## Part 1 General

### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 The work addressed in this contract relates to replacing the automatic sprinkler system and upgrading the fire alarm system in several buildings at the Grosse Île and the Irish Memorial National Historic Site of Canada, including:

- .1 The Third-Class Hotel (Building 19)
- .2 The Disinfection Building (Building 29)
- .3 The Workshop/Office (Building 32)
- .4 The Lazaretto (Building 100)
- .5 Water filtration factory.

Other more minor work (supply and installation of a nitrogen generator and related works) will take place in the following buildings:

- .6 The First-Class Hotel (Building 14)
- .7 The Catholic Chapel (Building 48)

.2 The buildings and the site are the property of Parks Canada.

.3 The scope of work varies from one building to another. The work primarily consists of, without being limited to, the following areas:

- .1 Automatic sprinklers: total or partial overhaul of the sprinkler system and/or replacement or addition of equipment.
- .2 Fire alarm: partial or total overhaul of the system and/or replacement of equipment and instruments.
- .3 Electricity: various connections to ensure proper operation of fire protection equipment.
- .4 Architecture: patching of insulation as well as gypsum and plaster as work resulting from mechanical and electrical interventions.

### 1.2 GENERAL SITE INFORMATION

.1 Parks Canada employees live on the island year-round. During the winter season, from November to mid-April, two to four people live in houses in the “Centre” and “Eastern” Sectors of the island. They are responsible for maintaining the buildings and infrastructures (generator, drinking water and wastewater treatment station, etc.). However, during the operating period (April to October), just over twenty people may live there full-time, i.e. maintenance employees, tour guides and supervisors. The island welcomes approximately 30,000 visitors per year. These visitors access the island using various ferry services primarily originating from Berthier-sur-Mer and Quebec City. Since 2011, the majority of the island has been accessible by foot and a trolley runs between the “Western” and “Eastern” sectors. Contractors may charter, at their own cost, small aircraft from Air Montmagny to transport their employees and freight from the Montmagny airport. There is also the option of chartering boats from the Montmagny/Berthier region or a barge from Quebec City or elsewhere in the province.

## 1.3 HOUSING AND MEALS

.1 Parks Canada will make available a few multiple-occupancy rooms as well as a common kitchen for meal preparation to the main contractor and its employees. Availability of these accommodations will be subject to operational needs and constraints of the island. Some elements may not be available at all times. Any request for housing is subject to Parks Canada's approval; Parks Canada may limit the number of employees and rooms available, in the event that availability is limited. Parks Canada envisions being able to allocate four to six beds in common rooms with common facilities.

.2 It should be noted that there is no restaurant, cafeteria or grocery store on the island.

.3 The contractor shall ensure the areas used by its employees, such as bedrooms, kitchen and common areas (bathrooms and showers), are properly maintained. Furthermore, the contractor's employees shall demonstrate dignified and respectful behaviour at all times, including outside work hours. This requirement specifically includes prohibitions with regards to consumption of illicit substances and being inebriated on the work site.

## 1.4 WORK SEQUENCE

.1 Construct work in stages to accommodate Departmental Representative's continued use of premises during construction.

.2 Work shall take place from:

.1 – October 15, 2017 through May 15, 2018.

.3 Co-ordinate Progress Schedule with Departmental Representative, according to occupancy during construction.

.4 Perform work in stages to provide for continuous usage.

.5 Maintain fire access/control.

.6 Submit a work schedule as soon as contract is awarded, taking into account this specific data, and submit to Departmental Representative for approval.

.7 Take into account the fact that this work will be performed in historical buildings and must respect heritage building constraints that require great care and attention to detail.

## 1.5 CONTRACTOR USE OF PREMISES

.1 Site may be used until substantial performance of work.

.2 Limit use of premises for work, storage, and access to allow:

.1 Departmental Representative's occupancy of the premises.

.3 Departmental Representative's instructions.

.4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.6 Repair or replace portions of existing work that have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.

.7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

.8 Any use of the wharf is subject to approval from Parks Canada, and shall be based on availability. Give priority to the loading/unloading of passenger vessels and ensure site safety at all times during loading operations. Ensure the safety of barge moorings whenever barges are docked, taking tides into account.

## 1.6 DEPARTMENTAL REPRESENTATIVE'S OCCUPANCY OF THE PREMISES

.1 The Departmental Representative shall occupy the premises during the entire construction period for execution of normal operations.

.2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative usage.

## 1.7 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

.1 Accept liability for damage, safety of equipment and overloading of existing equipment.

.2 Minimize structural interventions as much as possible, in order to preserve the heritage nature of the buildings. Take this requirement into account when preparing work methods and service proposals. This is particularly important with regard to pipes going through walls and partitions, which must be avoided.

.3 Repair plaster damaged by work around detectors, conduit, wiring, panels and other components, unless otherwise indicated. Touch up paint in areas affected, with paint colour identical to existing surface.

## 1.8 EXISTING SERVICES

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

.2 Where work involves breaking into or connecting to existing services, give Departmental Representative 48 hours' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to normal operations.

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

.4 Submit schedule to and obtain approval from Departmental Representative for any shutdown or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.5 Provide temporary services when directed by Departmental Representative to maintain critical building systems.

.6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.7 Protect, relocate or maintain existing active service lines. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.8 Record locations of maintained, re-routed and abandoned service lines.

## 1.9 DOCUMENTS REQUIRED

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

- .1 Contract drawings
- .2 Specifications
- .3 Addenda
- .4 Reviewed shop drawings
- .5 List of outstanding shop drawings
- .6 Change orders
- .7 Other modifications to contract
- .8 Field test reports
- .9 Copy of approved work schedule
- .10 Health and safety plan and other safety-related documents
- .11 Other documents as specified

## 1.10 PUBLIC SAFETY

.1 During work, site shall remain operational, and for a short period of time (May 2018) will welcome visitors; other employers as well as numerous Parks Canada employees will be present on the island. Therefore, limit access to construction site and take care not to disrupt site operations. Install signs and a safety fence or appropriate rope to cordon off, inform and protect public from construction site. Parks Canada's technical service coordinator has authority with regards to acceptability and compliance of safety measures and guidelines.

## 1.11 RESTRICTIONS

.1 Movement of vehicles, equipment, boats and airplanes shall respect island's operational needs, to the project manager's (technical service coordinator's) satisfaction; the latter shall establish priorities in the event of schedule conflicts or unavailability of infrastructures and/or machinery. It should be noted that other work will be taking place at the same time on the island. Consequently, work associated with this mandate shall take into account needs and constraints associated with the other construction sites. In the event of a conflict regarding needs and availabilities, Parks Canada's technical service coordinator shall have authority to assign priorities. Contractor undertakes to follow Parks Canada's technical service coordinator's directives, at no additional cost.

**1.12 HEALTH AND SAFETY STANDARDS**

.1 Comply with Safety Code for the Construction Industry for Québec and Canadian Labour Code. Implement whatever safety measures necessary to ensure safety of own employees, other people who have access to construction site, as well as public moving about in the vicinity throughout the entire duration of work.

.2 Parks Canada has no medical or emergency services on the island and access to such services may be limited or impossible at night or in times of unfavourable weather conditions. Take these factors into account and implement whatever measures necessary, such as insurance coverage, to protect employees in the event, for example, of the need for an emergency evacuation.
Parks Canada's technical service coordinator has authority with regards to acceptability and compliance of safety measures and compliance with code.

**1.13 TRANSPORTATION**

.1 Provide and pay for transportation to the island of materials, tools and equipment necessary for the work, as well as worker transportation. Provide manpower necessary to unload and temporarily store shipments. Provide and pay for transportation on the island of materials, tools, equipment and workers. No Parks Canada vehicles or machinery may be used by the Contractor within the context of the work.

.2 Contractor may, at its own cost, charter airplanes or boats/barges and make use of wharf and/or landing strip within the limits of their respective capacities as well as their operational and technical availabilities. Any use of the said facilities shall be the subject of pre-approval by the Parks Canada project manager, in order to ensure operational coordination and safety required on the site. Parks Canada retains authority to assign access priority and privileges to the wharf, landing strip and roads on the island.

.3 Assume all round-trip transportation costs for employees, materials and equipment from the mainland to the island. Take into account tides and weather constraints that could affect airplane and boat schedules as well as ability to work in certain locations. Parks Canada shall not be held responsible for any impacts, costs or delays associated with weather conditions and tides.

**1.14 HIGH TIDES**

.1 Contractor's tender shall take into account performance constraints associated with tides. Take the tides into consideration in planning work (scheduling, equipment, site organization). Verify tide levels and times for each work day at www.niveauxdeau.gc.ca and plan work accordingly. Also take into account weather conditions that could affect tide levels.

**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 ACCESS TO CONSTRUCTION SITE

.1 Design, construct and maintain temporary “access to” and “egress from” construction site, including stairs, traffic lanes, ramps or ladders and scaffolding, independent of finished surfaces, in accordance with relevant municipal, provincial and other regulations.

### 1.2 ARCHAEOLOGY

.1 The area in question is part of Grosse Île and the Irish Memorial National Historic Site of Canada. In light of this, it is considered to be an archaeological site of national historic significance.

.2 Excavation is strictly forbidden, unless it is done under continuous supervision of a Parks Canada archaeologist. Notify the Departmental Representative at least 72 hours in advance so that he can ensure the archaeologist will be present.

