum security institutions without the authorization of the Director.

1.18 MOVEMENT OF CONSTRUCTION EMPLOYEES ON INSTITUTIONAL PROPERTY

.1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.

.2 However, notwithstanding paragraph above, the Director may:

.1 Prohibit or restrict access to any part of the institution.

.2 Require that in certain areas of the institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when escorted by a member of the CSC security staff or a commissionaire.

.3 Construction employees are not permitted to eat in the officer's lounge or the dining room of the institution.

1.19 SURVEILLANCE AND INSPECTION

.1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.

.2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

1.20 STOPPAGE OF WORK

.1 The director may order at any time that the contractor, his employees, sub-contractors and their employees to not enter or to leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor shall note the name of the CSC staff member giving this instruction, the time of the request and obey the order as quickly as possible.

.2 The contractor shall advise the Departmental Representative of this interruption of the work within 24 hours.

1.21 CONTACT WITH INMATES

.1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any construction employee doing any of the above will be removed from the site and his security clearance revoked.

.2 It is to be noted that cameras are not allowed on CSC property.

.3 Notwithstanding the above paragraph, if the director approves of the usage of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

1.22 COMPLETION OF CONSTRUCTION PROJECT

.1 Upon completion of the construction project or, when applicable, the takeover of a facility, the Contractor shall remove all remaining construction material, tools and equipment that are not specified to remain in the Institution as part of the construction contract.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 CONTENT

.1 The general contractor must make sure that during his activities, the public and his employees' health and safety and the protection of the environment will always prevail on cost or schedule issues.

1.2 REFERENCES

.1 Working Canadian Code, part II, Canada Occupational Safety and Health Regulations.

.2 Canadian Standard Association (CSA).

.3 Workplace Hazardous Materials Information System (SIMDUT) /Health Canada.

.1 Data sheet.

.4 Act respecting Occupational health and safety, L.R.Q. Chapitre S-2.1.

.5 Safety Code for the construction industry, S-2.1, r.6.

1.3 DOCUMENTS/SAMPLES

.1 Submit all documents and samples in conformity with the section 01 33 00 –Submittal Procedures.

.2 10 days before construction start, transmit to the CSC representative and to the *Commission de la santé et de la sécurité du travail* (CSST) the health and safety program specific to the construction activity as described in the section 1.8. If necessary, the contractor must update his prevention program to reflect any changes to the initial plans. Following the reception of the prevention program and at any time during the work, the CSC representative can ask for its modification to adapt it to the work on site. The contractor will have to proceed with the required modifications before work start.

.3 Transmit to the CSC representative a copy of any federal or provincial inspector's inspection reports, notice of corrections or recommendations within 24 hours of their reception.

.4 Transmit to the CSC representative any investigation report concerning any accident with injury or pointing out any potential hazard for health and safety within 24 hours of their reception.

.5 Transmit to the CSC representative the data sheet for all controlled product at least three (3) days before they are used on site.

.6 Transmit to the CSC representative a copy of the formation certificates required for the application of the prevention program including:

.1 General health and safety course on work sites;

.2 Security agent certificate;

.3 First-aid and CPR on work sites;

.4 Work subject to asbestos conditions;

.5 Work in enclosed spaces;

.6 Locking/securing procedures;

.7 Wearing and adjustment of individual protection equipment;

.8 Forklift truck safe use;

.9 Working platform lift;

.10 and any other formation required by regulations or by the prevention program.

.7 Medical examinations: when required by law, regulation, directive, specification or by a prevention program, the general contractor must:

.1 Before mobilisation, transmit to the CSC representative the medical examination certificate for all surveillance employees and any other employee attending the first site meeting concerned by this article's first paragraph.

.2 Afterwards, transmit as one goes along and without any delays all medical examination certificates of any new incoming worker concerned by this article's first paragraph.

.8 Emergency plan: the emergency plan, as described in the article 1.7.3, must be transmitted to the CSC representative with the prevention program.

.9 Notice of work start : the notice of work start must be transmitted to *Commission de la santé et de la sécurité du travail* before the work start and copied to the CSC representative. A copy of this notice must be available and visible on site at all time. During demobilisation, the notice of end of work must be transmitted to the CSST with a copy to the CSC representative.

.10 Engineer's plans and notice of conformity: the general contractor must transmit to the CSST and to the CSC representative an engineer' signed and sealed copy of all the plans and notice of conformity required in virtue of the Safety Code for the construction industry (S-2.1, r. 6), of any other law, rules or any clause from the specifications or the contract. A copy of those documents must be available at all time on the work site.

.11 Certificate of conformity delivered by the CSST: the certificate of conformity is a document delivered by the CSST and confirms that the general contractor complies with the CSST requirements, that he has paid all amount due in relation with the awarded contract. This document must be transmitted to the CSC representative at the end of work.

1.4 EVALUATION OF THE RISKS

.1 The general contractor must identify all related risks to the various tasks on site.

.2 The general contractor must plan and organize his work in order to favour the elimination of the danger at the source or the collective protection and minimize the use of individual protection equipment. When the use of individual protection equipment is required in situations of falling hazards, the workers must use a safety harness in conformity with the norm CAN/CSA-Z-259.10-M90. The safety belt must not be used as a falling protection.

.3 Any equipment, tool or mean of protection that cannot be installed or used without compromising the health and safety of the workers is considered inadequate for the work.

.4 All mechanical equipment must be inspected before their delivery on site. Before using a mechanical equipment, the general contractor must transmit to the CSC representative a certificate of conformity signed by an approved mechanic. At any time, if the CSC representative suspects a defect or a risk of accident, he can order the immediate shutdown of the machine and require a second inspection performed by a specialist of his choice.

1.5 MEETINGS

.1 A decision-making representative of the general contractor must attend all meetings about job site health and safety issues.

1.6 RULING AGENCY REQUIREMENTS

.1 Comply with all rules, regulations and applicable norms for the execution of the work.

.2 Follow the prescribed norms and rules in order to assure a normal course of events in the work progress in situations of contaminated grounds by toxic products.

.3 Despite the publication date of the indicated norms in the Safety Code for the construction industry, always use its most recent and applicable version during work.

1.7 LOCAL CONDITIONS

.1 On this worksite, the contractor must take into account all of the particularities a penal institution can have.

1.8 HEALTH AND SAFETY MANAGEMENT

.1 Accept and assume all tasks and obligations normally assigned to the master-builder in accordance with the *Loi sur la santé et la sécurité du travail* (L.R.Q., chapitre S-2.1) and the Safety Code for the construction industry (S-2.1, r.6).

.2 Develop a prevention program specific for the work based on identification of the risks and put this program in application from the beginning of work to its demobilization. The prevention program must take into account the information in the article 1.7. It must be transmitted to all person involved in conformity with the article 1.2. The prevention program must include :

.1 The business policy regarding health and safety;

.2 The description of the work, the total cost of the work, the schedule with its workforce chart;

.3 A flowchart of the health and safety's responsabilities;

.4 The physical and material organization of the job site;

.5 The first-aid norms;

.6 The identified risks on the job site;

.7 The identification of the risks related to the work to be executed, including the prevention program and their applicability modality;

.8 The required formation;

.9 The procedures in situation of accident/injuries;

.10 A written commitment from all stakeholders to comply with this prevention program;

.11 A job site inspection schedule based on the prevention measures.

.3 The general contractor must develop an efficient emergency plan, in relation with the job site characteristics and conditions. The emergency plan must be transmitted to all involved stakeholders, in conformity with the article 1.2. The emergency plan must include:

.1 The evacuation procedure;

.2 The identification of the resources (police, firefighter, ambulance, etc.);

.3 The identification of the persons in charge of the job site;

.4 The identification of the first-aiders;

.5 The required formation for the persons in charge of its application;

.6 And any other information necessary related to the job site characteristics.

1.9 RESPONSABILITIES

.1 No matter what is the size of the job site or the number of workers on site, always have an identified competent superviser responsible of the health and safety. Take all necessary measures to assure the health and safety of peoples and goods on and in the proximity of the job site that could be affected by the execution of the work.

.2 Take all necessary measures to assure the application and the respect of all health and safety requirements indicated in the contractual documents, the federal and provincial regulations, the applicable norms and the prevention program specific for the job site and comply immediately to any prescription or notice of correction issued by the CSST.

.3 Take all necessary measures to maintain the job site clean and in good order during the work.

1.10 COMMUNICATION AND SIGNAGE

.1 Take all necessary measures to assure an efficient communication of the health and safety information on the job site. As soon as they arrive on the job site, all workers must be informed of the particularities of the prevention program, of their obligations and rights. The general contractor must insist on the worker's right to refuse to execute a work if they believe this work could imperil their health, their safety, their own physical integrity or the one of the other persons on the job site. The general contractor must maintain on the job site an updated register with the information transmitted and the signature of all the workers who received this formation.

.2 The following information and documents must be displayed in an easily accessible place for the workers :

.1 Notice of work start;

.2 Identification of the master-builder;

.3 The business policy regarding health and safety at work;

.4 The prevention program specific to the job site;

.5 The emergency plan;

.6 Data sheet of all controlled products used on the job site;

.7 Minutes of meeting of the construction site committee;

.8 Name of the first-aiders;

.9 Intervention and correction reports published by the CSST.

1.11 UNFORSEENS

.1 When a source of danger not specified in the specifications and not identified during the preliminary inspection of the job site occurs during the execution of the work, the contractor must immediately stop the work, set up temporary protection measures for the workers and the public and warn the CSC representative verbally and by writing.

.2 The contractor must afterwards proceed with the necessary modifications to the prevention program for the work to resume safely.

1.12 BLASTING

.1 The use of dynamite or any other explosives is prohibited, unless authorization has been provided in writing by the Departmental Representative.

1.13 CAULKING GUNS AND OTHER CARTRIDGE DEVICES

.1 Caulking guns or any other cartridge devices are forbidden on the CSC property. Refer to section 01 35 13.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canada Green Building Council (CaGBC)

.2 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008 Stipulated Price Contract.

1.2 DEFINITIONS

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

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

.2 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.

.3 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.5 Include in Environmental Protection Plan:

.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.

.1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

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

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

.8 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.9 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.10 Waste Water Management Plan identifying methods and procedures for management discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 FIT-UP OF ACCESSES AND INSTALLATIONS ON THE WORKSITE

.1 The location of areas reserved for activities likely to alter the quality of the environment (storage, hydrocarbons or hazardous products, cleaning and maintenance of equipment, the recycling of hazardous residual waste, etc.) shall be located outside the wetland and the shoreline protection strips of the wet area and the watercourses.

1.5 FIRES

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

1.6 DRAINAGE

.1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided.

.2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.

.3 Provide temporary drainage and pumping required to keep excavations and site free from water.

.4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.7 CIRCULATION OF VEHICLES AND CONSTRUCTION MACHINES

.1 The circulation of vehicles and construction machines shall be limited strictly to the work areas. Circulating in a watercourse with rolling stock is prohibited.

.2 Machinery is only allowed to move about during the excavation, utility installation and backfilling stages.

.3 Traffic shall be limited near plants to avoid as much as possible soil compaction and all consequences that could be harmful to the roots or to above-ground parts.

.4 The machinery shall be parked more than 30 m from the water system when not in operation.

1.8 USE OF HYDROCARBONS

.1 Check machinery regularly to prevent the risk of fuel and oil leaks.

.2 Ensure that operations such as fuel fill-ups, equipment lubrication, clean-ups and machinery oil changes are performed more than 30 m from the wetland and that the machinery is in good condition, clean and not leaking oil.

.3 Store the fuel tanks more than 30 m from the water system.

.4 Have at all times on site for the entire duration of the work a sufficient quantity of absorbent cotton and rolls for oil products. Should an accidental spill occur, the affected and contaminated zone shall be contained and cleaned up. The contaminated materials shall be removed and disposed of at a site authorized by the Ministère du Développement durable de l'Environnement et des Parcs du Québec at the contractor's expense. All incidents shall be reported to the National Environmental Emergencies Centre (NEEC), Environment and Climate Change Canada at 1-800-268-6060 and to the Engineer or his representative on site.

.5 Hydrocarbons shall be transported in certified containers.

.6 Recycling bins shall be placed under the devices and stationary equipment, particularly the generators, if required, during the course of the work. These bins shall contain twice or three times the volume contained in the tanks due to precipitation.

1.9 PROTECTION OF BREEDING BIRDS

.1 The work must ideally be scheduled between August 15 and March 31. If not, the contractor shall see to it that an inventory of all breeding birds in the work area is taken. Anthropogenic structures to be replaced and vacant lots that could potentially be used for site installations (e.g., wildlands) shall be inspected for nests. This work must be performed by a biologist or an environmental specialist at the start of the project, and the latter shall be retained by the Ministry's representative.

1.10 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

1.11 ENVIRONMENTAL EFFECTS ASSESSMENT (EEA)

.1 Environmental impact assessment mitigation measures are an integral part of the specifications and should be put in place during work.

1.12 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

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

.1 Take action only after receipt of written approval by Departmental Representative.

.3 DCC Representative will issue stop order of work until satisfactory corrective action has been taken.

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

3.2 ENVIRONMENTAL MONITORING OF THE SITE

.1 Work shall be monitored by an engineer or an environmental specialist due to the risk of environmental impacts that could occur during work adjacent to wetlands or watercourses.

.2 This monitoring operation shall begin with a start-up meeting to clearly explain to those in attendance the importance of enforcing the proposed mitigation measures.

.3 Protective measures are to be lifted only at the request of the project manager when the latter has determined that the risks have been minimized.

.4 Interventions appearing on the *Formulaire de surveillance environnemental* Form provided in the Annex shall be performed by the Contractor, who shall complete and submit the form.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are; or become, in force during performance of Work.

1.2 RELATED REQUIREMENTS

.1 Section 02 41 16.13– Building Demolition

1.3 REFERENCES TO REGULATORY REQUIREMENTS

.1 Specific design and performance requirements listed in the specifications or indicated on the Drawings may exceed the minimum requirements established by the referenced Building Code; these requirements will govern over the minimum requirements listed in the Building Code

.1 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

Part 2 Products

2.1 EASEMENTS AND NOTICES

.1 Owner will obtain permanent easements and rights of servitude that may be required for performance of Work.