### 1.3 SITE LOCATION

Located in the middle of the Saint Lawrence River, Grosse-Île has a maritime climate; in other words, it has a climate where meteorological conditions are generally more severe than elsewhere, and change more often and more quickly. The contractor shall take these constraints into consideration and shall not submit any claims resulting from lost time or other inconveniences associated with such constraints.

### 1.4 USE OF PREMISES AND FACILITIES

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

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

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

.4 Departmental Representative shall assign sanitary facilities for use by Contractor's personnel; Contractor shall be responsible for maintaining these facilities.

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

.6 Move furniture or other objects that could interfere with work or be damaged, as needed. Protect them adequately.

.7 Clean the premises upon completion of work and place furniture, equipment or other objects moved back in original locations.

### 1.5 MODIFICATIONS, REPAIRS OR ADDITIONS TO EXISTING BUILDING

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

## 1.6 EXISTING SERVICES

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

.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. Minimize duration of interruptions. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Ensure personnel and vehicular traffic is maintained.

.4 Construct barriers in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.

## 1.7 SPECIFIC REQUIREMENTS

.1 Perform work during the day between 7 a.m. and 5 p.m., from Monday to Friday.

.2 Limit disturbances relating to noisy work by having a schedule for such work approved by the Departmental Representative.

.3 Submit work schedule in accordance with Section 01 32 16.07 – Construction Progress Schedule – Bar (GANTT) Chart.

.4 Ensure Contractor's personnel employed on construction site become familiar with and obey regulations including fire and workplace safety.

.5 Keep within limits of work and accesses.

.6 Ensure materials are delivered between 7 a.m. and 5 p.m., unless otherwise indicated by Departmental Representative.

## 1.8 SAFETY

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

.2 Security escort:

.1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

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

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

.4 Calculation of costs shall be based on average hourly rate of security officer for a minimum of eight (8) hours per day for late service request and a minimum of four (4) hours for late cancellations.

**1.9 SMOKE-FREE ENVIRONMENT**

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

**Part 2 Product**

**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. An activity normally has an expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks.

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

.3 Baseline: original approved plan (for project, work package, or activity), taking into account approved project scope changes.

.4 Construction work week: Five (5) day week, from Monday to Friday, defining the working days for purpose of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (excluding holidays or other non-working periods) required to complete activity or other project element. Usually expressed as work days or work weeks.

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

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

.8 Project Schedule: planned dates for performing activities and 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 monitor Project Work in relation to established milestones.

### 1.2 REQUIREMENTS

.1 Ensure Master Plan and Project Schedule are practical and remain within specified Contract duration.

.2 Master Plan to provide for completion of Work in accordance with prescribed milestones and time frame.

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

.4 Award of Contract or work start date, rate of progress, Interim Certificate of Completion and Final Certificate of Completion consist of defined stages of project completion and crucial conditions of this contract.

## 1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Within 5 working days of Award of Contract, submit Bar (GANTT) Chart to Departmental Representative to serve as Master Plan for work planning and monitoring.

## 1.4 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule

- .1 Mobilization
- .2 Interim Certificate of Completion
- .3 Final Certificate of Completion

## 1.5 MASTER PLAN

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

.2 Departmental Representative shall review and return revised schedules within five (5) working days.

.3 Revise impractical schedule and resubmit within five (5) working days of receipt.

.4 Accepted revised schedule shall 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 of Contract
- .2 Shop Drawings, Samples
- .3 Mobilization
- .4 Survey of existing site
- .5 Hydraulic calculations and approval
- .6 Statement of all work, in logical order
- .7 Fire protection
- .8 Testing and commissioning
- .9 Materials supplied with long delivery times

## 1.7 PROJECT PROGRESS REPORTING

.1 Update Project Schedule on bi-weekly basis, reflecting changes in activities, completed activities, as well as activities in progress.

.2 Include narrative report identifying Work status to date as part of Project Schedule, 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 construction site meetings, identify activities that are behind schedule and provide measures to get back on schedule. 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 shall be discussed and negotiated.

**Part 2 Product**

**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 REQUIREMENTS

.1 Provide submittals listed to Departmental Representative for review. Submit promptly and in pre-established sequence to prevent 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 shall be allowed.

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

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

.4 Where items or information are 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, or shall be, determined and verified, 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 shall 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 and stating reasons for deviations.

.7 Verify that 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 TECHNICAL DATA SHEETS

.1 The term “shop drawings” refers to drawings, diagrams, illustrations, schedules, performance charts, brochures and other data 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 the Province or Territory of 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 shall be supplied and installed. Indicate cross references to preliminary project drawings and specifications.

.4 Allow 5 days for review of each submission. Departmental Representative

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

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

.7 Include transmittal letter in duplicate with submittals, containing the following information:

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

.8 Submissions include:

- .1 Preparation and revision dates
- .2 Project title and number
- .3 Names and addresses for:
  - .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 Equipment and fabrication details
  - .2 Layout, showing dimensions, including identified field dimensions and clearances
  - .3 Setting or erection details
  - .4 Capacities
  - .5 Performance characteristics
  - .6 Reference standards
  - .7 Operating weight
  - .8 Wiring diagrams
  - .9 Single line and operating schematic diagrams
  - .10 Relationship to adjacent work

.9 After Departmental Representative's review, distribute copies of shop drawings.

.10 Submit one (1) electronic copy or one (1) hard copy of shop drawings stipulated in technical sections of Specifications, and as Departmental Representative may reasonably request.

.11 Where shop drawings will not be prepared due to standardized manufacture of product, submit one (1) electronic copy or one (1) hard copy of technical data sheets or brochures for each requirement requested in technical sections of the Specifications and as requested by Departmental Representative.

.12 Submit one (1) electronic copy or one (1) hard copy of test reports for each requirement stipulated in technical sections of the Specifications and as requested by Departmental Representative.

.1 Report signed by authorized testing laboratory official that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.

.2 Testing must have been within three (3) years of date of Contract award.

.13 Submit one (1) electronic copy or one (1) hard copy of certificates stipulated in technical sections of Specifications 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 Contract complete with project name.

.14 Submit one (1) electronic copy or one (1) hard copy of manufacturer's instructions stipulated in technical sections of the Specifications 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 pertaining to impedances, hazards and safety precautions.

.15 Submit one (1) electronic copy or one (1) hard copy of Manufacturer's Field Reports, as stipulated in technical sections of the Specifications and as requested by Departmental Representative.

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

.17 Submit one (1) electronic copy or one (1) hard copy of Operational and Maintenance Sheets stipulated in technical sections of Specifications and as requested by Departmental Representative.

.18 Delete information not applicable to project.

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

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

.21 Review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that the Department approves preliminary project design inherent in shop drawings; responsibility for such 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 construction and Contract Document requirements.

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

**1.3 SAMPLES**

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

.2 Send samples prepaid to Departmental Representative.

.3 Notify Departmental Representative in writing, at time of submission, of any deviations in samples from Contract Document requirements.

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

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

.6 Make changes to samples as required by Departmental Representative, consistent with Contract Documents.

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

**1.4 MOCK-UPS**

.1 Construct mock-ups in accordance with Section 01 45 00 – Quality Control.

**1.5 CERTIFICATES AND MINUTES**

.1 Immediately after award of Contract, submit documents required by Workers' Compensation Board.

.2 Submit copies of insurance policies immediately after award of Contract.

**Part 2 Product**

**2.1 NOT USED.**

.1 Not used.

**Part 3 Execution**

**3.1 NOT USED.**

.1 Not used.

**END OF SECTION**

## Part 1 General

**GENERAL NOTE:** In this section, the term “site” refers to all of the facilities and installations on the construction site (the construction site itself, buildings, accesses, infrastructures, parking lots, docks, etc.).

### 1.1 REFERENCES

.1 Province of Quebec

.1 Act Respecting Occupational Health and Safety, CQLR c S-2.1

.2 Safety Code for the Construction Industry, CQLR c S-2.1, r.4

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with section 01 33 00 – Submittal Procedures.

.2 Submit construction site-specific safety program to Departmental Representative and CNESST, as outlined in article entitled, “GENERAL REQUIREMENTS,” at least ten (10) days prior to the start of work.

.3 Departmental Representative will review Contractor's construction site-specific safety plan and provide comments to Contractor within ten (10) work days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within five (5) days after receipt of comments from Departmental Representative. Departmental Representative reserves the right not to authorize start of work on the construction site until safety program is satisfactory. Review safety program during the course of the project and re-submit to Departmental Representative if any change occurs in scope of work, work methods or for any other new applicable site conditions.

.4 Departmental Representative’s review of Contractor's final construction site-specific safety program should not be construed as approval and does not reduce the Contractor's overall responsibility relating to health and safety during construction work.

.5 Submit Contractor's authorized representative's construction site health and safety inspection reports to the Departmental Representative weekly.

.6 Submit copy of any inspection report, correction notice or recommendation issued by federal, provincial or territorial inspectors to Departmental Representative within 24 hours.

.7 Submit an investigation report for any accident involving injury and any incident exposing a potential hazard to Departmental Representative within 24 hours. The investigation report shall at least include the following:

.1 Date, time and location of the accident

.2 Name of subcontractor involved in the accident

.3 Number of people involved and condition of those injured

.4 Identification of any witnesses

.5 Detailed description of tasks being performed when accident occurred

.6 Equipment used to perform tasks when accident occurred

.7 Corrective measures implemented immediately following accident

.8 Accident cause(s)

.9 Preventive measures implemented to prevent a similar accident from recurring

.8 Submit WHMIS MSDS – Material Safety Data Sheets in accordance with Section 01 33 00 – Submittal Procedures. Keep a copy of these sheets on the construction site.

.9 Medical surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work on the construction site. Submit additional certification for any new employee beginning work on the construction site to Departmental Representative.

.10 Submit Emergency Response Plan to Departmental Representative at same time as safety program. Include in Emergency Response Plan all components listed in article entitled, "GENERAL REQUIREMENTS" of this section.

.11 Submit copies of training certificates for construction site workers to Departmental Representative, most specifically the following, as applicable:

.1 Workplace first aid and cardiopulmonary resuscitation

.2 Work likely to create asbestos dust emissions (required for any work taking place where asbestos is present)

.3 Work in confined spaces (required for all work in confined spaces)

.4 Lockout (required for all work requiring lockout)

.5 Safe forklift driving (required for any use of forklifts)

.6 Safe driving of lift platforms (required for any use of lift platforms)

.7 Any other training required by regulations or safety program

.12 Furthermore, *General construction site health and safety course* certifications must be available at the construction site upon request.

.13 Engineer's drawings and certificates of compliance: submit copies of all drawings and certificates of compliance to Departmental Representative and *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST), signed and sealed by an engineer, as required by the *Safety Code for the Construction Industry* (S-2.1, r.4), any other legislation or regulation, or by any other clause in Specifications or this Contract. Also submit an attestation of conformity signed by an engineer once installation for which the drawings were developed has been completed and prior to anyone using the installation. Copies of these documents must be on hand at the construction site at all times.

## 1.3 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

.1 Send notice of construction site opening to CNESST prior to start of work. Submit a copy of notice of site opening and CNESST's acknowledgement of receipt to Departmental Representative.

.2 During demobilization, submit a notice of site closing to CNESST, with a copy to Departmental Representative.

.3 Assume role of Principal Contractor at all times within construction site boundaries and wherever work is performed within the framework of this project. Contractor shall accept

responsibilities as Principal Contractor and identify itself as such in notice of construction site opening sent to CNESST.

.4 Contractor shall agree to install proper construction site separation and identification in order to maintain time and space at all times throughout life of project.

## 1.4 SAFETY ASSESSMENT

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

## 1.5 MEETINGS

.1 Schedule and administer health and safety meeting with Departmental Representative prior to commencement of work.

.2 Contractor's decisional representative must attend any meetings at which construction site safety and health issues are to be discussed.

.3 If there will be 25 or more workers on the construction site at any given time during the work, set up a construction site safety committee and convene meetings as required by the *Safety Code for the Construction Industry* (S-2.1, r.4). Submit copy of construction site safety committee meeting minutes to Departmental Representative within five (5) days after meetings.

## 1.6 LEGAL AND REGULATORY REQUIREMENTS

.1 Perform work in accordance with Section 01 41 00 – Regulatory Requirements.

.2 Comply with all laws, regulations and standards applicable to execution of work.

.3 Comply with specified standards and regulations to ensure work can be carried out normally at site contaminated by hazardous or toxic materials.

.4 Regardless of publication date cited in the *Safety Code for the Construction Industry* (S-2.1, r.4), always use most recent version.

## 1.7 COMPLIANCE REQUIREMENTS

.1 Comply with *An Act Respecting Occupational Health and Safety* (CQLR, c. S-2.1), and *Safety Code for the Construction Industry* (S-2.1, r.4), as well as all requirements set forth in these Specifications.

## 1.8 RESPONSIBILITIES

.1 Acknowledge and assume all tasks and obligations typically assumed by a Principal Contractor under the terms of *An Act Respecting Occupational Health and Safety* (CQLR, c S-2.1) and the *Safety Code for the Construction Industry* (S-2.1, r.4).

.2 Be responsible for health and safety of persons on construction site, safety of property on construction site and protection of persons adjacent to construction site as well as the environment if affected by conduct of work.

.3 Regardless of construction site size and location, clearly define boundaries of such using physical means; comply with specific related regulatory requirements. Submit means chosen to define construction site to Departmental Representative.

.4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with construction site-specific safety program.

## 1.9 GENERAL REQUIREMENTS

.1 Prior to undertaking work, prepare a construction site-specific safety program based on prior safety assessment in accordance with articles entitled, "SAFETY ASSESSMENT" and "RISKS INHERENT TO WORK SITE" in this section. Implement, maintain, and enforce safety program in its entirety until final demobilization from construction site.

.2 The safety program must take into account all special project characteristics and cover all work performed on the construction site.

.3 At a minimum, the site-specific safety program shall include:

- .1 Company's health and safety policy.
- .2 Description of the work stages
- .3 Total cost of work, schedule and projected workforce curve
- .4 Flow chart of safety and health responsibilities
- .5 Physical and material layout of the construction site
- .6 Identification of risks at each stage, corresponding preventive measures and conditions for application
- .7 Identification of preventive measures in terms of specific risks inherent to working environment indicated in article entitled, "RISKS INHERENT TO WORK SITE"
- .8 Identification of preventive measures for employee and/or public health and safety on the construction site, as indicated in article entitled, "SPECIFIC REQUIREMENTS FOR HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC"
- .9 Training required
- .10 Procedure in case of accident/injury
- .11 Written commitment from all parties to comply with safety program
- .12 Construction site inspection checklist, based on preventive measures
- .13 Emergency Response Plan, containing at least the following elements:
  - .1 Construction site evacuation procedure
  - .2 Identification of resources (police, firefighters, ambulance services, etc.)
  - .3 Identification of persons in charge at construction site
  - .4 Identification of those with first-aid training
  - .5 Communications chart (including person responsible at the site and Departmental Representative)
  - .6 Training required for those responsible for applying the plan
  - .7 Any other information needed, in light of the construction site characteristics
- .14 Departmental Representative shall send the site evacuation procedure to the Contractor, if applicable; Contractor shall combine the construction site procedure with the site procedure and submit to Departmental Representative.

.4 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

.5 In addition to safety program, during work or at Departmental Representative's request, develop and submit a specific written procedure to Departmental Representative for any work with high risk of accidents (e.g.: demolition procedure, specific installation procedure, hoisting plan, written confined space entry procedure, power failure procedures, etc.).

.6 Plan and organize work so as to eliminate hazards at source or promote mutual protection so that reliance on personal protective equipment can be kept to a minimum.

.7 Equipment, tools and protective equipment that cannot be installed, fitted or used without compromising the health or safety of workers or the public are inadequate for the work to be executed.

.8 Inspect all mechanical equipment prior to delivery to construction site (e.g.: devices for lifting people or materials, backhoes, concrete pumps, concrete saws, etc.). Obtain and keep on site an inspection certificate signed by a mechanic and dated less than one week prior to any equipment's arrival to the construction site; submit to Departmental Representative upon request.

.9 Ensure all inspections (daily, periodic, annual, etc.) of equipment for lifting persons or materials, as required by standards in force, are performed and submit copies of inspection certificates at Departmental Representative's request.

.10 Whenever a defect or accident risk is suspected, Departmental Representative may at any time order immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.

.11 Departmental Representative may be consulted regarding location of gas cylinders and tanks on the construction site.

## 1.10 RISKS INHERENT TO WORK SITE

.1 In addition to risks associated with each task to perform, employees in charge of construction site work will be exposed to risks inherent to the site where work takes place.

.2 At location where work will take place, the following will be present:

.1 Materials containing asbestos (to be confirmed), for the third-class hotel

.2 Body of water nearby

.3 Variable and potentially violent weather conditions Building and site exposed to high winds

.3 Perform a site risk assessment to validate this information and determine whether other risks are present. Include all identified risks in safety program.

## 1.11 SPECIFIC REQUIREMENTS FOR HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC

.1 Most sites where work will take place will not be occupied. Only the wastewater treatment plant will be occupied by employees during work. Ensure safety of said employees at all times, even though they will not have access to Contractor's construction site.

## 1.12 UNFORESEEN HAZARDS

.1 When a hazard not mentioned in the Contract Documents and not identified upon preliminary construction site inspection arises because of or during execution of work, immediately stop all work, notify person responsible for construction site health and safety, implement temporary protective measures for workers and public, and notify Departmental Representative verbally and in writing. Then make all necessary modifications to safety program necessary to safely resume work.

## 1.13 PERSON RESPONSIBLE FOR HEALTH AND SAFETY

.1 If construction site meets criteria set forth in Article 2.5.3 of the *Safety Code for the Construction Industry* (S-2.1, r.4), hire a qualified and authorized person as safety officer assigned full-time, from start of work. This person's tasks must be exclusively dedicated to construction site health and safety management. The safety officer shall meet the following criteria:

- .1 Have held a valid CNESST safety officer certification for a minimum of five (5) years
- .2 Have construction site-related working experience specific to activities associated with the project.
- .3 Have working knowledge of occupational safety and health regulations.
- .4 Be responsible for completing Contractor's health and safety training sessions and ensuring that personnel not successfully completing required training are not permitted to enter construction site to perform work.
- .5 Be responsible for implementing, enforcing daily and monitoring Contractor's construction site-specific health and safety plan.
- .6 Be present on construction site at all times during execution of work.
- .7 Inspect work and ensure all regulatory requirements as well as those set out in Contract Documents or safety program are met.
- .8 Keep a daily log of his/her actions and submit a copy to Departmental Representative at least once a week.

.2 Submit safety officer's certification to Departmental Representative prior to start of work.

.3 When hiring a safety officer is not required or if the said officer is hired by the Departmental Representative, appoint a competent person to supervise and be responsible for health and safety, regardless of construction site size or number of workers present. This person must be present at all times on the construction site and be able to take whatever measures necessary to ensure the health and safety of persons and property at or in the immediate vicinity of the site, as well as those who could be affected by the work. Submit the name of this person to Departmental Representative prior to start of work.