.2 Constructor shall give notices required by regulatory requirements.

2.2 PERMITS

.1 Development Permit: Owner has applied for, obtained, and paid for development permit.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.2 INSPECTION

.1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

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

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.3 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

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

.3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

.1 Submit 4 copies of inspection and test reports to Departmental Representative.

.2 Provide copies to [subcontractor of work being inspected or tested] [manufacturer or fabricator of material being inspected or tested].

1.8 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Departmental Representative.

.3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative.

.7 Mock-ups may remain as part of Work.

.8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 MILL TESTS

.1 Submit mill test certificates as requested.

1.11 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and equipment systems.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

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

.5 Remove from site all such work after use.

1.4 HOISTING

.1 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists cranes to be operated by qualified operator.

1.5 SITE STORAGE/LOADING

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

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.6 CONSTRUCTION PARKING

.1 Parking will be permitted in the parking lot of the project site.

.2 Clean runways and taxi areas where used by Contractor's equipment.

1.7 OFFICES

.1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.

.2 Provide marked and fully stocked first-aid case in a readily available location.

1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

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

1.9 SANITARY FACILITIES

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

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

1.10 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed Departmental Representative.

.2 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.3 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.4 Dust control: adequate to ensure safe operation at all times.

.5 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.

1.11 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

.2 Within text of each specifications section, reference may be made to reference standards.

.3 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.4 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.5 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.3 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

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

1.4 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.7 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

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

.2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.6 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.8 CO-ORDINATION

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

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

1.9 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.10 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.11 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Departmental Representative of conflicting installation. Install as directed.

1.12 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading.

1.15 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

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

1.2 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.3 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 approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including other than that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.4 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.5 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.6 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.7 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

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

.4 Remove waste products and debris including other than that caused by Owner or other Contractors.

.5 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical.

.6 Clean lighting reflectors, lenses, and other lighting surfaces.

.7 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.8 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

.9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.10 Remove dirt and other disfiguration from exterior surfaces.

.11 Sweep and wash clean paved areas.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for [recycling] [reuse]in accordance with Section [01 74 21-Construction/Demolition Waste Management And Disposal].

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PSPC's waste management goal and Contractor's proposed Waste Reduction Workplan for Construction, Renovation and /or Demolition (CRD) waste to be project generated.

.2 Waste management goal: to divert a minimum 50 percent of total Project Waste from landfill sites. Prior to project completion provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

.3 Minimize amount of non-hazardous solid waste generated by project and accomplish maximum source reduction, reuse and recycling of solid waste produced by CRD activities.

.4 Protect environment and prevent environmental pollution damage.

1.2 REFERENCE STANDARDS

.1 Public Works and Government Services Canada (PSPC)

.1 2002 National Construction, Renovation and Demolition Non-Hazardous Solid Waste Management Protocol.

.2 CRD Waste Management Market Research Report (available from PSPC's Environmental Services).

.3 Sustainable Development Strategy 2007-2009: Target 2.1 Environmentally Sustainable Use of Natural Resources.

.1 Real Property projects over $1 million and in communities where industrial recycling is supported, implementation of CRD waste management practices will be completed, with waste materials being reused or recycled.

.2 Contractually ensure resources used in construction or maintenance are consumed and recovered in a sustainable manner.

1.3 DEFINITIONS

.1 Approved/Authorized recycling facility: waste recycler approved by applicable provincial authority or other users of material for recycling approved by the Departmental Representative.

.2 Class III: non-hazardous waste - construction renovation and demolition waste.

.3 Construction, Renovation and/or Demolition (CRD) Waste: Class III solid, non-hazardous waste materials generated during construction, demolition, and/or renovation activities

.4 Inert Fill: inert waste - exclusively asphalt and concrete.

.5 Waste Source Separation Program (WSSP): implementation and co-ordination of ongoing activities to ensure designated waste materials will be sorted into pre-defined categories and sent for recycling and reuse, maximizing diversion and potential to reduce disposal costs.

.6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.11 Separate Condition: refers to waste sorted into individual types.

.12 Source Separation: act of keeping different types of waste materials separate beginning from the point they became waste.

.13 Waste Audit (WA): detailed inventory of estimated quantities of waste materials that will be generated during construction, demolition, deconstruction and/or renovation. Involves quantifying by volume/weight amounts of materials and wastes that will be reused, recycled or landfilled.

.14 Waste Diversion Report: detailed report of final results, quantifying cumulative weights and percentages of waste materials reused, recycled and landfilled over course of project. Measures success against Waste Reduction Workplan (WRW) goals and identifies lessons learned.

.15 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating required submittal and reporting requirements.

.16 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials generated by project. Specifies diversion goals, implementation and reporting procedures, anticipated results and responsibilities. Waste Reduction Workplan (Schedule B) information acquired from Waste Audit.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Prepare and submit on at intervals agreed to by Departmental Representative the following:

.1 Receipts, scale tickets, waybills, and/or waste disposal receipts that show quantities and types of materials reused, recycled, or disposed of.

.2 Submit prior to final payment the following:

.1 Provide receipts, scale tickets, waybills, waste disposal receipts that confirm quantities and types of materials reused, recycled or disposed of and destination.

1.5 USE OF SITE AND FACILITIES

.1 Execute Work with minimal interference and disturbance to normal use of premises.

.2 Maintain security measures established by facility provide temporary security measures approved by Departmental Representative.

1.6 WASTE PROCESSING SITES

.1 Contractor is responsible to research and locate waste diversion resources and service providers. Salvaged materials are to be transported off site to approved and/or authorized recycling facilities or to users of material for recycling.

1.7 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Unless specified otherwise, materials for removal do not become Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed and salvaged materials from movement or damage.

.6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.

.7 Protect surface drainage, mechanical and electrical from damage and blockage.

.8 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.

.9 Separate and store materials produced during project in designated areas.

.10 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off site processing facility for separation.

.3 Obtain waybills, receipts and/or scale tickets for separated materials removed from site.

.4 Materials reused on-site are considered to be diverted from landfill and as such are to be included in all reporting.

1.8 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins.

.2 Waste type of each bin.

.3 Total tonnage generated.

.4 Tonnage reused or recycled.

.5 Reused or recycled waste destination.

.4 Remove materials on-site as Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in the waste audit.

1.9 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 APPLICATION

.1 Do Work in compliance with WRW and WSSP.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

.2 Canadian Environmental Protection Act (CEPA)

.1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Departmental Representative inspection.

.2 Departmental Representative Inspection:

.1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested and fully operational.

.4 Operation of systems: demonstrated to Owner's personnel.

.5 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.

.2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement

for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment:

.1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.2 When Work deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

.8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11- Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Environmental Protection Act (CEPA)

.1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19- Project Meetings to:

.1 Verify Project requirements.

.2 Review manufacturer's installation instructions.

.2 Departmental Representative to establish communication procedures for:

.1 Notifying construction warranty defects.

.2 Determine priorities for type of defects.

.3 Determine reasonable response time.

.3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.

.3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.

.4 Provide evidence, if requested, for type, source and quality of products supplied.

1.4 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings.

.1 Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by process flow under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in dxf and dwg format.

1.5 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section [01 45 00- Quality Control].

1.6 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, at site for Departmental Representative one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

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

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, provided by Departmental Representative.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Provide digital photos, if requested, for site records.

1.8 EQUIPMENT AND SYSTEMS

.1 For each item of equipment and each system include description of unit or system, and component parts.

.1 Give function, normal operation characteristics and limiting conditions.

.2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.

.1 Include regulation, control, stopping, shut-down, and emergency instructions.

.2 Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.12 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.13 Include test and balancing reports as specified in Section 01 45 00- Quality Control.

.14 Additional requirements: as specified in individual specification sections.

1.9 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional requirements: as specified in individual specifications sections.

1.10 MAINTENANCE MATERIALS

.1 Spare Parts:

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.
- .4 Receive and catalogue items.
  - .1 Submit inventory listing to Departmental Representative.
  - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

.2 Extra Stock Materials:

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

.3 Special Tools:

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to [site] [location as directed]; place and store.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in Maintenance Manual.

1.11 DELIVERY, STORAGE AND HANDLING

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and for review by DCC Representative.

1.12 WARRANTIES AND BONDS

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.

.3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

.2 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.3 Contractor's plans for attendance post-construction warranty inspections.

.4 Procedure and status of tagging of equipment covered by extended warranties.

.5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.9 Respond in timely manner to oral or written notification of required construction warranty repair work.

.10 Written verification to follow oral instructions.

.1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.13 WARRANTY TAGS

.1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by [Departmental Representative] [DCC Representative] [Consultant].

.2 Attach tags with copper wire and spray with waterproof silicone coating.

.3 Leave date of acceptance until project is accepted for occupancy.

.4 Indicate following information on tag:

.1 Type of product/material.
.2 Model number.
.3 Serial number.
.4 Contract number.
.5 Warranty period.
.6 Inspector's signature.
.7 Construction Contractor.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

The work in this section includes but is not limited to the:

.1 Dismantling and disposal of the catenary system, including the light fixtures.

.2 Dismantling and disposal of the double brackets, including the light fixtures.

.3 Dismantling and disposal of the single brackets, including the light fixtures.

.4 Dismantling and disposal of the guy wires.

.5 Dismantling and disposal of the wooden posts.

1.2 RELATED REQUIREMENTS

.1 Section 02 42 00 - Structure Demolition.

.2 Section 05 50 00 - Metal Fabrications.

1.3 REFERENCE STANDARDS

.1 Canadian Environmental Protection Act (CEPA)

.1 CCME PN 1326-2015, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems for Petroleum Products and Allied Petroleum Products.

.2 CSA International

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

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

.2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S660-08, Standard for Non-metallic Underground Piping for Flammable and Combustible Liquids.

.2 ULC/ORD-C58.15-1992, Overfill Protection Devices for Flammable Liquid Storage Tanks.

.3 ULC/ORD-C58.19-1992, Spill Containment Devices for Underground Flammable Liquid Storage Tanks.

1.4 DEFINITIONS

.1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or materials that endanger human health or environment if handled improperly.

.2 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating related, required submittal and reporting requirements.

.3 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill.

.4 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meetings:

.1 Convene pre-installation meeting 1 week prior to beginning work of this Section with Departmental Representative in accordance with Section 01 31 19 – Project Meetings to:

.1 Verify project requirements.

.2 Verify existing site conditions adjacent to demolition work.

.3 Co-ordination with other construction sub trades.

.2 Hold project meetings every week.

.3 Ensure subcontractor representatives, WMC, key personnel, project manager and site supervisor attend.

.4 WMC must provide verbal report on status of waste diversion activity at each meeting.

.5 Departmental Representative will provide written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

.2 Scheduling:

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 In event of unforeseen delay, notify in writing, Departmental Representative.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Sections 01 33 00- Submittal Procedures and 01 74 21 – Construction/Demolition Waste Management Disposal.

.2 WMC is responsible for fulfilment of reporting requirements.

.3 Prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal and indicate:

.1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.

.2 Schedule of selective demolition.

.3 Number and location of dumpsters.

.4 Name and address of waste facilities.

.4 Submit copies of certified weigh bills from authorized disposal sites and reuse and recycling facilities for material removed from site on a weekly basis upon request of Departmental Representative.

.1 Written authorization from Departmental Representative is required to deviate from receiving organizations listed in Waste Reduction Workplan.

.5 Shop Drawings:

.1 Submit for review and approval demolition drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.

.2 Submit demolition drawings stamped and signed by professional engineer registered or licensed in Québec, Canada.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: Ensure Work is performed in compliance with applicable Provincial/Territorial and Municipal regulations.

1.8 SITE CONDITIONS

.1 Environmental protection:

.1 Ensure Work is done in accordance with Section 01 35 43- Environmental Procedures.

.2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.3 Fires and burning of waste or materials is not permitted on site.

.4 Do not bury rubbish waste materials.

.5 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

.1 Ensure proper disposal procedures are maintained throughout project.

.6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.

.8 Protect trees, plants and foliage on site and adjacent properties where indicated.

.9 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.9 EXISTING CONDITIONS

.1 If material resembling spray or trowel applied asbestos or other designated substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Proceed only after receipt of written instructions have been received from Departmental Representative.

.2 Structures to be demolished are based on their condition at time of examination prior to tendering.

.1 Remove, protect and store salvaged items as directed by Departmental Representative. Salvage items as identified by Departmental Representative. Deliver to Departmental Representative as directed.

Part 2 Products

2.1 EQUIPMENT

.1 Equipment and heavy machinery:

.1 On-road vehicles to: CEPA-SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.2 Off-road vehicles to: EPA CFR 86.098-10.

.2 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 PREPARATION

.1 Protection of in-place conditions:

.1 Work in accordance with Section 01 35 43 – Environmental Procedures.

.2 Prevent movement, settlement or damage of adjacent trees, grounds and structures.

.1 Repair damage caused by demolition as directed by Departmental Representative.

.3 Support affected structures and, if safety of structure being demolished adjacent structures appears to be endangered, take preventative measures, stop Work and immediately notify Departmental Representative.

.2 Surface Preparation:

.1 Disconnect and re-route electrical and telephone service lines entering buildings to be demolished.

.1 Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

3.2 SEQUENCING OF WORK

.1 Dismantling and disposal of the catenary system, including the light fixtures.

.1 Establish a daily work sequence.

.2 Installation of a temporary guy wire based on the established work sequence. It must be installed at the height of the existing upper cable and along the same axis. The temporary guy wire must be able to bear the entire load generated by the catenary system, which we have estimate to be 20 kN. The tension must be gradually adjusted to avoid any deformation of the system in place. The loads must be re-evaluated for winter conditions.

.3 Release the tension very gradually from the catenary cables to be dismantled. The tension must be released gradually and uniformly in all catenary cables to be dismantled in accordance with the established work sequence.

.4 The loops must be kept where they are on the posts, as indicated in the plans.

.5 Remove all of the catenaries including the light fixtures and dispose of them.