## 1.14 POSTING OF DOCUMENTS

.1 Ensure relevant documents, articles, ordinances and notices are posted in plain view on construction site in accordance with provincial laws and regulations, and in consultation with Departmental Representative.

.2 A minimum of the following information and documents must be posted in a location that is readily accessible to all workers:

.1 Notice of construction site opening
.2 Identification of Principal Contractor
.3 Company OHS policy
.4 Construction site-specific safety program
.5 Emergency Response Plan
.6 Minutes of construction site committee meetings
.7 Names of construction site committee representatives
.8 Names of those with first-aid training
.9 Action reports and correction notices issued by CNESST

## 1.15 INSPECTIONS AND CORRECTIVE ACTIONS IN EVENT OF NON-COMPLIANCE

.1 Inspect working environment, complete construction site inspection checklist and submit to Departmental Representative in accordance with article entitled, "ACTION AND INFORMATIONAL SUBMITTALS" in this section.

.2 Immediately address health and safety non-compliance issues identified during inspections stipulated in previous paragraph or by authority having jurisdiction or by Departmental Representative.

.3 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.4 Give safety officer or, where there is no safety officer, person assigned to health and safety responsibilities, full authority to order interruption and resumption of work when deemed necessary or desirable in the interests of health and safety. Safety officer to ensure that health and safety of the public and construction site workers as well as environmental protection always take precedence over cost and scheduling considerations.

.5 Departmental Representative may order work to be stopped if non-compliance of health and safety regulations is not corrected. Without limiting the foregoing, Departmental Representative may order cessation of work if, in his/her view, there is any hazard or threat to the health or safety of construction site workers, public or environment.

## 1.16 VIOLENCE PREVENTION

.1 Health and safety management on Public Works and Government Services Canada construction sites includes implementation of measures to protect the psychological health of all persons who access the site where work takes place. Thus, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the site. Any person who commits such acts or behaviours shall be given a warning and/or could be expelled from the construction site indefinitely by the Departmental Representative.

## 1.17 BLASTING

.1 Blasting and any other use of explosives are strictly prohibited.

## 1.18 POWDER-ACTUATED DEVICES

.1 Use powder-actuated devices only with Departmental Representative's written permission.

.2 Any person using an explosive-actuated gun shall hold a training certificate and meet all requirements set forth in Section 7 of the *Safety Code for the Construction Industry* (S-2.1, r.4).

.3 Use any other explosive-actuated device in accordance with manufacturer's directions and applicable standards and regulations.

## 1.19 USE OF PUBLIC THOROUGHFARES

.1 Where it is necessary to encroach on a public thoroughfare for operational reasons or to ensure the safety of workers, occupants or public (e.g.: use of scaffolding, cranes, digging work, etc.), obtain and assume costs for any authorizations and permits required by authority having jurisdiction.

.2 Install and assume costs for any signage, barricades or other devices required by regulations for the safety and security of the public and Contractor's facilities.

## 1.20 LOCKOUT

.1 For any work performed on equipment powered by electricity or any other energy source, submit a general lockout procedure to Departmental Representative and ensure it is applied.

.2 Supervisory staff and workers affected by work requiring lockout must have been trained by a recognized organization on lockout procedures; submit training certifications to Departmental Representative.

.3 Before locking out equipment on an occupied site, coordinate work with site representative if power cut-off could affect site operations or occupants.

.4 Identified a qualified person as responsible for lockout and ensure that the said person prepares a lockout sheet for each piece of equipment that must be locked out. Submit lockout sheet to Departmental Representative at least forty-eight (48) hours before start of work; Departmental Representative shall have a site representative verify it if work is to take place in an existing building.

.5 Lockout sheet shall contain at least the following information:

- .1 Description of work to be done
- .2 Identification, description and location of circuit and/or equipment to lockout
- .3 Identification of energy sources powering equipment
- .4 Identification of each cut-off point
- .5 Lockout and residual energy release procedure as well as unlocking procedure
- .6 List of required lockout equipment
- .7 Zero energy verification method
- .8 Name and signature of person who prepared the sheet

.6 Enter all of this information on the site representative's form, at Departmental Representative's request.

.7 When lockout procedure is performed, person responsible shall date the sheet and ensure each worker involved in work on locked out circuit/equipment writes his/her name on sheet and signs it.

## 1.21 ELECTRICAL WORK

.1 Ensure all electrical work is performed by qualified employees in accordance with provincial regulations regarding professional qualifications and training.

.2 Comply with requirements set forth in standard CSA Z462, *Workplace Electrical Safety.*

.3 Any work on an electrical device must be done when it is powered off unless it is impossible for it to be completely disconnected.

.4 Comply with all requirements set out in paragraph entitled, "Lockout" in this section.

.5 Notify Departmental Representative in writing and obtain his/her approval for any work that cannot be performed when an electrical device is powered off. Demonstrate to Departmental Representative that it is impossible to perform work when it is powered off and provide all necessary information to complete and obtain a permit for live work (work method, electrical arc assessment, perimeter of protection, protective equipment, etc.) prior to start of work, except in exceptional unforeseen cases set forth in CSA Z462 standard, *Workplace Electrical Safety.*

.6 The permit to work live shall at least include the following:

.1 Description of the circuit, equipment and location

.2 Justification of the need to perform live work

.3 Description of safe work practices to use

.4 Conclusions of electric shock hazard analysis

.5 Definition of perimeter for protection against electric shock

.6 Conclusions of arc flash hazard analysis

.7 Definition of perimeter for protection against arc flash

.8 Description of required personal protective equipment

.9 Description of means to restrict access by unqualified persons

.10 Proof that an information session took place

.11 Signature of approval for live work (by an authority or owner)

.7 If, for needs relating to site occupants' operations, site representative requires Contractor to perform live work, provide all necessary information to complete and obtain a permit for live work (work method, electrical arc assessment, perimeter of protection, protective equipment, etc.) and have site representative appointed by Departmental Representative sign it prior to start of work.

## 1.22 EXPOSURE TO ASBESTOS

.1 It is possible that some work outlined in these Specifications involve handling materials that contain asbestos; in that case, comply with the requirements hereunder.

.1 Before starting any work that could produce asbestos dust, provide a written work procedure identifying level of risk for work (low, moderate, high) as defined in Section 3.23 of the *Safety Code for the Construction Industry* S-2.1, r.4, taking into account all requirements in the said section.

.2 Submit certificates demonstrating that all workers involved in work were properly trained regarding risks associated with asbestos and procedure stipulated in previous paragraph.

.3 Demonstrate that all materials and equipment necessary to comply with procedure and safely execute work are in hand.

## 1.23 FUNGAL DECONTAMINATION

.1 It is not anticipated that work addressed in these Specifications involve handling materials contaminated with mould; however if Contractor, Departmental Representative or his/her agent discover materials that may be contaminated with mould, immediately stop work and notify Departmental Representative. If it is subsequently demonstrated that these materials do indeed contain mould, comply with requirements listed below.

.2 Before start of work that is likely to expose workers to contact with materials contaminated with mould:

.1 Provide a written work procedure in accordance with requirements set forth in *Safety Code for the Construction Industry, S-2.1, r.4* as well as those indicated in document entitled, *"Mould Guidelines for the Canadian Construction Industry"* published by the Canadian Construction Association (http://documents.cca-acc.com/documents/electronic/cca82/cca82.asp).

.2 Demonstrate that all materials and equipment necessary to comply with procedure and safely execute work are in hand.

## 1.24 EXPOSURE TO SILICA

.1 Work in a damp environment or using tools that use water to control dust or capture dust at the source and hold them in a high-efficiency filter to ensure they are not released into the environment.

.2 Clean surfaces and tools with water, never compressed air.

.3 Sand and strip surfaces with an abrasive containing less than 1% silica (also called amorphous silica).

.4 Install screens or partitions to prevent dust from migrating outside work zone, thus protecting other workers and the public.

.5 Wear personal respiratory and eye protection during operations likely to produce silica dust, in accordance with requirements set forth in *Safety Code for the Construction Industry, S-2.1, r.4.*

.6 Wear a protective suit to prevent contamination off-site.

.7 Do not eat, drink or smoke in a dusty environment.

.8 Workers should wash hands and face before eating, drinking and smoking.

## 1.25 SAND BLASTING

.1 Before beginning any sandblasting work:

.1 Provide a written work procedure in accordance with requirements set forth in Section 3.20 of the *Safety Code for the Construction Industry, S-2.1, r.4*.

.2 Demonstrate that all materials and equipment necessary to comply with procedure and safely execute work are in hand.

.3 Perform sandblasting and stripping using an abrasive containing less than 1% silica.

## 1.26 LEAD-BASE PAINT ABATEMENT

.1 Before start of work that is likely to expose workers to contact with materials contaminated with lead paint or other lead-based substances:

.1 Provide a written work procedure in accordance with requirements set forth in *Safety Code for the Construction Industry, S-2.1, r.4* as well as those indicated in document entitled, *"Guideline for Lead on Construction Projects"* published by the Ontario Ministry of Labour (http://www.labour.gov.on.ca/english/hs/pdf/gl_lead.pdf). In the event of divergence between Québec regulations and the Ontario document, the more stringent requirement shall take precedence.

.2 Demonstrate that all materials and equipment necessary to comply with procedure and safely execute work are in hand.

## 1.27 EXPOSURE TO ANIMAL DROPPINGS

.1 Before start of work that is likely to expose workers to contact with materials contaminated with animal droppings:

.1 Provide a written work procedure in accordance with requirements set forth in *Safety Code for the Construction Industry, S-2.1, r.4* as well as those indicated in document entitled, *"Des fientes de pigeons dans votre lieu de travail : méfiez-vous" (Pigeon droppings in your work environment: be mindful)* published by the CNESST (http://www.csst.qc.ca/publications/100/Documents/DC100_1331_1web2.pdf in French only).

.2 Demonstrate that all materials and equipment necessary to comply with procedure and safely execute work are in hand.

## 1.28 RESPIRATORY PROTECTION

.1 Ensure that all workers who must wear respiratory protection within the framework of their tasks have had proper training and undergone mask adjustment tests on their breathing apparatus, in accordance with standard CSA Z94.4, *"Selection, Use and Care of Respirators."* Submit mask adjustment certifications to Departmental Representative upon request.

## 1.29 FALL RISK PREVENTION

.1 Plan and organize work so as to eliminate fall hazards at source or promote mutual protection so that reliance on personal protective equipment can be kept to a minimum. Where individual protection against falling is required, workers shall use safety harnesses that meet standard CAN - CSA- Z-259.10 - M90. Safety belts may not be used as protection against falling.

.2 Anyone using a lift platform (scissor lift, telescoping mast, articulated mast, rotating mast, etc.) must have received appropriate training.

.3 It is mandatory to wear a safety harness at all times on lift platforms with telescoping, articulated or rotating masts.

.4 Define a danger zone around each lift platform.

.5 Any opening in the floor or on a roof must be surrounded by a guard rail or covered with a lid affixed to the floor and strong enough to withstand whatever load to which it may be subjected, regardless of the size of opening and height of fall it represents.

.6 Anyone working within two metres of a location where a risk of falling three metres or more is present must use a safety harness in accordance with requirements and regulations, unless there is a guard rail or other type of component providing equivalent safety.

.7 Despite regulatory requirements, Departmental Representative may require installation of a guard rail or use of a safety harness in certain specific situations that present a risk of falling less than three (3) metres.

## 1.30 SCAFFOLDING

.1 Use scaffolding that meets the *Safety Code for the Construction Industry* requirements, as well as the following:

.1 Foundation

.1 Install scaffolding on a solid foundation so that it does not slip or rock.

.2 If scaffolding must be installed on a roof, roof overhang, canopy or gambrel roof, submit load calculations as well as drawings signed and sealed by an engineer to Departmental Representative for authorization prior to beginning installation.

.2 Assembly, cross-bracing and anchoring

.1 Assemble, cross-brace and anchor all scaffolding in accordance with manufacturer's instructions and provisions set forth in the *Safety Code for the Construction Industry*.

.2 Where a situation requires removal of part of the scaffolding (e.g., crosspieces), before assembling scaffolding, submit assembly procedure signed and sealed by an engineer to Departmental Representative, certifying that scaffolding assembled in manner described will allow work to be done safely under loads to which it will be subjected.

.3 For scaffolding where span between two supports is greater than three metres, submit assembly plan signed and sealed by an engineer to Departmental Representative prior to assembling scaffolding.

.3 Fall protection during assembly

.1 During assembly, workers must be protected from falls at all times if they are exposed to a risk of falling more than three metres.

.4 Platforms

.1 Design and install scaffolding platforms in accordance with provisions set forth in *Safety Code for the Construction Industry.*

.2 Only use planks approved and stamped in accordance with article 3.9.8 of the *Safety Code for the Construction Industry.*

.3 Provide full platform covering entire surface of the putlogs every three metres or fraction thereof when four or more sections of scaffolding are used (or height is at least six (6) metres); platform components shall not be moved at any time to create intermediate landings.

.5 Guardrails

.1 Install guardrails on every landing.

.2 Cross-braces are not guardrails.

.3 If platforms are not full, install guardrails above platform edge, ensuring there is no horizontal void between platform and guardrail.

.4 Install guardrails on each landing and maintain in place until work is completed when four or more sections of scaffolding (or height is at least six metres) are used.

.6 Access

.1 Ensure access to scaffolding does not compromise worker safety.

.2 Where scaffolding platforms are comprised of planks, install ladders in such a way that planks extending beyond platforms do not block the way up or down.

.3 Notwithstanding provisions of the *Safety Code for the Construction Industry*, install steps on all scaffolding that has six or more rows of uprights or is six sections (or nine metres) high or higher.

.7 Protection of the public and occupants

.1 When scaffolding is installed in a zone accessible to the public, undertake whatever means necessary to prevent public from accessing scaffolding and, if applicable, work or storage area in vicinity of scaffolding.

.2 Install covered walkways, nets or other similar devices to protect workers, public and occupants from falling objects. Obtain Departmental Representative's approval for protection method.

.8 Engineer's drawings

.1 In addition to those required by the *Safety Code for the Construction Industry*, Departmental Representative reserves the right to require engineer's drawings for other scaffolding types or configurations.

.2 A drawing signed and sealed by an engineer is required for any scaffolding to which canvas, tarps or other materials that could get caught in the wind will be affixed.

.3 An attestation of conformity signed by an engineer is required in cases where an engineer's drawing is required and before anyone uses the installation for which drawings are produced. Copies of these documents must be on hand at the construction site at all times.

## 1.31 DIGGING WORK

.1 In addition to *Safety Code for the Construction Industry* requirements, comply with following when trenching or excavating:

.2 Fill out the form below and submit to Departmental Representative before start of work.

.3 Also submit following documents to Departmental Representative, as applicable:

.1 Drawings and specifications signed and sealed by an engineer, describing shoring to put in place for digging work; or

.2 Engineer’s notice specifying angle of trench or excavation hole walls.

CSST

# Directive de creusage

N° _____ de _____

Cette directive de creusage est fournie à titre d'exemple par la Commission de la santé et de la sécurité du travail (CSST). On y trouve les principales indications que l'employeur devrait donner à la personne responsable des travaux sur le terrain et à l'opérateur de l'engin de terrassement.

| Nom de l'entreprise | |
|---|---|
| Nom du projet | N° du projet |
| Adresse du chantier | Date du début des travaux |

## Repérage

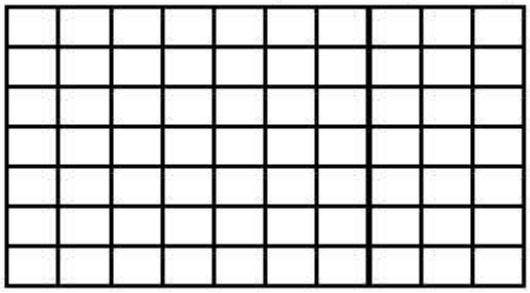
Chaînage ou axes : de _____ à _____ Plan annexé ☐ N° du plan : _____

## Méthode de travail à utiliser

Tout en s'assurant que les parois ne présentent aucun danger de glissement de terrain,

- ☐ **creuser et étançonner** selon les plans et devis d'un ingénieur ;
- ☐ **creuser et étançonner** en utilisant une boîte de tranchée ;
- ☐ **creuser sans étançonner** pourvu que l'une des conditions suivantes soit respectée :
  - ☐ le roc est sain ;
  - ☐ aucun travailleur ne descend dans la tranchée ou l'excavation ;
  - ☐ les parois sont creusées conformément à l'avis d'un ingénieur.

## Dimensions du creusement (Creuser selon le profil suivant.)



| | Minimale | Maximale |
|---|---|---|
| H Profondeur | | |
| Lf Largeur au fond | | |
| Ls Largeur en surface | | |

## Mesures de sécurité

**Déposer les matériaux à une distance d'au moins 1,2 mètre (4 pi) du sommet des parois.**
**Ne laisser aucun véhicule s'approcher à moins de 3 mètres (10 pi) du sommet des parois.**

- ☐ Respecter le plan de l'ingénieur concernant les travaux à proximité d'une construction existante.
- ☐ Suivre le plan de localisation pour repérer les infrastructures souterraines.
- ☐ Installer le matériel de signalisation prévu par le plan de circulation (barrières, repères visuels, etc.).
- ☐ Affecter un ou des signaleurs au contrôle de la circulation.
- ☐ Respecter la méthode prévue pour le travail à proximité des lignes électriques.
- ☐ Mettre en place les dispositifs de protection des travailleurs, par exemple les glissières de sécurité en béton.

| Nom | Fonction | |
|---|---|---|
| Signature | Date | N° de téléphone |
| Directive remise<br>☐ au responsable des travaux sur le terrain ☐ à l'opérateur de l'engin de terrassement | | |

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## 1.32 LIFTING LOADS WITH A CRANE OR CRANE TRUCK

.1 Prepare a lifting plan, unless otherwise notified, and submit to Departmental Representative at least five (5) days before undertaking any lifting operations performed using a crane or crane truck. Include in this lifting plan, at minimum, the information listed at the end of this section.

.2 Lifting plan to be signed and sealed by an engineer for the following lifting operations:

- .1 Lifting concrete panels
- .2 Lifting equipment / electrical equipment onto a roof or upper floors in a building
- .3 Lifting loads that encroach on a public thoroughfare
- .4 Lifting large or heavy loads
- .5 All other lifting operations as required by Departmental Representative.

.3 Other than the aforementioned requirements, plan lifting operations such that loads will avoid passing above occupied zones on the site. When it is impossible to do otherwise, lifting plan must be signed and sealed by an engineer and guarantee the safety of occupants in the zone involved; plan must also be approved by Departmental Representative. Departmental Representative may, if deemed necessary, require work to be performed at night or on weekends.