.6 Ensure that the temporary guy wires are stable at the end of each work day to maintain the structural integrity of the posts and to ensure the location is safe.

.7 On the second work day, install a second temporary guy wire on the following last post before going through the steps to release the tension in the catenaries and the first temporary guy wire.

.8 Ensure the integrity of the adjacent locations when dismantling the catenary system..

.9 After dismantling, check the verticality of posts #1, #3, #15, #16, #17, #18, #19, #21, #24, #25 and #50 with a plumb line along two axes every metre. Stop the work and advise the designer when there is any verticality defect greater than 30 mm.

.1 Dismantling and disposal of the single brackets, including the light fixtures.

.1 Single brackets are located on the posts with a catenary system. The latter must be dismantled after the procedure to dismantle the catenary system has been completed.

.2 Ensure the structural integrity of the posts and cabinets and the adjacent areas when dismantling the single brackets, including the light fixtures.

.2 Dismantling and disposal of aerial guy wires and those connected to the posts.

.1 Follow the same procedure when dismantling the aerial guy wires and the guy wires connected to the posts as for the catenary system cables.

.2 Ensure the integrity of the adjacent areas during dismantling.

.3 Dismantling and disposal of the double brackets, including the light fixtures.

.1 Ensure the structural integrity of the posts and cabinets and the adjacent areas when dismantling the double brackets, including the light fixtures.

.4 Dismantling and disposal of wooden posts.

.1 The dismantling and disposal of wooden posts must follow the dismantling of the aerial guy wires.

.2 Ensure the integrity of the adjacent areas when the posts are dismantled.

3.3 DEMOLITION

.1 Blasting operations not permitted during demolition.

.2 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

.3 Prior to start of Work remove contaminated or hazardous or dangerous materials as defined by authorities having jurisdiction, as directed by Departmental Representative from site and dispose of at designated disposal facilities in safe manner and in accordance with TDGA and other applicable requirements. Refer to Existing Conditions in PART 1.

.4 Only dispose of material specified by selected alternative disposal option for own use.

.5 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

3.4 CLEANING

.1 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

.2 Divert excess materials from landfill to site approved by Departmental Representative.

.3 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

.1 Label stockpiles, indicating material type and quantity.

.4 Separate from general waste stream each of following materials. Stockpile materials in neat and orderly fashion in location and as directed by Departmental Representative for alternate disposal. Stockpile materials in accordance with applicable fire and safety regulations.

.1 Bracket light fixtures.

.2 Catenary system light fixtures.

.3 Brackets connected to the light fixtures

.4 Catenary system cables.

.5 Guy wire cables.

.6 Wooden posts.

.5 Supply separate, clearly marked disposal bins for categories of waste material. Do not remove bins from site until inspected and approved by Departmental Representative. Please notify Departmental Representative prior to removal of bins from site.

.6 Transport material designated for alternate disposal using approved haulers listed in Waste Reduction Workplan and in accordance with applicable regulations.

.1 Written authorization from Departmental Representative is required to deviate from haulers listed in Waste Reduction Workplan.

.7 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

.1 Disposal facilities must be those approved of and listed in Waste Reduction Workplan.

.2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

The work in this section includes but is not limited to the:

.1 Removal and disposal of all nut covers.

.2 Tightening with a torque wrench of all of the bolts on the anchor rods and the tie bolts at the base of the poles.

.3 Replacement of all of the gaskets on the access doors of the poles.

.4 Replacement of the 4 bolts required on the caisson access doors.

.5 Replacement of bolts with damaged threads on the access doors of the poles.

.6 Repair of cracked welds on the side of frame of the access doors of the poles, as indicated in the plans.

.7 Finish of the weld repairs.

.8 Finish oh the holes drilled in the poles for the installation of the new lighting.

1.2 RELATED REQUIREMENTS

.1 Section 02 41 16 – Structure Demolition

.2 Section 02 42 00 – Removal and Salvage of Construction Materials

.3 Section 07 92 00 – Joint Sealants

1.3 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307-14e1, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 CSA International

.1 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CAN/CSA G164—M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA S16-14, Design of Steel Structures.

.4 CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-13, Welded Steel Construction (Metal Arc Welding) [Metric].

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for the proposed bolts, sealants for the access doors of the poles, welding procedures and zinc rich paint and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 43- Environmental Procedures 01 35 29.06- Health and Safety Requirements.

.1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Québec, Canada.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

.4 Sustainable Design Submittals:

.1 The shop drawings submitted must bear the seal and signature of a competent engineer recognized or licensed to practice in the Province of Quebec or elsewhere in Canada.

.2 The shop drawings must reveal or show the materials, the thickness of the core, the finish, assemblies, joints, method of anchorage and the anchorage devices, supports, reinforcing components, details and accessories.

.5 Manufacturer’s instructions

.1 The instructions submitted must deal with each of the proposed sealants.

1.5 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Sections 01 35 13-CSC Security, 01 52 00- Construction Facilities, 01 61 00- Common Product Requirements with Manufacturer`s Written Instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials indoors off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/G40.21, Grade 350W and 300W.

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A307.

.5 Neoprene sponge rubber 3.175 mm thick with the dimensions indicated on the plans, which are weather- and UV ray-resistant.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Where possible, fit and shop assemble work, ready for erection.

.3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Zinc rich primer: ready to use and compliant with product MPI-EXT 5.2C, in accordance with GS-11 standard regarding chemical composition and VOC content.

Part 3 Execution

3.1 EXAMINATION

.1 Ambient conditions for the replacement of gaskets:

.1 Install sealants only under the following conditions:

.1 The ambient temperatures and the paint base must be within the limits prescribed by the product manufacturer.

.2 The paint base is dry.

.3 The manufacturer’s recommendations regarding temperature, the rate of relative humidity and the rate of humidity of the paint base conducive to the use and drying of sealant products and the special instructions regarding their use must be followed.

.2 Paint base for the replacement of gaskets.

.1 Use the sealants only after the contaminants likely to prevent product adherence have been removed from the paint base.

.3 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 SURFACE PREPARATION

.1 Verify the dimensions of the joints to be made and the condition of the surfaces to obtain an adequate width-depth ratio for the use of sealants.

.2 Tightening with a torque wrench of all of the bolts on the anchor rods and the tie bolts at the base of the poles to a tightening torques of 1 408 N*m.

.3 Remove from the joint surfaces all undesirable matter, including dust and rust, oil, grease and any other foreign material that may affect the quality of the work.

.4 Do not apply sealants on the surfaces of joints treated with filler, hardener, a waterproofing product or any other type of coating unless tests have been done beforehand to confirm that these materials are compatible. Remove any coatings on the surfaces, if necessary.

.5 Ensure that the joint surfaces are dry and not frozen.

.6 Prepare the services in accordance with the manufacturer’s instructions.

3.3 REPAIRS TO BE MADE

.1 Replace the existing gaskets inside the access doors on all of the poles.

.2 Replace non-hollow hex bolts on the caisson access doors with 6,35Ø x 19,05 LG stainless hollow hex bolts on all of the caisson access doors. Anticipate work on about twenty doors each with 4 bolts.

.3 Replace bolts with damaged threads on the access doors of the poles with 9,5Ø x 25,4 LG stainless hex bolts. Anticipate about twenty bolts and fasteners.

.4 Repair and finish the cracked welds on the side of the frame of the access doors of the lighting poles as indicated in the plans for poles #18, #19, #22 and #49.

.5 Finish work with zinc rich primer for the holes drilled in the poles according to the template of the manufacturer for the installation of the new lighting fixtures.

3.4 ERECTION

.1 Application of the sealant

.1 Use the sealant in accordance with the manufacturer’s written instructions.

.2 To keep the joints clean, apply masking tape along the edges of the surfaces to be jointed.

.3 Apply to the joints a continuous bead of sealant free of ridges, folds, dips, air bubbles and dirt.

.4 Remove surplus sealant during the course of the work and when the work is completed.

.2 Due welding work in accordance with CSA W59 unless specified otherwise.

.3 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Supply components for work by other trades in accordance with shop drawings and schedule.

.6 Weld field connection or Make field connections with bolts to CSA S16.

.7 Touch-up rivets, field welds, bolts and burnt or scratched surfaces with primer after completion of:

.1 Zinc rich primer: maximum VOC limit [250]g/L [to GS-11].

.8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

.1 Primer: maximum VOC limit 250g/L to GS-11.

3.5 CLEANING

.1 Non-corrosive and no-mess cleaning products compatible with the material that make up the joints and with the sealants in accordance with the written instructions of the sealant manufacturer.

.2 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

.4 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by metal fabrications installation.

3.7 METHOD OF PAYMENT

.1 A comprehensive payment shall be made to cover the removal and disposal of the nut covers. The price covers all applicable permits and charges, mobilization, materials, transport, labour, disposal and also any incidental expenses.

.2 A comprehensive payment shall be made to cover the tightening with a torque wrench of all nuts on the anchor rods and the tie nuts at the base of the poles. The price covers all applicable permits and charges, mobilization, transport, labour, disposal and also any incidental expenses.

.3 The replacements of the 4 bolts required on the caisson access doors shall be paid on a per-unit basis (per caisson). The price covers all applicable permits and charges, mobilization, transport, equipment, labour, disposal and also any incidental expenses.

.4 The replacement of bolts with damaged threads and fasteners damaged on the access doors of the poles are not part of an article on the tender list. The prices shall be included in the price of replacing the gaskets on the access doors of the poles. The price covers all applicable permits and charges, mobilization, transport, equipment, labour, disposal and also any incidental expenses.

.5 A comprehensive payment shall be made for the repairs of the cracked welds on the sides of the access doors of the poles, and the price also includes finish work. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses. In cases where other welds are cracked, a per-unit price shall apply for any repairs and finish needed.

.6 A comprehensive payment shall be made to cover the cost of replacing all of the gaskets. It also includes the cost of replacing bolts with a damaged threads and fasteners damaged on the access doors of the poles. The price covers all applicable permits and charges, mobilization, equipment, transport, labour, disposal and also any incidental expenses.

.7 The finish work for the holes drilled in the poles by a zinc rich primer is not part of an article on the tender list. The price shall be included in the price of lighting fixtures and accessories. The price covers all applicable permits and charges, mobilization, transport, equipment, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 CSA Group

.1 CSA C22.1-12, Canadian Electrical Code, Part 1 (22nd Edition), Safety Standard for Electrical Installations.

.2 CAN3-C235-83(R2010), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.3 CSA C22.2 number 41-F13, Grounding and Bonding Equipment.

.2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

1.2 DEFINITIONS

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

.2 The Contractor is the organization that signs a contract to perform all of the work shown in the plans and specifications. The Contractor must provide, erect, install and commission all components described herein.

.3 The Contractor turns to subcontractors to do some of the work, but the latter fall under the responsibility and supervision of the Contractor as if they were part of its organization. The Contractor therefore is the lone stakeholder authorized to have any communication with or make any requests to the Departmental Representative.

.4 The Contractor is also referred to herein as the "General Contractor."

For example, when terms such as "Electrical Contractor" or "Electrical Subcontractor" or "Specialty Subcontractor" is used, this is meant as a reference to the company chosen and hired by the Contractor to do some specialized work.

1.3 SCOPE OF WORK

.1 Provide all materials, labour, tools and machinery needed to fully complete all of the work in the specifications and/or plans.

.2 Unless otherwise indicated, the expression "installation," when used in the work description, includes the provision of equipment and materials with all of the necessary accessories that constitute a complete installation.

.3 This list is not comprehensive, and all work described herein shall be considered part of the project. The list of work includes but is not limited to:

.1 The provision and installation of TECK cables, RWU cables and RW90 cables and conduits.

.2 The provision and installation of a disconnector with fuses and a transformer.

.3 The provision and installation of control boxes and contactors.

.4 The provision and installation of lighting structures.

.5 The provision and installation of lighting poles, brackets and accessories.

.6 The hookups of all equipment requiring electricity, whether provided by the Contractor in this section, by the Contractors of other sections or by others.

.7 Assurance that all of the existing utilities shall continue.

.8 Verification and coordination of all existing utilities and new utilities with the Departmental Representative, public utilities companies and the services of other specialties concerned.

.9 The submission of equipment described in the plans and specifications as salvageable to the Department. The Contractor shall remove from the premises everything that is not salvageable.

.4 The General Contractor in this contract shall perform the following work which is related to the installation of electrical equipment.:

.1 All excavations, fill, compacting and earthwork.

1.4 CONTINUITY OF UTILITIES

.1 The Contractor must ensure the continuity of existing utilities when installing new equipment and modifying existing equipment.

.2 If the Contractor has to cut the power in occupied buildings when hooking up equipment, the work must be done outside normal business hours.

.3 The permitted schedule for service interruptions at night shall be confirmed by the owner occupying the premises affected by the interruption. The Contractor must submit a request to the Departmental Representative regarding any temporary interruption of service at least 10 days in advance.

.4 The price of performing all work requiring utility and power interruptions during overtime hours must be included in the bid. The price of temporary hookups must also be included in the bid. No further compensation shall be paid subsequent to this.

1.5 WORK INSIDE AND OUTSIDE OF THE OCCUPIED BUILDING

.1 The Contractor must receive authorization from the Departmental Representative prior to doing any work inside and occupied building.

1.6 EXISTING UTILITIES

.1 The location of certain existing utilities on the plans has been provided simply as an illustration. Before the work starts, the Contractor shall verify and pinpoint all existing utilities with the owner. The Contractor is responsible for any damage to hidden electrical or other utilities.

.2 Before starting the work, the Contractor shall go over the existing plans along with the civil, structural and electrical engineering plans with the Departmental Representative.

.3 Before starting any demolition or drilling to create recesses and openings, the Contractor shall make the required checks to avoid damaging any hidden utilities.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.

.2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.

.3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.

.4 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.

.5 Submit electronic files of shop drawings and product data to inspection authorities.

.6 If changes are required, notify Departmental Representative of these changes before they are made.

.3 Certificates:

.1 Provide CSA certified materials.

.2 Submit test results of installed electrical systems and instrumentation.

.3 Permits and fees: in accordance with General Conditions of contract.

.4 Submit, upon completion of Work, load balance report as described in PART 3 - LOAD BALANCE.