.4 When construction site work begins, submit the list of projected lifting plans to Departmental Representative for entire duration of the project. Update this list as necessary when changes are made during work.

.5 In addition to mechanical service inspection certificate, annual inspection certificate and crane logbook must be onboard all crane and crane-truck cabs.

.6 Define entire lifting area to prevent non-authorized people from entering it.

.7 Carefully inspect all slings and lifting accessories; make sure those in poor condition are destroyed or disposed.

.8 Lift compressed-gas cylinders with a basket specially designed for this purpose.

.9 <u>Minimum content of a lifting plan</u>

- .1 Sketch indicating, at minimum, crane location, surrounding installations, zone covered by lifting operations, pedestrian and vehicle traffic lanes, safety perimeter, etc.
- .2 Load weight
- .3 Load dimensions
- .4 List of lifting accessories and their respective weights
- .5 Total weight to be lifted
- .6 Maximum height of obstacles to clear
- .7 Load lifting height as compared to roof surface (in event of loads to be deposited on roofs)
- .8 Use of guide wires
- .9 Type of crane used
- .10 Crane capacity
- .11 Boom length

.12 Boom angle

.13 Crane radius

.14 Extension of stabilizers

.15 Percentage of crane capacity used

.16 Confirmation that lifting equipment was inspected

.17 Identification of crane operator and person responsible for lifting operations with signatures and date

## 1.33 HOT WORK

.1 Hot work refers to all work with an open flame or that could produce heat or sparks such as: riveting, welding, cutting, soldering, grinding, burning, heating, etc.

.1 At start of each work shift and for each sector, obtain a "Hot work Permit" issued by person responsible for the site.

.2 Keep a working portable fire extinguisher suitable for fire risk available and easily accessible within a 5 m radius of any flame or any source of spark or intense heat.

.3 Appoint one person to continuously monitor risks of fire for a minimum of one (1) hour following end of all hot work. This person must sign relevant section of permit and submit it to the person responsible for the site after the said one (1) hour period.

.4 When hot work is performed in areas where combustible materials are located or where walls, ceilings or floors are made of or covered with combustible materials, perform a final inspection of work area four (4) hours after end of work. Appoint one person to monitor in this way, unless otherwise notified by Departmental Representative.

.2 Welding and cutting: In addition to requirements stipulated in previous paragraphs, comply with following requirements:

.1 Perform welding and cutting work in accordance with requirements set out in *Safety Code for the Construction Industry, S-2.1, r.4* and standard CSA W117.2, *Safety in Welding, Cutting, and Allied Processes.*

.2 Use an air exhaust system equipped with filters for all welding or cutting work performed indoors.

.3 Interrupt any activity that produces flammable or combustible gas, vapours or dust near welding or cutting work taking place.

.4 Store all compressed gas cylinders on fireproof fabrics and make sure that room is well ventilated.

.5 Store all oxygen cylinders more than six (6) metres from any flammable gas cylinders (e.g.: acetylene) or combustible such as oil or grease, unless oxygen cylinder is separated from such by a wall made of non-combustible material, as stipulated in article 3.13.4 of the *Safety Code for the Construction Industry, S-2.1, r.4.*

.6 Store bottles far from all heat sources.

.7 Store bottles away from staircases, exits, corridors and elevators.

.8 To prevent risk of explosive reaction, ensure acetylene will not enter into contact with metals such as silver, mercury, copper and brass alloys with more than 65% copper.

.9 Check that electric arc welding equipment has sufficient voltage and is properly grounded.

.10 Ensure that electric welding equipment conducting wires are not damaged.

.11 Place welding equipment on flat ground, covered/protected from elements.

.12 Set up fireproof fabrics when welding is done overhead and there is risk of sparks falling.

.13 Move combustible materials away or protect from welding equipment when less than fifteen (15) metres away.

.14 Never weld or cut on a closed recipient.

.15 Only cut, weld or perform work with an open flame on a container, tank, pipe or other container containing a flammable or explosive substance when:

.1 They have been cleaned and air samples have been taken and show no explosive vapours; and

.2 Provisions have been implemented to ensure worker safety.

## 1.34 WORK NEAR A BODY OF WATER

.1 For any work performed near a body of water (such as work above water, work on a wharf, work on shores of a body of water, etc.), comply with requirements stipulated hereunder, as well as article 2.10.13 of the *Safety Code for the Construction Industry*.

.2 Plan work to ensure that safety precautions preventing workers from falling in the water are implemented. Favour these safety precautions over wearing a life jacket.

.3 Submit documents listed below to Departmental Representative prior to start of work. Ensure each document contains at minimum the information stipulated in Section 11 of the *Safety Code for the Construction Industry.* All or part of work may take place during the winter; adapt safety precautions included in documents required below accordingly.

.1 Description of body of water

.2 Description of work performed in vicinity of this body of water

.3 Water transport plan adapted to work and characteristics of body of water

.4 Rescue plan adapted to work and characteristics of body of water

.4 Submit training certification required in Article 11.2 of the *Safety Code for the Construction Industry* to Departmental Representative for following persons:

.1 Person appointed to prepare documents stipulated in previous paragraph; and

.2 Each person responsible for transport or rescue operations.

.5 If rescue plan includes use of a boat, submit rescue workers' Transport Canada card or certificate of competence to Departmental Representative.

.6 Include devices stipulated in Articles 11.4 and 11.5 of the *Safety Code for the Construction Industry* in weekly inspection checklist.

.7 Ensure a rescue boat is moored in the water and available wherever a worker could fall in the water. One boat may serve several locations on same site as long as boat is within thirty metres (30 m) of each location.

.8 When working environment is a landing dock, basin, jetty, wharf or similar structure, install ladders every sixty metres (60 m) with at least two (2) rungs above water surface on front of structure.

## 1.35 USE OF INTERNAL COMBUSTION ENGINES

.1 Comply with requirements stipulated hereunder, as well as article 3.10.17 of the *Safety Code for the Construction Industry* (S-2.1, r.4).

.2 Use of fuel-powered equipment inside a building is prohibited, even if building has openings.

.3 Obtain Departmental Representative's authorization for indoor use of any other equipment with internal combustion engines.

.4 When using equipment with internal combustion engines indoors, even if building has openings, install a ventilation system that ensures concentrations of toxic gases are kept below regulatory limits. Exhaust vitiated air outside the building.

.1 Before indoor use of equipment with an internal combustion engine, prepare following in writing:

a) Number of ventilation units to install
b) Ventilation unit capacity
c) Ventilation unit locations
d) Size of openings that will remain open during work

.5 When equipment with an internal combustion engine is running, measure carbon monoxide and nitrogen oxide concentrations in work zone at workers' breathing height; record concentrations every thirty (30) minutes in a logbook available for consultation.

.6 If work takes place in an occupied building, also measure carbon monoxide and nitrogen oxide concentrations every thirty (30) minutes in rooms adjacent to work zone; record concentrations in a logbook.

.7 If carbon monoxide or nitrogen oxide detector alarm goes off during work, suspend work and implement necessary corrective measures before resuming work.

.8 Ensure a portable extinguisher is available in work zone at all times when using equipment with internal combustion engines.

.9 Keep equipment at a safe distance from any combustible materials.

.10 Store fuel for equipment with internal combustion engines outside.

## 1.36 TEMPORARY HEATING

.1 Comply with requirements stipulated hereunder, as well as article 3.11 of the *Safety Code for the Construction Industry* (S-2.1, r.4).

.2 Keep a portable extinguisher near heating units at all times, regardless of type of heating used.

.3 Use equipment in accordance with manufacturer's specifications.

.4 Solidly affix canvases and tarps used near heating devices to prevent them from blowing onto heating units, piping connected to heating units or any other heat source.

.5 Install gas cylinders such that they are protected from vehicular traffic and other equipment.

.6 Install carbon monoxide detectors in work zone near workers whenever non-electric heating units are used; maintain in operation whenever heating is used. Immediately implement necessary corrective measures for heating units when detector alarm sounds.

.7 Ensure minimal supervision of heating units outside working hours (nights and weekends). Present supervision plan to Departmental Representative before using heating units.

## 1.37 WORK NEAR OVERHEAD POWER LINES

.1 When there are overhead power lines in work zone and Contractor chooses to apply paragraph b) of Article 5.2.2 of the *Safety Code for the Construction Industry, S-2.1, r.4,* submit copy of agreement with electric company as well as work process stipulated in Article 5.2.2 b) to Departmental Representative before starting work associated with said documents.