.5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

.4 Manufacturer's Field Reports: submit to Departmental Representative manufacturer's written report, within three (3)]days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.

1.8 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 – Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for:

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Operating instructions to include following:

.1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

.2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.

.3 Safety precautions.

.4 Procedures to be followed in event of equipment failure.

.5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

.3 Print or engrave operating instructions and frame under glass or in approved laminated plastic.

.4 Post instructions where directed.

.5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.

.6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

1.9 QUALITY ASSURANCE

.1 Quality assurance in accordance with section 01 45 00 - Quality Control.

.2 On-site meetings:

.1 On-site meetings: the manufacturer's on-site verifications, which are described in the ON-SITE QUALITY CONTROL article in PART 3 must include on-site visits during the following stages:

.2 Once the products have been delivered and stored on site and the preparatory work has been done but before the start of work to install the structures that are the subject of this section.

.3 Once during the course of the work, i.e., at 25% completion and then at 60% completion.

.4 Once the work has been done and the cleanup completed.

1.10 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Repair nicks, scratches and blemishes

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 DESIGN REQUIREMENTS

.1 Operating voltages: to CAN3-C235.

.2 Equipment and control and distribution devices to operate satisfactorily at 60 Hz within normal operating limits established by above standard.

.1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.3 Language operating requirements: provide identification nameplates or labels for control items in French and in English.

.4 Use one nameplate or label for both languages.

2.2 MATERIALS AND EQUIPMENT

.1 Provide materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Material and equipment to be CSA certified or another accredited organization.

.3 Factory assemble control panels and component assemblies.

.4 Unless otherwise indicated, use new material and equipment from the same manufacturer.

.5 In special locations, use appropriate products. In dusty or damp areas, for example, equipment must be waterproof and dustproof. In addition, the ends of conduits entering boxes, panels and similar equipment must be sealed with a special compound for that purpose.

2.3 WARNING SIGNS

.1 Warning signs: in accordance with requirements of Departmental Representative.

.2 Porcelain enamel signs, minimum size 175 x 250 mm.

2.4 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.5 EQUIPMENT IDENTIFICATION

.1 Identify electrical equipment with nameplates and labels as follows:

.1 Nameplates: lamicoid 3 mm thick plastic engraving sheet melamine, black or matt white finish face, black core, mechanically attached with self tapping screws and lettering accurately aligned and engraved into core.

.2 Sizes as follows:

NAMEPLATE SIZES			
Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters

NAMEPLATE SIZES			
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters

.2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.

.3 Wording on nameplates and labels to be approved by Departmental Representative prior to manufacture.

.4 Allow for minimum of twenty-five (25) letters per nameplate and label.

.5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.6 Disconnects, starters and contactors: indicate equipment being controlled and voltage.

.7 Terminal cabinets and pull boxes: indicate system and voltage.

.8 Transformers: indicate capacity, primary and secondary voltages.

2.6 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, coloured plastic tapes and numbered, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

2.7 CONDUIT AND CABLE IDENTIFICATION

.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

Type	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
up to 5 kV	Yellow	Blue
up to 15 kV	Yellow	Red
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

2.8 IDENTIFICATION ACCORDING TO THE EXISTING SYSTEM

.1 Identify works added or improved according to the existing identification system.

.2 Where the existing identification system does not provide for the identification of new installed works, identify them according to the requirements of this Section.

2.9 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

.1 Paint outdoor electrical equipment "equipment green" finish.

.2 Paint indoor switchgear and distribution enclosures light gray to EEMAC 2Y-1.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.

.2 Unless otherwise indicated, complete the entire installation in accordance with the Code de construction du Québec, chapter 5, 2010 edition.

.3 Unless otherwise indicated, install the networks and underground in accordance with CSA C22.3 number 1.

3.3 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.4 CONDUIT AND CABLE INSTALLATION

.1 Install conduit and sleeves prior to pouring of concrete.

.1 Sleeves through concrete: schedule 40 steel pipe or plastic, sized for free passage of conduit, and protruding 50 mm.

.2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.3 Install cables, conduits and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

3.5 FIELD QUALITY CONTROL

.1 Load Balance:

.1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

.2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

.3 Provide upon completion of work, load balance report as directed in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS, phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load, as well as hour and date on which each load was measured, and voltage at time of test.

.2 Conduct following tests in accordance with Section 01 45 00 – Quality Control.

.1 Circuits originating from branch distribution panels.

.2 Lighting and its control.

.3 Insulation resistance testing:

.1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.

.2 Megger 350 V-600 V circuits, feeders and equipment with a 1000 V instrument.

.3 Check resistance to ground before energizing.

.3 Carry out tests in presence of Departmental Representative and send him written results of tests.

.4 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

3.6 SYSTEM STARTUP

.1 Instruct operating personnel in operation, care and maintenance of systems, system equipment and components.

.2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.

3.7 SALVAGED EQUIPMENT TO BE RETURNED TO THE OWNER

.1 When indicated on the plans, the Contractor must remove existing equipment and store it in a location determined by the Departmental Representative.

.2 The Contractor shall remove from the premises everything that has not been salvaged by the owner.

.3 The Contractor shall provide written proof of the equipment that has been returned to the owner.

3.8 CLEANING

.1 Clean and retouch surfaces painted in the shop, which have been scratched or damaged during transportation and installation. Use a paint that is identical in both type and colour to the original paint.

.2 Clean the hooks, supports, fasteners and other apparent non-galvanized securing devices and apply a primer to protect them from rust.

.3 Clean all conduit networks and their boxes before pulling conductors.

.4 Just prior to the final handover of the installations, clean and restore to a new condition all equipment and leave them in perfect operating condition.

Part 4 WORK SEQUENCE

4.1 DESCRIPTION

.1 The sequence of the electrical work described above has been provided merely for illustration. The Contractor can propose another work sequence. However, everything must be submitted beforehand to the owner for approval.

.2 Dismantle and dispose of existing light fixtures and the cables on the catenary systems or lighting poles (see the work section in section 02 41 16).

.3 Install new brackets with light heads on the existing lighting poles and hook them up.

.4 Coordinate with the Structural Contractor during the dismantling of the catenary systems or the light heads and brackets to ensure that tension system is in place to maintain the structural integrity of the poles.

.5 Dig trenches by starting with pole #1, or by starting with pole #2, and lay the new electrical cables.

.6 Dismantle and dispose of existing electrical cables and install new cables as indicated in the plans.

.7 Fill in the trenches.

.8 Complete each day at the base of the lighting pole (see the work sequence in section 02 41 16) and power back on the following lighting poles to allow for services to continue during the night.

.9 Resume points 2 to 8 the following day.

.10 The excavation and fill work in the area of the main entrance (this concerns the trench area between bases #19, #20 and #21) must be completed in one day **over a limited period of time** and in close coordination with the owner.

.11 Install new distribution equipment to power the perimeter lighting system in room M-03-106 of building M-03.

.12 Dismantle and dispose of the existing distribution as shown on the plan and hook up the perimeter lighting system to the new power source. Coordinate the load transfer with the owner. This part must be performed when doing the conduit work between shaft #1 and shaft #10 has been done.

.13 All power interruption is first be submitted beforehand to the owner for approval.

.14 Sort and recycle waste as the work progresses and in accordance with section 01 74 21 – Demolition/Construction Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

.2 Section 26 05 21 - Wire and cables (0 – 1000 V).

.3 Section 26 05 31 - Splitters, junction, pull boxes and cabinets.

1.2 PAYMENT

.1 No measurement is required since an all-inclusive payment is made to cover the cost of the work.

1.3 REFERENCE STANDARDS

.1 CSA International

.1 CAN/CSA-C22.2 No.18-98(R2013), Outlet Boxes, Conduit Boxes and Fittings.

.2 CAN/CSA-C22.2 No.65-03(R2013), Wire Connectors (Tri-National Standard with UL 486A-486B and NMX-J-543-ANCE-03).

.2 National Electrical Manufacturers Association (NEMA)

.3 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)

.1 EEMAC 1Y-2-1961, Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

1.5 MATERIALS AND EQUIPMENT

.1 Unless otherwise indicated, use new materials and equipment from the same manufacturer.

.2 In special locations, use appropriate products. In dusty or damp areas, for example, equipment must be waterproof and dustproof. In addition, the ends of conduits entering boxes, panels and similar equipment must be sealed with a special compound for that purpose.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Remove all packaging materials from the work site and send them to the appropriate recycling facilities.

.3 Send unused metal cables to a metal recycling facility approved by the Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Pressure type wire connectors to: CAN/CSA-C22.2 No. 65, with current carrying parts of copper sized to fit copper conductors as required.

.2 Clamps or connectors for aluminum sheathed cable, non-metallic sheathed cable, armoured cable, as required to: CAN/CSA-C22.2 No. 18.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for wire and box connectors installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Remove insulation carefully from ends of conductors and:

.1 Apply coat of zinc joint compound on aluminum conductors prior to installation of connectors.

.2 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CSA-C22.2 No. 65.

.3 Install fixture type connectors and tighten to CAN/CSA-C22.2 No. 65. Replace insulating cap.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 METHOD OF PAYMENT

.1 Wire and box connectors (0-1000 V) are part of article 3.1 – Electrical Services and Distribution on the tender form. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical

.2 Section 26 05 20 - Wire and box connectors (0-1000 V)

1.2 MEASURING FOR PAYMENT PURPOSES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.3 REFERENCE STANDARDS

.1 CSA C22.2 no 0.3-92 (R2014).

.2 CAN/CSA C22.2 no 131-M89 (R2004).

1.4 PRODUCT DATA

.1 Provide product data in accordance with Section 01 33 00- Submittal Procedures.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 BUILDING AND UNDERGROUND WIRES

.1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.

.2 Copper conductors: size as indicated, with 600 V RW90 XLPE (aboveground) and 1000 V RWU90 XLPE (underground), insulation of cross-linked thermosetting polyethylene material.

2.2 TECK 90 CABLE

.1 Cable: in accordance with Section 26 05 00 – Common Work Results for Electrical.

.2 Conductors:

- .1 Grounding conductor: copper, as indicated.
- .2 Circuit conductors: copper, size as indicated.

.3 Insulation:

- .1 Ethylene propylene rubber EP.
- .2 Cross-linked polyethylene XLPE.
- .3 Rating: 1000 V.

.4 Inner jacket: polyvinyl chloride material.

.5 Armour: galvanized steel.

.6 Overall covering: thermoplastic polyvinyl chloride, compliant to applicable Building Code classification for this project.

.7 Fastenings:

.1 One hole steel straps to secure surface cables 50 mm and smaller.

.2 Two hole steel straps for cables larger than 50 mm.

.3 Channel type supports for two or more cables, as indicated.

.4 Threaded rods: 6 mm diameter to support suspended channels.

.8 Connectors:

.1 Watertight, approved for TECK cable.

Part 3 Execution

3.1 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 – Common Work Results for Electrical.

.2 Perform the tests using methods appropriate for local conditions and approved by the Departmental Representative and the proper local authorities.

.3 Perform tests before energizing electrical system.

3.2 GENERAL CABLE INSTALLATION

.1 Install cable in trenches as indicated.

.2 Install the cables in the existing duct bank as indicated..

.3 Terminate cables in accordance with Section 26 05 20 – Wire and Box Connectors - (0-1000 V).

.4 Cable Colour Coding: to Section 26 05 00 – Common Work Results for Electrical.

.5 Run TECK cables in the existing ducts in the existing concrete bases once the ducts have been thoroughly cleaned.

3.3 INSTALLATION OF BUILDING WIRES

.1 Install wiring as follows:

.1 In conduit systems in accordance with Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings.

.2 In underground ducts, as indicated.

3.4 CLEANING

.1 Clean-up during the work: do clean-up work in accordance with section 01 74 11 – Cleaning.

.1 Leave the premises clean at the end of each work day.

3.5 METHOD OF PAYMENT

.1 The wires and cables are part of bid form article 3.2 – Wires and Cables. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

1.2 PAYMENT

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.3 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA International)

.1 CSA C22.1-06, Canadian Electrical Code, Part 1, 20th Edition.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Product Data:

.1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Provide shop drawings: in accordance with Section 01 33 00- Submittal Procedures.

.1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Quebec, Canada.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:

.1 Separate waste materials for recycling and reuse in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 JUNCTION AND PULL BOXES

.1 Construction: welded steel enclosure.

.2 Covers Surface Mounted: screw-on flat covers, NEMA 12 hinges for inside and NEMA 6P for outside at the draw pits.

Part 3 Execution

3.1 SPLITTER INSTALLATION

.1 Install splitters as per the instructions, ensuring that they are upright, in alignment and square to the building or the structure.

3.2 IDENTIFICATION

.1 Equipment Identification: to Section 26 05 00 – Common Work Results for Electrical.

.2 Identification Labels: size 2 indicating system name, eligible current, voltage and phase or as indicated.

3.3 CLEANING

.1 Clean-up during the work: do clean-up work in accordance with section 01 74 11 – Cleaning.

.1 Leave the premises clean at the end of each work day.

3.4 METHOD OF PAYMENT

.1 Junction boxes, pull boxes and splitters are part of tender form article 3.1 – Electrical services and distribution. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Approved: 2006-12-31

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canadian Standards Association (CSA International)

- .1 CAN/CSA C22.2 No. 18-98(R2013), Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware, A National Standard of Canada.
- .2 CSA C22.2 No. 45-M1981(R2013), Rigid Metal Conduit.
- .3 CSA C22.2 No. 56-13, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
- .4 CSA C22.2 No. 83-M1985(R2013), Electrical Metallic Tubing.
- .5 CSA C22.2 No. 211.2-M1984(R2013), Rigid PVC (Unplasticized) Conduit.

1.2 MEASURING FOR PAYMENT PURPOSES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for in accordance with Section 01 74 21 – Construction/ Demolition Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from non-authorized personnel.

Part 2 Products

2.1 CONDUITS

.1 Electrical metallic tubing (EMT): to CSA C22.2 No. 83.

2.2 CONDUIT FASTENINGS

.1 One hole malleable iron straps to secure surface conduits 50 mm and smaller.

- .1 Two hole steel straps for conduits larger than 50 mm.

2.3 CONDUIT FITTINGS

.1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.

.2 Waterproof fittings and fastenings.

.3 Watertight connectors and couplings for EMT.

.1 Set-screws are not acceptable.

2.4 FISH CORD

.1 Polypropylene, 5 mm stranded cord that can withstand 5KN of traction.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Use electrical metallic tubing (EMT) except in cast concrete above 2.4 m and when not subject to mechanical injury.

.2 Install fish cord in empty conduits.

.3 Remove and replace blocked conduit sections.

.1 Do not use liquids to clean out conduits.

.4 Dry conduits out before installing wire.

3.3 CLEANING

.1 Proceed in accordance with Section 01 74 11 – Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.4 METHOD OF PAYMENT

.1 Conduits, fastenings and fittings are part of tender form article 3.2 – Wires and Cables. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 31 23 33.01 - Excavating, trenching and backfilling.

.2 Section 26 05 00 - Commun work results for electrical.

1.2 MEASURING FOR PAYMENT PURPOSES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.3 REFERENCE STANDARDS

.1 CSA International

.2 Insulated Cable Engineers Association, Inc. (ICEA)

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with the provisions of section 01 74 21 - Construction/Demolition Waste Management and Disposal

.2 Remove from the worksite all packaging materials and send them to the appropriate recycling facilities.

.3 Place all packaging materials in the appropriate bins installed on site in accordance with the waste management plan.

.4 Disposing of unused waterproofing products in sewers, watercourses, lakes, on the ground or in any other location where they could pose a risk to health or to the environment is prohibited.

.5 Send all unused components and cables to a metal recycling facility approved by the Departmental Representative.

.6 Wood treated with a preservative should never be burned.

.7 Wood treated with a preservative must be separated from materials and equipment that will be recycled or reused.

.8 Dispose of any treated pieces, waste and sawdust and send them to a landfill approved by the Departmental Representative.

.9 Fold and flatten metal strip straps, and place them in the designated locations for recycling.

Part 2 Products

2.1 CABLE MARKERS

.1 Polypropylene strip on which Underground power line appears.

Part 3 Execution

3.1 DIRECT BURIAL OF CABLES

.1 After sand bed in accordance with Section 31 23 33.01 – Excavating, Trenching and Backfilling, is in place, lay cables maintaining 75 mm clearance from each side of trench to nearest cable.

.1 Do not pull cable into trench.

.2 Include offsets for thermal action and minor earth movements.

.1 Offset cables 150 mm minimum for each 60 m run, maintaining minimum cable separation and bending radius requirements.

.3 Make termination and splice only as indicated leaving 0.6 m minimum of surplus cable in each direction.

.1 Make splices and terminations in accordance with manufacturer's written recommendations using approved splicing kits.

.4 Underground cable splices not acceptable.

.5 Minimum permitted radius at cable bends for rubber, plastic or lead covered cables, 8 times diameter of cable or in accordance with manufacturer's written recommendations; for metallic armoured cables, 12 times diameter of cables or in accordance with manufacturer's instructions.

.6 Cable separation:

.1 Maintain 75 mm minimum separation between cables of different circuits.

.2 Maintain 300 mm minimum horizontal separation between low and high voltage cables.

.3 When low voltage cables cross high voltage cables maintain 300 mm vertical separation with low voltage cables in upper position.

.4 At crossover, maintain 75 mm minimum vertical separation between low voltage cables and 150 mm between high voltage cables.

.5 Maintain 300 mm minimum lateral and vertical separation for fire alarm and control cables when crossing other cables, with fire alarm and control cables in upper position.

.6 Install treated planks on lower cables 0.6 m minimum in each direction at crossings.

.7 After sand protective cover specified in Section 31 23 33.01- Excavating, Trenching and Backfilling, is in place, install continuous row of interlocking cable blocks, overlapping pressure 38 x 140 treated planks, as indicated to cover length of run.

.8 Where markers are removed to permit installation of additional cables, reinstall existing markers.

.9 Install concrete cable markers within 180 m from each side of runway centreline; 45 m from each side of taxi way centreline; 50 m from edge of taxi ramps or aprons.

.10 Install cedar post type markers.

.11 Lay concrete markers flat and centred over cable with top flush with finish grade.

3.2 CABLE MARKERS

.1 Place a cable marker along the length of the cables and everywhere they change direction.

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00- Common Work Results for Electrical.

.2 Perform tests using qualified personnel and include necessary instruments and equipment.

.3 Check phase rotation and identify each phase conductor of each feeder.

.4 Check each feeder for continuity, short circuits and grounds and ensure resistance to ground of circuits is not less than 50 megohms.

.5 Pre-acceptance tests:

- .1 After installing cable but before splicing and terminating, perform insulation resistance test with 1000 V megger on each phase conductor.
- .2 Check insulation resistance after each splice and/or termination to ensure that cable system is ready for acceptance testing.

.6 Acceptance Tests:

- .1 Ensure that terminations and accessory equipment are disconnected.
- .2 Ground shields, ground wires, metallic armour and conductors not under test.
- .3 High Potential (Hipot) Testing.
  - .1 Conduct hipot testing as per manufacturer's recommendations.
- .4 Leakage Current Testing:
  - .1 Raise voltage in steps from zero to maximum values as specified by manufacturer for type of cable being tested.
  - .2 Hold maximum voltage for the time period specified by manufacturer.
  - .3 Record leakage current at each step.

.7 Provide Departmental Representative with list of test results showing location at which each test was made, circuit tested and result of each test.

.8 Remove and replace entire length of cable if cable fails to meet any of test criteria.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Sections 01 74 11, 01 74 21 and 01 35 21.

- .1 Dispose of materials in the appropriate facilities.

3.5 PROTECTION

.1 Repair damage to adjacent materials caused by cables installation.

3.6 METHOD OF PAYMENT

.1 The installation of cables in trenches and ducts are part of tender form article 3.1 – Electrical Services and Distribution. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Materials and constituent parts of dry type transformers up to 600 V primary, their installation and equipment designation.

1.2 RELATED REQUIREMENTS

.1 Section 01 33 00.

.2 Section 26 05 00.

1.3 PAYMENT

.1 An all-inclusive payment is made to cover the cost of the work.

1.4 REFERENCE STANDARDS

.1 CSA International

.1 CAN/CSA-C22.2 No.47-M90(R2007), Air-Cooled Transformers (Dry Type).

.2 CSA C9-02(R2007), Dry-Type Transformers.

.3 CSA-802.2, Minimum Efficiency Values for Dry Type Transformers.

.2 National Electrical Manufacturers Association (NEMA)

1.5 DATA SHEETS

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

1.6 ACTION AND INFORMATIONAL SUBMITTALS

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

1.7 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 DESIGN DESCRIPTION

.1 All prescribed transformers must come from one and the same manufacturer.

.1 Type : ANN.

.2 Triphase, power according to indications, primary voltage of 600 V, secondary voltage of 120/208 V, 3 phases, 60 Hz.

.3 Voltage tap: four (4) of 2½%, 2 PPAN and 2 PP-N.

.4 Winding : copper

.5 Insulation : class 220, temperature increase to 150°C.

.6 Withstand impulse level: standard.

.7 Dielectric strength: standard.

.8 Average sound level : standard.

.9 Impedance at 170°C : standard.

.10 Envelope : AMEEC 2 type, with a removable metal front panel

.11 Installation : ground-mounted on a new concrete base with vibration shocks.

.12 Finish : compliant with section 26 05 00 – Common Work Results for Electrical

2.2 EQUIPMENT IDENTIFICATION

.1 Provide equipment identification in accordance with Section 26 05 00 – Common Work Results for Electrical.

.2 Nameplate wording.

Part 3 Execution

3.1 MANUFACTURERS

.1 Recognized manufacturers: BEMAG Transformer, DELTA Transformer, MARCUS Transformer, SIEMENS, HAMMOND.

3.2 INSTALLATION

.1 Mount dry type transformers on floor.

.2 Ensure adequate clearance around transformer for ventilation.

.3 Install transformers in level upright position.

.4 Remove shipping supports only after transformer is installed and just before putting into service.

.5 Loosen isolation pad bolts until no compression is visible.

.6 Make primary and secondary connections in accordance with wiring diagram.

.7 If possible, energize transformers after installation is complete.

.8 Make conduit entry into bottom 1/3 of transformer enclosure.

3.3 CONNECTION

.1 Make primary and secondary connections in accordance with wiring diagram.

3.4 ON-SITE QUALITY CONTROL

.1 Do testing in compliance with the specifications.

.2 Perform the following tests:

.1 Check the insulation resistance.

.2 Make an electrical check to ensure the magnetic mass is grounded at one point only.

.3 Check the turns ratio on all transformer outlets.

.3 Submit the testing reports and include them in the Operations and Maintenance Manual.

3.5 CLEANING

.1 Cleaning and waste management in accordance with sections 01 74 11, 01 74 21 and 01 35 21.

.1 Dispose of materials in the appropriate facilities.

3.6 PROTECTION

.1 Protect the equipment and installed components from all damage during the construction work.

.2 Repair the damage to adjacent materials and equipment caused by the installation of dry type transformers.

3.7 METHOD OF PAYMENT

.1 Dry type transformers up to 600 V primary are part of tender form article 3.1 – Electrical Services and Distribution. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

.2 Section 26 28 23 - Disconnect switches – fusud and non-fused.

1.2 PAYMENT

.1 An all-inclusive payment is made to cover the cost of the work.

1.3 REFERENCE STANDARDS

.1 CSA C22.2 no 106-FM92(C2001), high breaking capacity fuses.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Product Data:

.1 Provide fuse performance data characteristics for each fuse type and size above 100 A. The characteristics must include the average clearing time for a given current intensity.

.3 Shop Drawings:

.1 Provide shop drawings in accordance with Section 01 33 00- Submittal Procedures.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Ship fuses in original containers.

.2 Do not ship fuses installed in switchboard.

.3 Waste Management and Disposal:

.1 Separate waste materials in accordance with Section 01 74 21 – Construction/ Demolition Waste Management and Disposal.

1.6 EXTRA MATERIALS

.1 Provide maintenance materials in accordance with Section 01 78 00 – Closeout Submittals.

.2 Three (3) spare fuses of each type and size installed above 600 A.

.3 Six (6) spare fuses of each type and size installed up to and including 600 A.

Part 2 Products

2.1 FUSES - GENERAL

.1 Designated LT and JT fuses accepted for use during this work and compliant with CSA 22.2 no 106.

.2 Fuses: product of one manufacturer.

2.2 FUSE TYPES

.1 HRC-1-J fuses:

.1 Deferred-action JT type motor circuits that can handle a current representing 500% of its nominal current for at least 10 seconds.

.2 HRC-L fuses (formerly class L) :

.1 For all other types of deferred-action LT type circuits that can handle a current representing 500% of its nominal current for at least 10 seconds.

Part 3 Execution

3.1 INSTALLATION

.1 Install fuses in mounting devices immediately before energizing circuit.

.2 Ensure correct fuses fitted to physically matched mounting devices.

.3 Ensure correct fuses fitted to assigned electrical circuit.

3.2 METHOD OF PAYMENT

.1 Low-voltage fuses are part of article 3.1 – Electrical Services and Distribution on the tender form. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

.2 Section 26 28 23 - Disconnect switches – fusud and non-fused.

1.2 PAYMENT

.1 An all-inclusive payment is made to cover the cost of the work.

1.3 REFERENCE STANDARDS

.1 CSA Group

.1 CAN/CSA-C22.2 No.4-04(R2009), Enclosed and Dead-Front Switches.

.2 CSA C22.2 No.39-13, Fuseholder Assemblies.

Part 2 Products

2.1 DISCONNECT SWITCHES

.1 Horsepower rated non-fusible and fusible, disconnect switch in CSA enclosure, as indicated.

.2 Possible “closed” or “open” position locking CA lockable.

.3 Mechanically interlocked door to prevent opening when handle in OFF position.

.4 Fuses: size as indicated, in accordance with Section 26 28 13.01- Fuses - Low Voltage.

.5 Fuseholders: suitable without adaptors, for type and size of fuse indicated.

.6 Quick-make, quick-break action.

.7 ON-OFF switch position indication on switch enclosure cover.

.8 Sprinkler splashproof protection type.

2.2 EQUIPMENT IDENTIFICATION

.1 Provide equipment identification in accordance with Section 26 05 00 – Common Work Results for Electrical.

2.3 MANUFACTURERS

.1 Accepted manufacturers : Square D, Eaton, Siemens et GE.

Part 3 Execution

3.1 INSTALLATION

.1 Install disconnect switches complete with fuses if applicable.

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave work area clean at end of each day.

3.3 METHOD OF PAYMENT

.1 Fused and non-fused disconnect switches are part of article 3.1 – Electrical Services and Distribution on the tender form. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

1.2 PAYMENT

.1 An all-inclusive payment is made to cover the cost of the work.

1.3 REFERENCE STANDARDS

.1 CSA International

.1 CSA C22.2 No.14-10, Industrial Control Equipment.

.2 National Electrical Manufacturers Association (NEMA)

.1 NEMA ICS 2-2000 (R2005), Controllers, Contactors and Overload Relays Rated 600 V.

Part 2 Products

2.1 CONTACTORS

.1 Contactors: to EEMAC number ICS-1970.

.2 Electrically held controlled by pilot devices as indicated and rated for type of load controlled. Half size contactors not accepted.

.3 Contactors complete with two (2) normally open and two (2) normally closed auxiliary contacts unless indicated otherwise.

.4 Mount in ACNOR Enclosure, unless otherwise indicated.

.5 Include following options in cover:

.1 Red indicating lamp.

.2 Stop-Start pushbutton.

.3 Hand-Off-Auto selector switch.

.4 On-Off selector switch.

.6 Control transformer: in accordance with Section 26 29 10, and installed in contactor enclosure.

.7 Sprinker splashproof protection type.

2.2 EQUIPMENT IDENTIFICATION

.1 Identify equipment in accordance with Section 26 05 00 – Common Work Results for Electrical.