## 1.38 EVACUATION OF A VICTIM AT GROSS-ILE

.1 Call **emergency call centre at 1-800-565-0911 or dial 911**

- .1 Specify location of emergency as Grosse-Île in Montmagny
- .2 Specify nature of emergency situation:
  - .1 Main **symptoms** or type of incident
  - .2 Number of **victims / injured person(s)**
  - .3 Approximate **age(s)**
  - .4 **Conscious?** Yes/No
  - .5 Difficulty **breathing?** Yes/No
  - .6 Severe bleeding
  - .7 Person 35 years of age or older, chest **pain**

  Additional information in the event of an accident/injury
  - .8 Precise **location** of the accident
  - .9 **Injured person** trapped
- .3 Administer first aid treatment until medical rescue workers arrive

**.2** If emergency call centre cannot use commercial transport (boat, airplane), contact Sûreté du Québec (Montmagny barracks) at **(418) 248-3705 or (418) 310-4141.**

**.1** Call Sûreté du Québec if any of the following situations occur:

- .1 Trapped for an extended period of time
- .2 Loss of consciousness
- .3 Head trauma
- .4 Respiratory distress
- .5 Burns over more than 15% of body
- .6 Severe bleeding

.7 Amputation of a body part
.8 Severe and deep cuts
.9 Impact at high velocity
.10 Unstable vital signs
.11 Location that is remote, difficult-to-access or only accessible by air
.1 It is important to specify that evacuation request is from a Parks Canada employee at Grosse-île.
.2 Specify:
.1 **Circumstances**: What happened (where, when, how)
.2 Number of **patients** and types of **injuries**
.3 **Weather conditions**, visibility, cloud cover, fog
.4 **Obstacles**, presence of electrical lines and cranes
.3 Administer first aid treatment until medical rescue workers arrive
.4 If Sûreté du Québec can't respond, contact the Canadian Coast Guard.

.3 **Canadian Coast Guard 1-800-463-4393 or (418) 648-3599**

.1 It is important to specify that evacuation request is from a Parks Canada employee at Grosse-île.
.2 Specify nature of emergency situation: 1 to 9
.3 Administer first aid treatment until medical rescue workers arrive

**1.39 PHONE NUMBERS IN CASE OF EMERGENCY**

**Note:** The emergency call system (911) on cell phones does not work the same way as from a land line. It is important to identify for which city the service is requested.

| | |
|---|---|
| Emergency services:<br>(Evacuation of a victim, Emergency services) | 911 or 1-800-565-0911 |
| Sûreté du Québec:<br>(Emergency) | 310-4141<br>(418) 248-3705 |
| Fisheries and Oceans Canada<br>(Canadian Coast Guard) | (418) 648-3599 or 1-800-463-4393<br>VHF 16 (156.8 $MH_z$) |
| Montmagny Airport | (418) 248-3545 |
| Croisière Lachance maritime transport<br>Cell: | (418) 259-2079<br>(418) 248-7977 |

**Environmental emergency response organizations**

| | |
|---|---|
| Environment Canada: 24-hour emergency services | 1-866-283-2333 |
| Environnement Québec: 24-hour emergency services | 1-866-694-5454 |

| | |
|---|---|
| CANUTEC (Ottawa): 24 hrs/day<br>Cell | 1-613-996-6666<br>*666 |
| Onyx (Sani-mobile) | (418) 833-6840 |
| **Forest Fire** | |
| Société de protection des forêts contre le feu (SOPFEU) | 1-800-463-3389 |
| **Other organizations** | |
| Civil Code of Québec: 24 hrs/day | (418) 643-3256 |
| Québec Poison Control Centre | (418) 656-8090 or 1-800-463-5060 |
| Gaz Métropolitain | 1-800-361-8003 |
| Ascenseurs Jackré Inc. (Montmagny) | 1-800-990-3590 |
| Edwards (fire alarm) | (418) 681-0534 |

END OF SECTION

## Part 1 General

### 1.1 DEFINITIONS

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

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

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Technical data sheets

.1 Submit manufacturer's technical data sheets, instructions and documentation.

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

.3 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.4 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

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

.6 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 exit manifests for hazardous waste to be removed from site

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

.4 Description of training program for personnel assigned to environmental protection

.5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to ensure that control measures are in compliance federal, provincial, and municipal laws and regulations

.6 Drawings showing 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 construction site.

.7 Work zone plan showing proposed activity in each portion of work zone, identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work zones.

.8 Spill control plan including procedures, instructions, and reports to be used in the event of accidental spill of a regulated substance.

.9 Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.10 Air pollution control plan detailing provisions to ensure that dust, debris, materials and trash are contained on construction site.

.11 Contaminant prevention plan identifying potentially hazardous substances to be used on construction site, intended actions to prevent introduction of such materials into air, water, or ground, and detailed provisions for compliance with federal, provincial, and municipal laws and regulations relating to the storage and handling of these materials.

.12 Wastewater management plan identifying methods and procedures for management and/or discharge of wastewater directly derived from construction activities, such as clean-up water, hydrostatic test water, and water used in flushing lines.

.13 Plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

.14 Pesticide treatment plan to be included and updated, as required.

## 1.3 FIRES

.1 Fires and burning of rubbish on construction site are not permitted.

.2 Provide supervision, and fire protection measures as directed.

## 1.4 DRAINAGE

.1 Prepare and submit erosion and sediment control plan identifying type and location of erosion and sediment controls provided. Ensure plan includes monitoring and reporting requirements to ensure control measures are in compliance with federal, provincial, and municipal laws and regulations.

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

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

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

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

## 1.5 CONSTRUCTION SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on construction site and adjacent properties.

.2 Protect trees and shrubs adjacent to construction site, storage areas and trucking lanes. Encase with protective wood framework from grade level to minimum height of two metres (2 m).

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

## 1.6 WORK ADJACENT TO WATERWAYS

.1 Construction equipment to be operated on land only.

.2 Waterways to remain free of excavated fill, waste material and debris.

.3 Design and construct temporary crossings to minimize erosion to waterways.

.4 Do not skid logs or construction materials across waterways.

.5 Avoid indicated spawning beds when constructing temporary waterway crossings.

.6 Blasting to take place only above water and a minimum of one hundred metres (100 m) from indicated spawning beds.

## 1.7 POLLUTION CONTROL

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

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area. Provide temporary enclosures where indicated and as directed by Departmental Representative.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

## 1.8 HISTORICAL/ARCHAEOLOGICAL CONTROL

.1 The building is part of Grosse Île and the Irish Memorial National Historic Site of Canada. In light of this, it is considered to be an archaeological site of national historic significance.

.2 Excavation is strictly forbidden, unless it is done under continuous supervision of a Parks Canada archaeologist, who was given at least seventy-two (72) hours' advance notice.

## 1.9 NOTIFICATION OF NON-COMPLIANCE

.1 Departmental Representative will notify Contractor in writing of any observed non-compliance 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 with approval by the latter.

.1 Only implement proposed corrective measures after receiving written approval from Departmental Representative.

.3 Departmental 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 Product

### 2.1 NOT USED.

.1 Not used.

## Part 3 Execution

### 3.1 CLEAN UP

.1 Progress cleaning: clean in accordance with Section 01 74 11 – Clean Up. Leave work area clean at end of each day.

.2 Bury rubbish and waste materials on construction site.

.3 Ensure public waterways, storm and sanitary sewers remain free of waste and disposed volatile materials.

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

.5 Separate waste materials for recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal. Remove recycling containers and bins from construction site and dispose of materials at appropriate facility.

**END OF SECTION**

## Part 1 General

### 1.1 CODES, STANDARDS AND OTHER REFERENCE DOCUMENTS

.1 Perform work in accordance with National Building Code of Canada (NBC), including amendments up to tender closing date and other codes of provincial or local application provided; in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract Documents

.2 Specified standards, codes and referenced documents

### 1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: Demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work and notify Departmental Representative.

.2 PCB (Polychlorinated Biphenyl): Stop work immediately when Polychlorinated Biphenyl is encountered during demolition work and notify Departmental Representative.

.3 Mould: Stop work immediately when mould is encountered during demolition work and notify Departmental Representative.

### 1.3 SMOKE-FREE ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

.2 Smoking is not permitted inside any building on Grosse-île, nor within perimeter of construction site.

### 1.4 NATIONAL PARKS ACT

.1 Perform work in accordance with National Parks Act when projects are located within boundaries of National Park.

## Part 2 Product

### 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 INSPECTION

.1 Allow Departmental Representative access to work. If part of work is in preparation at locations other than construction site, allow access to such location whenever work is in progress.

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

.3 If Contractor covers or allows to be covered work that has been designated for special tests, inspections or approvals before it is covered, uncover 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 not be 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.

### 1.2 INDEPENDENT INSPECTION AGENCIES

.1 Independent inspection/testing agencies will be hired 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 re-testing and re-inspection.

### 1.3 ACCESS TO CONSTRUCTION SITE

.1 Allow inspection/testing agencies access to construction site as well as off-site manufacturing and fabrication plants.

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

### 1.4 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 equipment/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.

**1.5 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 contractors' 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 the difference in value between work performed and that called for by Contract Documents from contract price, amount of which will be determined by Departmental Representative.

**1.6 REPORTS**

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

.2 Provide copies to subcontractor of work being inspected or tested.

**1.7 MOCK-UPS**

.1 Prepare mock-ups for work specifically requested in specifications. Requirements set forth in this article apply to all sections of the specifications where mock-ups are requested.

.2 Construct in locations approved by 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 of mock-ups.

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

.7 Mock-ups may remain as part of finished work.

.8 Each specification section that requires mock-up stipulates whether such may remain as part of finished work, or if it is to be removed and when.

**1.8 SHOP TESTS**

.1 Submit mill test certificates as required.

**1.9 EQUIPMENT AND SYSTEMS**

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

**Part 2 Product**

**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 ACTION AND INFORMATIONAL SUBMITTALS

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

### 1.2 EQUIPMENT INSTALLATION AND REMOVAL

.1 Provide means for using temporary utilities in order to execute work expeditiously.

.2 Disassemble all equipment and remove from construction site after use.

### 1.3 WATER SUPPLY

.1 Departmental Representative will provide continuous supply of potable water for construction use.

### 1.4 HEATING AND VENTILATION

.1 Provide temporary heating units required during construction, including necessary operations, maintenance and fuel.