2.3 MANUFACTURERS

.1 Accepted manufacturers: Square D, Allen-Bradley, Siemens, Eaton et GE.

Part 3 Execution

3.1 INSTALLATION

.1 Install contactors and connect auxiliary control devices.

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.

3.3 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by contactor installation.

3.4 METHOD OF PAYMENT

.1 Contactors are part of article 3.1 – Electrical Services and Distribution on the tender form. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 - Commun work results for electrical.

.2 Section 26 56 19 - Roadway lighting.

1.2 PAYMENT

.1 One comprehensive payment shall be made.

1.3 REFERENCE STANDARDS

.1 IES LM-79 and LM-80, LED luminaire.

.2 Canadian Standards Association (CSA)/CSA International.

.3 CSA C22.2 no 141-15, emergency lighting equipment.

.4 Underwriters' Laboratories of Canada (ULC)

.5 American National Standards Institute (ANSI)

.1 ANSI C82.1-04, Lamp Ballasts-Line Frequency Fluorescent Lamp Ballast.

.2 ANSI C82.4-02(R2007), Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps Multi Supply Type.

.6 American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE)

.1 ANSI/IEEE C62.41-1991, Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.

.7 Canadian Standards Association (CSA International)

.8 ICES-005-07, Radio Frequency Lighting Devices.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

.2 Product Data:

.1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Provide complete photometric data prepared by independent testing laboratory for luminaires where specified, for approval by Departmental Representative.

.3 Manufacturer's instructions: provide manufacturer's written installation instructions and special handling criteria, installation sequence, cleaning procedures.

.3 If the characteristics of a proposed luminaire differ in terms of wattage, lumen output or photometric distribution, the contractor shall provide a photometric study signed by an

engineer member of the Ordre des ingénieurs du Québec that demonstrates equivalent performance of the luminaire in terms of ground lighting.

The proposed luminaire shall then offer an efficiency advantage (lumen/watt) while preserving the position of the light standards on the plans and achieving better performance on the ground.

1.5 QUALITY ASSURANCE

.1 Provide mock-ups in accordance with Section 01 45 00 – Quality Control.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

.3 Packaging Waste Management: recuperate waste in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.4 Divert unused metal materials from landfill to metal recycling facility.

Part 2 Products

2.1 GENERAL

.1 The finish and construction of the light fixtures shall be ULC approved and CSA certified for the type of installation planned.

2.2 LUMINAIRE

.1 In accordance with IES standard LM-79 and LM-80: LED sources, 5,700°K, distribution type II Medium, CRI 70 minimum, life time (to L70) of more than 100,000 hours according to TM 21.

.2 Wattage: 101 W to 525 mA, 10,748 lumens.

.3 Minimum 10-year warranty on all luminaire components and paint finish.

.4 Die-cast aluminum mount, weatherproof, tested for 3G vibration, IP66 waterproof rating and corrosion-resistant paint finish on all parts.

.5 Silver-colored paint finish.

.6 Power requirement: 347 V.

.7 Factory pre-wired luminaire with built-in pilot, ready to be connected by the terminal blocks.

.8 Adjustable arm, see section 26 56 19. Adjusted to an angle of approximately 10 degrees. To be confirmed at the site with the Departmental Representative.

.9 Such as the CREE EDGE series (ARE-EDG-2M-AA-06-E-UH-SV-525-57) or equivalent approved by the Departmental Representative.

2.3 PILOTS

.1 CSA-approved pilots for light-emitting diodes (LED) with the following characteristics:

.1 Nominal voltage according to the luminaire power requirements in the plans.

.2 Under the mount and built for use in temperatures ranging from -40°C to 40°C.

.3 Thermal-sensitive protection.

.4 Harmonic distortion rate of 20% or less.

.5 Life time equal or superior to that of the LED modules of the luminaire.

.6 Protection against short-circuits, open circuits, and voltage surges.

.7 Sound level inaudible to the human ear.

.8 Adequate voltage for the luminaire.

.9 Power factor exceeding 0.9.

Part 3 Execution

3.1 INSTALLATION

.1 Locate and install luminaires as indicated.

.2 Exact location of the lighting fixtures must be according to the plans. If there is a dispute, verify with the Departmental Representative.

3.2 WIRING

.1 Connect luminaires to lighting circuits as indicated, while respecting the balance of the phases across all three (3) phases.

3.3 LUMINAIRE ALIGNMENT

.1 Align luminaires mounted individually parallel or perpendicular to building grid lines unless otherwise indicated.

3.4 FINISH

.1 The finish and construction of the light fixtures shall be ULC approved and CSA certified for the type of installation planned.

3.5 CLEANING

.1 Clean in accordance with Section 01 74 11 – Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials for in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

3.6 METHOD OF PAYMENT

.1 Lighting fixtures are part of article 3.3 of the tender form – Luminaires and Accessories. The price includes, but is not limited to, fixing of the lighting heads to the supports, all electrical connections, securing of arms or shafts, balancing and orientation of arms and

shafts. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00 – Common Work Results for Electrical.

.2 Section 26 50 00 – Lighting.

1.2 PAYMENT

.1 One comprehensive payment shall be made.

1.3 REFERENCE STANDARDS

.1 CSA Group

.1 CSA C22.2 No.206-13, Lighting Poles.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit manufacturer's instructions, printed product literature and data sheets for roadway lighting and include product characteristics, performance criteria, physical size, finish and limitations.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Remove all packaging from site and dispose of materials at an appropriate recycling facility.

.3 Remove all unused wiring and metal items and dispose of the materials at a metal recycling facility approved by the Department Representative.

.4 Fold and flatten metal strip straps and place in the appropriate location for recycling.

.5 Remove unused concrete and concrete components and dispose of the materials at a quarry or local recycling facility approved by the Department Representative.

Part 2 Products

2.1 STEEL POLES

.1 Existing.

.2 Holes for the conductors and brackets to be made on the field.

2.2 LUMINAIRE SUPPORTS

.1 Painted steel arm suitable for the prescribed luminaires with the following characteristics:

.1 Single or double supports, as indicated.

.2 Short articulated arm allowing the luminaire to be fixed directly to the pole and the tilt of the luminaire to be adjusted to between 0 and 15 degrees at a minimum.

.3 Saline mist-resistant finish of the same type and colour as the luminaire.

.4 Such as the CREE PW Series Mid-Pole (PW-2A3-5-SV) or equivalent approved by the Department Representative.

.5 Provide accessories to fix arms to poles.

.6 See manufacturer's installation sheet for mounting brackets for lighting fixtures.

.2 Lighting :

.1 See section 26 50 00 – Lighting.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for roadway lighting installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Install luminaires on the supports.

.1 Install supports on existing poles, ensuring they are straight and in-line, in accordance with the manufacturer's instructions.

.2 Check luminaire orientation, level and tilt.

.3 Connect luminaire to lighting circuit.

.4 Perform tests in accordance with Section 26 05 00 – Common Work Results for Electrical.

3.3 CLEANING

.1 Cleaning: clean in accordance with Section 01 74 11 – Cleaning.

.1 Evacuate surplus materials, waste, tools and equipment from site.

.2 Waste Management: separate waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

3.4 METHOD OF PAYMENT

.1 See Method of payment of Section 26 50 00.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

The work in this section includes but is not limited to:

.1 Dig out all of the tops of the foundation masses where the soil is not 152 mm beneath the top of the foundation mass. Make allowance for 47 such operations.

.2 Reprofiling and rough grading of the top of the footings that have been dug out.

.3 Reprofiling and rough grading of the excavations.

1.2 RELATED REQUIREMENTS

.1 Section 31 23 33.01 – Excavation, trenching and backfilling

.2 Section 32 91 19.13 – Topsoil placement and grading

.3 Section 32 91 19.16 – Hydraulic seeding

1.3 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM D698-12e2, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m3).

.2 Underwriters' Laboratories of Canada (ULC)

1.4 MEASURING FOR PAYMENT PURPOSES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

Part 2 Products

2.1 MATERIALS

.1 Excavated or graded material existing on site suitable to use as fill for grading work if approved by Departmental Representative.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for rough grading installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 STRIPPING OF TOPSOIL

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Departmental Representative.

.2 Commence topsoil stripping of areas after area has been cleared of grasses, brush, and brushwood and weeds and removed from site.

.3 Strip topsoil to depths as directed by Departmental Representative. Rototill weeds, grasses and brushwood and retain as topsoil on site. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as directed by Departmental Representative. Stockpile height not to exceed 2 m.

.5 Dispose of unused topsoil as directed by Departmental Representative.

3.3 GRADING

.1 Perform rough grading at the following depth for all of the footings where grading is required, which are measured below the final specified level.

.1 162mm as indicated in the plans

.2 Slope rough grade away from building as indicated in plans.

.3 Grade ditches to depth required for maximum runoff.

.4 Prior to placing fill over existing ground, scarify surface to depth of 150 mm minimum before placing fill over existing ground. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.5 Compact filled and disturbed areas to maximum dry density to ASTM D698, as follows:

.1 85% under landscaped areas.

.6 Do not disturb soil within branch spread of trees or shrubs to remain.

3.4 TESTING

.1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by ULC. Costs of tests will be paid under a Cash Allowance by Departmental Representative in accordance with Sections 01 29 83- Payment Procedures for Testing Laboratory Services and 01 45 00- Quality Control.

.2 Submit testing procedure, frequency of tests, testing laboratory as designated by ULC or certified testing personnel to Departmental Representative for approval review.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

.3 Waste Management: separate waste materials for recycling/reuse in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal .

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect and/or transplant existing trees, fencing, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain as directed by Departmental Representative. If damaged, restore to original or better condition unless directed otherwise.

.2 Maintain access roads to prevent accumulation of construction related debris on roads.

3.7 METHOD OF PAYMENT

.1 One all-inclusive payment shall be made to cover the cost of digging out the footings. The price includes, but is not limited to, clearance, reprofiling and the redevelopment of surfaces, including hydraulic seeding. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

.2 The reprofiling and rough grading of excavations do not come under any heading on the form. The price is included in the work to reposition the foundation masses or in the trench filling and excavation work. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

The work in this section includes but is not limited to:

.1 The excavation of inclined foundation masses.

.2 The replacement of the foundation cushion of the inclined foundation masses.

.3 The backfilling of excavations up to the required level for the rough grading of the inclined foundation masses.

.4 Excavations of trenches for the installation of underground cables.

.5 The backfilling of trenches dug for the installation of underground cables.

1.2 RELATED REQUIREMENTS

.1 Section 26 05 43.01 – Installation of cables in trenches and in ducts

.2 Section 31 22 13 – Rough grading.

.3 Section 32 91 19.13 – Topsoil placement and grading.

.4 Section 32 91 19.16 – Hydraulic seeding.

1.3 MEASUREMENT PROCEDURES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.4 REFERENCE STANDARDS

.1 American Society for Testing and Materials International (ASTM)

- .1 ASTM C117-17, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136,C136M-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D422-63(2007)e2, Standard Test Method for Particle-Size Analysis of Soils.
- .4 ASTM D698-12e2, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3).
- .5 ASTM D1557-12e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2,700 kN-m/m3).
- .6 ASTM D4318-17, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
- .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.5 DEFINITIONS

.1 Inclined foundation masses: a mass whose current position affects the verticality of the lighting pole. The contractor must obtain written authorization from the Departmental Representative to do repositioning work.

.2 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.

.1 Rock: solid material in excess of 1.00 m^3 and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m^3 bucket. Frozen material not classified as rock.

.2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.3 Unclassified excavation: excavation of deposits of whatever character encountered in Work.

.4 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.5 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.6 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.

.7 Recycled fill material: material, considered inert, obtained from alternate sources and engineered to meet requirements of fill areas.

.8 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Frost susceptible materials:

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM C136: Sieve sizes to CAN/CGSB-8.2.

.2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 4

.3 Coarse grained soils containing more than 20% by mass passing 0.080 mm sieve.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Section 01 45 00- Quality Control:

.1 Submit condition survey of existing conditions as described in EXISTING CONDITIONS article of this Section.

.2 Submit for review by Departmental Representative proposed dewatering heave prevention methods as described in PART 3 of this Section.

.3 Submit to Departmental Representative written notice at least 7 days prior to excavation work to ensure that the cross-sections are determined prior to each of the standard or special excavations.

.4 Submit to Departmental Representative written notice when bottom of excavation is reached.

.5 Submit to Departmental Representative results report as described in PART 3 of this Section.

.3 Preconstruction Submittals:

.1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.

.2 Submit records of underground utility locates, indicating: location plan of relocated and abandoned services, as required, location plan of existing utilities as found in field and clearance record from utility authority.

.4 Samples:

.1 Submit samples in accordance with Section 01 33 00- Submittal Procedures.

.2 Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed source of unshrinkable fill materials and provide access for sampling.

.3 Submit 70kg samples of type of unshrinkable fill specified including representative samples of excavated material.

.4 Ship samples Departmental Representative, in tightly closed containers to prevent contamination and exposure to elements.

1.7 QUALITY ASSURANCE

.1 Do not use soil material until written report of soil test results are reviewed and approved by Departmental Representative.

.2 Health and Safety Requirements:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06- Health and Safety Requirements.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

.2 Divert excess aggregate materials from landfill to local facility for reuse as directed by Departmental Representative.

1.9 EXISTING CONDITIONS

.1 Buried services:

.1 Before commencing work establish location of buried services on and adjacent to site.

.2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.

.3 Remove obsolete buried services within 2 m of foundations: cap cut-offs.

.4 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

.5 Prior to beginning excavation Work, notify applicable Departmental Representative establish location and state of use of buried utilities and structures. Departmental Representative to clearly mark such locations to prevent disturbance during Work.

.6 Confirm locations of buried utilities by careful test excavations.

.7 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered [as indicated].

.8 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing. Costs for such Work to be paid by Departmental Representative.

.9 Record location of maintained, re-routed and abandoned underground lines.

.10 Confirm locations of recent excavations adjacent to area of excavation.

.2 Existing buildings and surface features:

.1 Conduct, with Departmental Representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by Work.

.2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.

.3 Where required for excavation, cut roots or branches as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Type 1 and Type 2 fill: compliant with the following requirements.

.1 Crushed, pit run or screened stone, gravel or sand.

.2 Gradations to be within limits specified when tested to ASTM C136. Sieve sizes to CAN/CGSB-8.2.

.3 Table:

Sieve Designation	% Passing	
	Type 1	Type 2
75 mm	-	100
50 mm	-	-
37.5 mm	-	-
25 mm	100	-

19 mm	75-100	-
12.5 mm	-	-
9.5 mm	50-100	-
4.75 mm	30-70	22-85
2.00 mm	20-45	-
0.425 mm	10-25	5-30
0.180 mm	-	-
0.075 mm	3-8	0-10

.2 Type 3 fill: selected material from excavation or other sources, approved by Departmental Representative for use intended, unfrozen and free from rocks larger than 25mm, cinders, ashes, sods, refuse or other deleterious materials.

.3 MG-20 borrow in compliance with the requirements of this section of the specifications and BNQ 2560-114.

.1 Table:

Sieve Designation	% Passing
	Type 1
112 mm	-
80 mm	-
56 mm	-
31,5 mm	100
20 mm	9 – 100
14 mm	68 – 93
5 mm	35 – 60
1,25 mm	19 – 38
0,315 mm	9 – 17
0,160 mm	-
0,080 mm	2 – 7

.4

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.3 PREPARATION/PROTECTION

.1 Protect the existing components to limit any type of potential damage that could cause a service shutdown. The contractor must forward in writing the protective methods they intend to use. The contractor must protect at least the following: buildings, trees, plants, lawns, fences, connection poles, cables, roadway coverings, boundary pillars and grading benchmarks, etc. that can be affected by the work.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative approval.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

.5 Protect buried services that are required to remain undisturbed.

3.4 STRIPPING OF TOPSOIL

.1 Begin topsoil stripping of areas after area has been cleared of weeds, grasses, brush and removed from site.

.2 Strip topsoil to depths as directed by Departmental Representative.

.1 Do not mix topsoil with subsoil.

.3 Stockpile in locations as directed by Departmental Representative.

.1 Stockpile height not to exceed 2 m and should be protected from erosion.

.4 Dispose of unused topsoil as directed by Departmental Representative.

3.5 STOCKPILING

.1 Stockpile fill materials in areas designated by Departmental Representative.

.1 Stockpile granular materials in manner to prevent segregation.

.2 Protect fill materials from contamination.

.3 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.6 DEWATERING AND HEAVE PREVENTION

.1 Keep excavations free of water while Work is in progress.

.2 Provide for approval Departmental Representative review details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.

.3 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

.1 Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.4 Protect open excavations against flooding and damage due to surface run-off.

.5 Dispose of water in accordance with Section 01 35 43- Environmental Procedures and in]manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

3.7 EXCAVATION

.1 Advise Departmental Representative at least 7 days in advance of excavation operations for initial cross sections to be taken.

.2 Excavate to lines, grades, elevations and dimensions as indicated in plans.

.3 Remove all obstructions encountered during excavation in accordance.

.4 Excavation must not interfere with bearing capacity of adjacent foundations.

.5 For trench excavation, unless otherwise authorized by Departmental Representative writing, do not excavate more than 40 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.

.6 Keep excavated and stockpiled materials safe distance away from edge of trench as directed by Departmental Representative.

.7 Restrict vehicle operations directly adjacent to open trenches.

.8 Dispose of surplus and unsuitable excavated material off site.

.9 Do not obstruct flow of surface drainage or natural watercourses.

.10 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.11 Notify Departmental Representative when bottom of excavation is reached.

.12 Obtain Departmental Representative approval of completed excavation.

.13 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by Departmental Representative.

.14 Correct unauthorized over-excavation as follows:

.1 Fill under bearing surfaces and footings with fill concrete Type 2 fill compacted to not less than 90% of corrected Standard Proctor maximum dry density.

.2 Fill under other areas with Type 2 fill compacted to not less than 90% of corrected Standard Proctor maximum dry density.

.15 Hand trim, make firm and remove loose material and debris from excavations.

.1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

3.8 OBSTACLES ALONG THE COURSE OF THE TRENCHES

.1 To avoid damaging existing installations or equipment not covered in this contract:

.1 During trenching, make an exception and work around (as shown in the plan) the Hydro-Québec wooden telephone poles between the bases of lighting poles #1 and #2;

.2 During trenching, make an exception and work around (as shown in the plan) the guard post structures between the bases of lighting poles #15 and #16 in the event of interference;

.3 During trenching, make an exception and work around (as shown in the plan) the guard post structures between the bases of lighting poles #35 and #46 in the event of interference;

.4 Do trenching work near the base of lighting pole #3 and work around the surveillance camera structure bases and their underground cables, as shown in the plan.

.5 Do trenching work in the middle section close to the chain-link fence but move the trench over by about 300 mm from the fence.

.6 Make allowance for possible emergency vehicle traffic close to the main entrance while work is being done in the area of lighting poles #19, #20 and #21. Work shall be done in close cooperation with the Departmental Representative.

.7 Protect the integrity of the existing building between bases #43 and #45 during trenching.

.8 During trenching, work around the pad-mounted transformers (between bases # 38 and #37 and bases #36 and #35) on the other side of the chain-link fence to maintain the integrity of the underground electrical utilities linked to the pad-mounted transformers.

.9 The work in the aforementioned locations must be performed in close coordination with the Departmental Representative.

3.9 REPLACEMENT OF THE SUPPORT CUSHION

.1 Once the inclined foundation masses have been completely excavated, replace the existing stone cushion with a new stone cushion as indicated in the plans. Anticipate repositioning 4 foundation masses.

.2 The support cushion must sit on undisturbed soil.

.3 The minimum 300 mm thickness must be adjusted to ensure the final level of the foundations.

.4 The materials used for the stone cushion and its flatness must be inspected and approved by the Departmental Representative.

3.10 FILL TYPES AND COMPACTION

.1 Use types of fill as indicated or specified in plans. Compaction densities are percentages of maximum densities obtained from CAN/BNQ 2501-255.

3.11 BEDDING AND SURROUND OF UNDERGROUND SERVICES

.1 Place and compact granular material for bedding and surround of underground services as indicate.

.2 Place bedding and surround material in unfrozen condition.

3.12 BACKFILLING

.1 Do not proceed with backfilling operations until completion of following:

- .1 Departmental Representative has inspected and approved installations.
- .2 Departmental Representative has inspected and approved of construction below finish grade.
- .3 Inspection, testing, approval, and recording location of underground utilities.
- .4 Removal of concrete formwork.
- .5 Removal of shoring and bracing; backfilling of voids with satisfactory soil material.

.2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.3 Do not use backfill material which is frozen or contains ice, snow or debris.

.4 Place backfill material in uniform layers not exceeding 300 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.

.5 Backfilling around installations:

- .1 Place bedding and surround material as specified elsewhere.
- .2 Do not backfill around or over cast-in-place concrete within 48 hours after placing of concrete.
- .3 Place layers simultaneously on both sides of installed Work to equalize loading. Difference not to exceed 0.3 m.
- .4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:
  - .1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from Departmental Representative:
  - .2 If approved by Departmental Representative, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Departmental Representative.

3.13 RESTORATION

.1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21- Construction/Demolition Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.

.2 Proceed with rough grading for excavations performed in accordance with section 31 22 13 – Rough Grading

.3 Once the rough grading has been done, proceed with the finish grading and topsoil placement for the excavations in accordance with section 32 91 19.13.

.4 Once the grading and topsoil placement are complete, proceed with hydraulic seeding for excavations performed in accordance with section 32 91 19.16.

.5 Reinstate pavements disturbed by excavation to thickness, structure and elevation which existed before excavation.

.6 Clean and reinstate areas affected by Work as directed by Departmental Representative and in accordance to section 01 74 11 – Cleaning.

.7 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

3.14 METHOD OF PAYMENT

.1 One all-inclusive payment shall be made to cover the cost of repositioning of foundation masses. This price includes but is not limited to excavation, the replacement of the stone cushion, the repositioning of masses, backfilling, reprofiling and the redevelopment of surfaces, including hydraulic seeding. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

.2 An all-inclusive payment shall be made to cover the cost of excavation and the backfilling of trenches. This price includes but is not limited to excavation, backfilling and the redevelopment of surfaces, including hydraulic seeding. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK

The work in this section includes but is not limited to:

.1 Finish grading

.2 Topsoil placement

1.2 RELATED REQUIREMENTS

.1 Section 31 22 13 – Rough grading

.2 Section 31 23 33.01 – Excavation, trenching and backfilling

.3 Section 32 92 19.16 – Hydraulic seeding

1.3 MEASUREMENT PROCEDURES

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.4 PAYMENT

.1 Topsoil analysis: The Departmental Representative shall cover the cost of the topsoil analysis in accordance with section 01 29 83- Payment Procedures for Testing Laboratory Services.

1.5 REFERENCE STANDARDS

.1 Agriculture and Agri-Food Canada

.1 The Canadian System of Soil Classification, Third Edition, 1998.

.2 Canadian Council of Ministers of the Environment

.1 PN1340-2005, Guidelines for Compost Quality.

1.6 DEFINITIONS

.1 Compost:

.1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.

.2 Compost is processed organic matter containing 40% or more organic matter as determined by Walkley-Black or Loss On Ignition (LOI) test.

.3 Product must be sufficiently decomposed (i.e. stable) so that any further decomposition does not adversely affect plant growth (C:N ratio below 25, and contain no toxic or growth inhibiting contaminates.

.4 Composed bio-solids to: CCME Guidelines for Compost Quality, Category A.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.

.2 Quality control submittals:

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

.2 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.8 QUALITY ASSURANCE

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

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

.2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Departmental Representative.

.3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 TOPSOIL

.1 Topsoil for seeded areas: mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.

.1 Soil texture based on The Canadian System of Soil Classification, to consist of 65% sand, minimum 15 % clay, contain 10% organiques organic and 10% of limestone matter by weight.

.2 Contain no toxic elements or growth inhibiting materials.

.3 Finished surface free from:

.1 Debris and stones over 50 mm diameter.

.2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

.4 Consistence: friable when moist.

2.2 SOIL AMENDMENTS

.1 Fertilizer:

.1 Fertility: major soil nutrients present in following amounts:

.2 Nitrogen (N): minimum of 25 kg/ha of topsoil.

.3 Phosphorus (P): minimum of 75 kg/ha of topsoil.

.4 Potassium (K): minimum of 25 kg/ha of topsoil.

.5 Calcium, magnesium, sulphur and micro-nutrients present in balanced ratios to support germination and/or establishment of intended vegetation.

.6 Ph value: 6.5 to 7.0.

.2 Peatmoss:

.1 Derived from partially decomposed species of Sphagnum Mosses.

.2 Elastic and homogeneous, brown in colour.

.3 Free of wood and deleterious material which could prohibit growth.

.4 Shredded particle minimum size: 5mm.

.3 Sand: washed coarse silica sand, medium to course textured.

.4 Organic matter: compost Category A in accordance with CCME PN1340, unprocessed organic matter, such as rotted manure, hay, straw, bark residue or sawdust, meeting the organic matter, stability and contaminant requirements.

.5 Limestone:

.1 Ground agricultural limestone.

.2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.

.6 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and other micro-nutrients suitable to specific plant species or application or defined by soil test.

2.3 SOURCE QUALITY CONTROL

.1 Advise Departmental Representative of sources of topsoil to be utilized with sufficient lead time for testing.

.2 Contractor is responsible for amendments to supply topsoil as specified.

.3 Soil testing by recognized testing facility for PH, P and K, and organic matter.

.4 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative.

.1 Soil sampling, testing and analysis to be in accordance with Provincial standards.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 STRIPPING OF TOPSOIL

.1 Begin topsoil stripping of areas as directed by Departmental Representative after area has been cleared of grasses, weeds, brush and removed from site.

.2 Strip topsoil to depths as directed by Departmental Representative.

.1 Avoid mixing topsoil with subsoil where textural quality will be moved outside acceptable range of intended application.

.3 Stockpile in locations as directed by Departmental Representative.

.1 Stockpile height not to exceed 2m.

.4 Disposal of unused topsoil is to be in an environmentally responsible manner but not used as landfill as directed by Departmental Representative.

.5 Protect stockpiles from contamination and compaction.

3.3 PREPARATION OF EXISTING GRADE

.1 Verify that grades are correct.

.1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.

.2 Grade the soil to eliminate dips and roughness, and create a slope as indicated in the plans, which allows for effective water runoff over a 4 m area along the perimeter of the excavations.

.3 Remove debris, roots, branches, stones in excess of 50mm diameter and other deleterious materials.

.1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.

.2 Remove debris which protrudes more than 75mm above surface.

.3 Dispose of removed material off site.

.4 Cultivate entire area which is to receive topsoil to minimum depth of 100mm.

.1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

.1 Place topsoil after Departmental Representative has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm.

.3 For sodded areas keep topsoil 15mm below finished grade.

.4 Spread topsoil [as indicated]to following minimum depths after settlement.

.1 150mm for seeded areas.

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

3.5 FINISH GRADING

.1 Grade the soil to eliminate dips and roughness, and create a slope as indicated in the plans, which allows for effective water drainage.

.1 Prepare loose friable bed by means of cultivation and subsequent raking.

.2 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.

.1 Leave surfaces smooth, uniform and firm against deep footprinting.

3.6 ACCEPTANCE

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

3.7 SURPLUS MATERIAL

.1 Dispose of materials except topsoil not required where directed by Departmental Representative.

3.8 CLEANING

.1 Proceed in accordance with Section 01 74 11- Cleaning.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.9 METHOD OF PAYMENT

.1 The finish grading and topsoil placement do not come under a heading on the sheet. The price is included in the prices charged for digging out the footings, the repositioning of the foundation masses and the excavation and backfilling of the trenches. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

Part 1 General

1.1 SCOPE OF WORK.

The work in this section includes but is not limited to:

.1 Surfaces that require sodding due to excavation work.

1.2 RELATED REQUIREMENTS

.1 Section 32 91 19.13 – Topsoil placement and grading

1.3 MEASUREMENT AND PAYMENT

.1 No separate measuring is required as one comprehensive payment shall be made to cover the work.

1.4 ADMINISTRATIVE ARRANGEMENTS

.1 Meeting prior to implementation: hold a meeting at which the work requirements, implementation instructions and the warranty terms will be examined in accordance with section 01 31 19- Project Meetings.

.2 Work schedule

.1 Arrange the hydraulic seeding schedule such that it coincides with the surface preparation work.

.2 Proceed with the hydraulic seeding using mixtures of grass between the dates recommended by the provincial ministry of agriculture.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00- Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for seed, mulch, tackifier, fertilizer, liquid soil amendments and micronutrients.

.2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 43- Environmental Procedures and 01 35 29.06- Health and Safety Requirements.

.3 Submit in writing:

.1 Volume capacity of hydraulic seeder in litres.

.2 Amount of material to be used per tank based on volume.

.3 Number of tank loads required per hectare to apply specified slurry mixture per hectare.

.4 Samples:

.1 Submit 0.5kg container of each type of fertilizer used.

.5 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.6 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

1.6 QUALITY ASSURANCE

.1 Qualifications:

.1 Landscape Contractor: to be a Member in Good Standing of Québec.

.2 Landscape Planting Supervisor: Landscape Industry Certified Technician with Softscape Installation designation.

.3 Landscape Maintenance Supervisor: Landscape Industry Certified Technician with Turf Maintenance designation.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Transport, store and warehouse materials and equipment in accordance with sections 01 35 13 - CSC Security, 01 52 00 - Construction Facilities and 01 61 00 Common Product Requirements.

.2 Delivery and Acceptance Requirements:

.1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.

.2 Inoculant containers to be tagged with expiry date.

.3 Storage and Handling Requirements:

.1 Store fertilizer in dry location, off ground, indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

1.8 WARRANTY

.1 For seeding, 12 months warranty period is extended to 1 full growing season.

.2 End-of-warranty inspection will be conducted by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Seed: "Canada pedigreed grade" in accordance with Government of Canada Seeds Act and Regulations.

.1 Grass mixture: "Certified", "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".

.1 Mixture composition:

50% creeping red fescue (Festuca rubra L.var.);

30% Kentucky bluegrass (Poa pratensis L.);

10% colonial bentgrass (Agrostis capillaris L.) or 10% redtop (Agrostis gigantea Roth);

10% perennial rye grass (Lolium perenne). CCDG 19.3.6.1

.2 Mulch: specially manufactured for use in hydraulic seeding equipment, [non-toxic, water activated, green colouring], free of germination and growth inhibiting factors with following properties:

.1 Type I mulch:

.1 Made from wood cellulose fibre.

.2 Organic matter content: 95% plus or minus 0.5%.

.3 Value of pH: 6.0.

.4 Potential water absorption: 900%.

.3 Tackifier: water soluble vegetable carbohydrate powder.

.4 Water: free of impurities that would inhibit germination and growth.

.5 Fertilizer:

.1 To Canada "Fertilizers Act" and Regulations.

.2 The basic formula must abide by a 1-3-1 proportion, with a minimum of 25 kg/ha of nitrogen, 75 kg/ha of phosphorous and 25 kg/ha of potassium. See CCDG 19.3.6.5.

.6 Inoculants: inoculant containers to be tagged with expiry date.

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for hydraulic seeding in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLERS

.1 Use installers members in Good Standing of ASHOQ.

3.3 PROTECTION OF EXISTING CONDITIONS

.1 Protect structures, signs, guide rails, fences, plant material, utilities and other surfaces not intended for spray.

.2 Immediately remove any material sprayed where not intended as directed by Departmental Representative.

3.4 PREPARATION OF SURFACES

.1 Do not perform work under adverse field conditions such as wind speeds over 10km/h, frozen ground or ground covered with snow, ice or standing water.

.2 Fine grade areas to be seeded free of humps and hollows.

.1 Ensure areas are free of deleterious and refuse materials.

.3 Cultivated areas identified as requiring cultivation to depth of 25mm.

.4 Ensure areas to be seeded are moist to depth of 150mm before seeding.

.5 Obtain Departmental Representative's approval of grade and topsoil depth before starting to seed.

3.5 FERTILIZING PROGRAM

.1 Fertilize prior to fine grading applying fertilizer equally distributed.

.2 Than, fertilize during establishment and warranty periods applying fertilizer equally distributed.

3.6 PREPARATION OF SLURRY

.1 Measure quantities of materials by weight or weight-calibrated volume measurement satisfactory to Departmental Representative. Supply equipment required for this work.

.2 Charge required water into seeder. Add material into hydraulic seeder under agitation. Pulverize mulch and charge slowly into seeder.

.3 After materials are in seeder and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.

3.7 SLURRY APPLICATION

.1 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.

.2 Hydraulic seeding equipment:

.1 Slurry tank.

.2 Agitation system for slurry to be capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and/or mechanical agitation method.

.3 Capable of seeding by 50m hand operated hoses and appropriate nozzles.

.3 Spread a seed mixture made up of components preapproved by the Departmental Representative. The contractor must submit component quantities for 1 hectare to the Departmental Representative prior to the start of the work. The quantities indicated are for (1) hectare.

.4 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.

.1 Using correct nozzle for application.

.2 Using hoses for surfaces difficult to reach and to control application.

.5 Blend application 300mm into adjacent grass areas or sodded areas or previous applications to form uniform surfaces.

.6 Re-apply where application is not uniform.

.7 Remove slurry from items and areas not designated to be sprayed.

3.8 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.

.1 Leave Work area clean at end of each day.

.2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

.1 Clean and reinstate areas affected by Work.

.3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

.2 Divert unused fertilizer from landfill to official hazardous material collections site approved by Departmental Representative.

3.9 PROTECTION

.1 Protect seeded areas from trespass until plants are established.

.2 Remove protection devices as directed by Departmental Representative.

3.10 MAINTENANCE DURING ESTABLISHMENT PERIOD

.1 Ensure maintenance is curried out under supervision of certified Landscape Maintenance Supervisor.

.2 Perform following operations from time of seed application until acceptance by Departmental Representative.

.3 Grass Mixture:

.1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.

.2 Mow grass to 50mm whenever it reaches height of 70mm. Remove clippings which will smother grass as directed by Departmental Representative.

.3 Fertilize seeded areas after first cutting]in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles; water in well.

.4 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.

.5 Water seeded areas to maintain optimum soil moisture level for germination and continued growth. Control watering to prevent washouts.

3.11 ACCEPTANCE

.1 Seeded areas will be accepted by Departmental Representative provided that:

- .1 Seeded areas are free of rutted, eroded, bare or dead spots. Plants are uniformly established.
- .2 Areas have been mown at least twice.
- .3 Areas have been fertilized.
- .4 Growth has reached at least 150 mm over at least 75% of each square metre of the sodded surface and after the second fertilization.
- .5 The proportion of adventive plants is at least 10% per square metre of the sodded surface.

.2 Areas seeded in fall will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.12 MAINTENANCE DURING WARRANTY PERIOD

.1 Perform following operations from time of acceptance until end of warranty period:

- .1 Repair and reseed dead or bare spots to satisfaction of Departmental Representative.
- .2 Mow areas seeded, remove clippings that will smother grassed areas, as directed by Departmental Representative.
- .3 Fertilize seeded areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

3.13 METHOD OF PAYMENT

.1 Hydraulic seeding does not come under any heading on the form. The price is included in the prices of digging out the footings, repositioning the foundation masses and repositioning the inclined foundation masses, and the excavation and backfilling of the trenches. The price covers all applicable permits and charges, mobilization, materials, equipment, transport, labour, disposal and also any incidental expenses.

END OF SECTION

ANNEX

Loi canadienne sur l'évaluation environnementale

FORMULAIRE DE SURVEILLANCE ENVIRONNEMENTALE

IDENTIFICATION DU PROJET		
Promoteur :	Service Correctionnel Canada	
Titre du projet :	Remplacement de l'éclairage périmétrique à l'établissement de La Macaza	
Date de réalisation des travaux :		
Date de réalisation de la surveillance :		
Activité de surveillance réalisée :	☐	Visite sur le terrain lors des travaux
	☐	Autre activité de surveillance (spécifier) :

		FOURNIR		**MESURE RÉALISÉE**		
	MESURES D'ATTÉNUATION	Photos	Documents	oui	non	**COMMENTAIRES** (Si mesure non réalisée, veuillez justifier)
	GÉNÉRAL					
1	Choisir les secteurs qui recevront l'équipement de chantier, les débris de démantèlement, le lavage des engins de chantier et prendre les précautions nécessaires pour minimiser le déplacement de sols potentiellement contaminés. Identifier l'aire de manipulation des matières dangereuses.		**X**			
2	Doter le chantier de tous les équipements nécessaires pour empêcher toute dispersion de déchets dans l'environnement (toilettes chimiques transportables, poubelles, bacs, etc.).					
3	Faire une inspection visuelle pour vérifier la nidification d'oiseaux dans les poteaux. En cas de présence de nidification, suspendre les travaux à proximité du poteau et avertir le Représentant du Ministère. Prendre les dispositions nécessaires en conformité avec les lois en vigueur.					
	SOL					
4	Effectuer une surveillance pendant les travaux d'excavation pour assurer une ségrégation adéquate des sols et gérer les sols de sorte qu'ils ne constituent pas une source de contamination d'un plan d'eau par la remise en suspension de matériaux.					
5	Procéder aux travaux de remblayage dans la journée même des excavations des tranchées.					
6	Interrompre les travaux et aviser sans délai le représentant du SCC, advenant un doute sur la contamination des sols ou en cas de découverte de sols présentant des indices visuels et olfactifs d'une contamination aux hydrocarbures pétroliers ou de produits dangereux.					
	EAU					
7	Dans la bande de 30 m bordant un cours d'eau, le couvert végétal sera maintenu et il sera interdit d'y entasser la matière organique provenant des excavations ou d'y amonceler des déchets.					
8	Si le drainage de surface risque d'entraîner des sédiments dans un plan d'eau, appliquer des mesures pour contenir les sédiments ou les détourner afin qu'ils n'atteignent pas le plan d'eau.					
	PRODUITS PÉTROLIERS, MATIÈRES DANGEREUSES ET MATIÈRES RÉSIDUELLES					

		FOURNIR		MESURE RÉALISÉE		
MESURES D'ATTÉNUATION		Photos	Documents	oui	non	**COMMENTAIRES** (Si mesure non réalisée, veuillez justifier)
9	Avant d'entreprendre les travaux, soumettre un plan détaillé de réduction des déchets conformément à la section 01 74 21 -Gestion et élimination des déchets de construction/démolition.		X			
10	À la fin des travaux, soumettre les documents requis conformément à la section 01 74 21- Gestion et élimination des déchets de construction/démolition.		X			
11	Placer dans des contenants désignés les substances qui correspondent à la définition de déchets toxiques ou dangereux.					
12	Avoir sur place et en tout temps du matériel d'intervention en cas de déversement de contaminants. Tout déversement de contaminants doit faire l'objet de mesures immédiates d'intervention pour confiner et récupérer les produits (même minime). Nettoyer et enlever le matériel contaminé et l'acheminer à un site autorisé via une firme spécialisée, pour en disposer conformément à la réglementation en vigueur.	X				
13	En cas de déversement, aviser sans délai le Représentant du Ministère et, si nécessaire, le service d'urgence d'ECCC (1-866-283-2333) et d'Urgence-Environnement du MDDELCC (1-866 694-5454).					
14	Prévoir des mesures de prévention et de sécurité, et établir un plan d'intervention en cas de déversement.		X			
15	Placer la machinerie remisée pour la nuit ou pour de courtes périodes sur des surfaces non poreuses, où il est possible de récupérer un déversement.					
16	Le nettoyage, l'entretien et le ravitaillement de la machinerie sera effectué sous surveillance constante et, à une distance de plus de 30 m d'un cours d'eau.					
17	Utiliser des bacs de rétention sous les appareils et équipements stationnaires qui montrent des fuites d'hydrocarbures ou qui doivent être réapprovisionnés périodiquement (génératrices, compresseurs, etc.).					
18	Ne pas accumuler des déchets de chantier à moins de 30 m des plans d'eau et à moins de 60 m, s'ils contiennent ou risquent de contenir des contaminants.					
19	Le surplus de béton et les eaux ayant servi au nettoyage des bétonnières, des véhicules et du matériel doivent être mis au rebut dans une aire prévue à cette fin, à plus de 30 m des rives, et de manière à éviter toute contamination du milieu.					
20	Utiliser une machinerie en bon état de fonctionnement afin d'éviter toute fuite de lubrifiant ou de carburant. Aucun entretien de véhicules n'est prévu sur le site. Toutefois, si ces opérations ne peuvent être effectuées à l'extérieur de la zone d'étude, des aires de d'entretien et de réparation doivent être clairement identifiées, respectées et aménagées à ces fins.					

Commentaires (observations sur le terrain, mauvaise gestion des déchets, présence d'huiles usées, fuites sur la machinerie, travaux réalisés pas pris en compte dans l'évaluation environnementale, etc. - tout détail n'étant pas mentionné dans les mesures d'atténuation) :
RÉALISATION DE LA SURVEILLANCE

Préparé par:	
Date:	
Titre :	
Organisme :	
No de tél. :	

PROMOTEUR - Je certifie que les renseignements fournis ci-dessus sont exacts et complets.

Signature :	_____	Date :	
Signataire autorisé :			
Titre du poste :			
Organisme :			

<u>Note</u> : Ce formulaire de surveillance environnementale du respect des mesures d'atténuation <u>ou un rapport équivalent,</u> complété par le surveillant de chantier, devra être acheminé à Martin Tanguay (Martin.Tanguay@csc-scc.gc.ca) à la fin des travaux.

APPROBATION DE LA SURVEILLANCE (pour usage interne – ne rien inscrire dans cette section)		
Vérifié par :		
Titre, dir. :		
Date :		
Commentaires :		
Approbation :	☐ Formulaire de surveillance conforme	☐ Formulaire non-conforme (voir commentaires pour justification)
Signature :		