.2 Heaters used inside building must be vented to outside or have no open flame. Solid fuel salamanders are not permitted.

.1 Two types of heating are permitted
.1- Electric heating powered by Generator mobile installed outside the building.
.2 - Heating system flame live outside of the building. Fuel must be "A"
.3- In all cases, it is the responsibility of the Contractor to learn ways to source and dispose of fuel on the site. A fuel management standards applicable (including: environmental, transfer of petroleum products) is required.

.4 The Contractor shall consider the east wing of the Hotel le 3ière class (Building 19) does not heating system.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products from dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Ensure appropriate ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Meet health regulations for safe working environment.

.4 Maintain temperatures of at least 10 degrees Celsius in areas where construction is in progress.

.5 Ventilation

.1 Prevent accumulation of dust, vapours or gases, and prevent smoke from forming in occupied areas during construction.

.2 Provide a local combustion by-product ventilation system to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of combustion by-products in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for a certain time after completion of work to completely eliminate all harmful contaminants generated during construction from the atmosphere.

.6 Permanent heating system of building may not be used when available. Assume responsibility for damage incurred to heating system if use is permitted.

.7 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Comply with applicable codes and standards.

.2 Implement safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.8 Be responsible for damage to Work due to failure to provide adequate heat and protection during construction.

## 1.5 TEMPORARY ELECTRICITY AND LIGHTING

.1 Departmental Representative will pay for temporary power during construction, for temporary lighting and operating of power tools, to a maximum supply of 230 volts, 30 amps.

.2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and disconnection.

.3 Temporary power for electric cranes and other equipment required in addition to that mentioned in previous paragraph is responsibility of Departmental Representative.

.4 Provide and maintain temporary lighting throughout project.

## 1.6 TELECOMMUNICATIONS

.1 Provide temporary telecommunication facilities, namely cordless telephones including equipment required for its own use and for use by the Departmental Representative. Connect installations to primary networks and pay all costs incurred for these services.

## 1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of work as required by insurance companies having jurisdiction, as well as governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on construction site.

**Part 2 Product**

**2.1 NOT USED.**

.1 Not used.

**Part 3 Execution**

**3.1 NOT USED.**

**END OF SECTION**

## Part 1 General

### 1.1 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood

.2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel

.2 Canadian Standards Association (CSA International)

.1 CSA-A23.1-/A23.2-04, Concrete Materials and Methods of Concrete Construction / Methods of Test for Concrete

.2 CSA O121-M78 (R2003), Douglas Fir Plywood

.3 CAN/CSA-S269.2-M87 (R2003), Access Scaffolding for Construction Purposes

.4 CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Workplace

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', in effect as of: May 14, 2004

.4 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices

### 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, access roads to fenced area and details of fence installation.

.2 Identify areas where gravel will be spread to prevent tracking of mud.

.3 Indicate use of any additional or staging area.

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

.5 Disassemble all equipment and remove from construction site after use.

### 1.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain platforms and scaffolding necessary for executing work.

### 1.5 HOISTING

.1 Supply, install, operate and maintain hoists and cranes required for moving workers, materials and equipment. Make financial arrangements with subcontractors for use thereof.

.2 Hoists and cranes to be operated by qualified operators.

**1.6 SITE STORAGE / ALLOWABLE LOADS**

.1 Ensure work is performed within the limits indicated in Contract Documents. Keep premises reasonably unencumbered from products.

.2 Ensure work remains free of load or force that would compromise integrity thereof.

**1.7 CONSTRUCTION PARKING**

.1 Provide all vehicles and fuel necessary to execute work. (There are no fuel stations on Grosse-Ile.)

.2 Provide and maintain adequate access roads to construction site.

.3 Contractor may park near construction site, but ensure number of vehicles parked is kept to the strict minimum.

**1.8 SAFETY MEASURES**

.1 Provide and pay for responsible security personnel to guard construction site and contents of construction site after working hours and during holidays.

**1.9 OFFICES**

.1 A common space will be available to Contractor to serve as an office.

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

.3 Provide a laptop with internet connect to foreman, to facilitate work and communications.

.4 Provide and pay activation and usage costs of a cell phone.

**1.10 EQUIPMENT, MATERIAL AND TOOL STORAGE**

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

.2 Store materials not required to be enclosed in weatherproof sheds on construction site in manner to cause least interference with work activities.

**1.11 SANITARY FACILITIES**

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances. Workers may use public washrooms on construction site.

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

.3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval from Departmental Representative.

**1.12 CONSTRUCTION SITE SIGNAGE**

.1 No other signs or advertisements, other than warning signs, are permitted on construction site.

.2 Signs and notices for safety and instruction in both official languages. Graphic symbols to CAN/CSA-Z321.

.3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site upon completion of project or earlier if directed by Departmental Representative.

**1.13 PROTECTION AND MAINTENANCE OF TRAFFIC**

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

.2 Contractor's traffic on roads used for hauling material to and from construction 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 Provide necessary signs, barricades and distinctive markings for safe movement of traffic.

.5 Provide snow removal during period of work.

**1.14 CLEAN UP**

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

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

**Part 2 Product**

**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 General Standards Board (CGSB)

.1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel

.2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood

.2 Canadian Standards Association (CSA International)

.1 CSA-0121-M1978 (R2003), Douglas Fir Plywood

### 1.2 EQUIPMENT INSTALLATION AND REMOVAL

.1 Supply, install or construct temporary access and protection means in order to execute Work expeditiously.

.2 Disassemble all equipment and remove from construction site after use.

### 1.3 GUARDRAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades in required locations.

.2 Supply and install as required by authorities having jurisdiction.

### 1.4 WEATHER ENCLOSURES

.1 Provide weather-proof enclosures to openings in floors and roofs.

.2 Design enclosures to withstand calculated wind pressure and snow loading.

### 1.5 DUST-TIGHT SCREENS

.1 Provide dust-tight screens or insulated partitions to localize dust-generating activities, and for protection of workers, finished areas of work and public.

.2 Maintain and relocate protection until such work is complete.

### 1.6 CONSTRUCTION SITE ACCESS ROADS

.1 Construct and maintain access roads, sidewalk crossings, ramps and construction runways as required for access to construction site.

### 1.7 FIRE ROUTES

.1 Maintain access to construction site including overhead clearances for use by emergency response vehicles.

### 1.8 PROTECTION OF SURROUNDING PRIVATE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Assume responsibility for damage incurred.

**1.9 PROTECTION OF BUILDING FINISHES**

.1 Protect completed and partially completed building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and barricades.

.3 Assume responsibility for damage incurred due to lack of or improper protection.

**Part 2 Product**

**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 Within each specifications section, reference may be made to relevant standards.

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

.3 If there is question as to whether products or systems comply with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove compliance.

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

### 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, provide evidence as to type, source and quality of products supplied.

.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 using recycled and recovered materials in execution of work.

.3 Defective products, whenever identified prior to completion of work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective products at own expense and assume responsibility for delays and expenses caused by rejection.

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

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

.6 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, alteration, deterioration and soiling, 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 tarps during inclement weather.

.6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to Departmental Representative’s satisfaction.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not apply any type of finish over nameplates.

## 1.5 TRANSPORTATION

.1 Pay costs to transport products required in performance of work.

## 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 may establish course of action.

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

## 1.7 WORKMANSHIP

.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 Only employ workers skilled in their required duties. Departmental Representative reserves right to require dismissal from site of 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 COORDINATION**

.1 Ensure co-operation of workers in performing work. Maintain efficient and continuous supervision.

.2 Assume responsibility 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 otherwise indicated.

.2 Before concealing components, inform Departmental Representative of any abnormal situation. 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 Remedial work to be performed 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 – GENERAL**

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

.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 relevant specification section.

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

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

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

**1.13 FASTENINGS - MATERIALS**

.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 stainless steel grade 304 for exterior installations.

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

.4 Use plain washers on equipment and 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 of parts of building. Unless otherwise indicated, obtain written authorization from the Departmental Representative to cut, drill or sleeve load-bearing structural members.

**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, building occupants and/or pedestrian and vehicular traffic.

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

## Part 2 Product

**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 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project
- .2 Integrity of weather-exposed or moisture-resistant elements
- .3 Efficiency, maintenance, or safety of operational elements
- .4 Visual qualities of sight-exposed elements
- .5 Work of owner or separate contractor

.3 Include in request:

- .1 Identification of project
- .2 Location and description of affected work
- .3 Statement on necessity for cutting or alteration
- .4 Description of proposed work and products to be used
- .5 Alternatives to cutting and patching
- .6 Effect on work of owner or separate contractor
- .7 Written permission of affected separate contractor
- .8 Date and time work will be executed

### 1.2 MATERIALS

.1 Materials required to perform identical installation.

.2 Change in materials: submit request for substitution in accordance with Section 01 33 00 – Submittal Procedures.

### 1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to ensure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas to be exposed by uncovering work; maintain excavations free of water.

### 1.4 EXECUTION

.1 Execute cutting, fitting, and patching to complete work.

.2 Fit various parts together, to integrate with rest of work.

.3 Uncover work to install ill-timed work.

.4 Remove and replace defective and non-conforming work.

.5 Provide openings in non-structural elements of work for penetrations of mechanical and electrical work.

.6 Execute work using methods that prevent damage to other work, and which will provide proper surfaces to receive patching and finishing.

.7 Restore work with new products in accordance with requirements of Contract Documents.

.8 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.9 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material in accordance with Section 07 84 00 – Firestopping, across full thickness of construction element.

.10 Refinish surfaces to match adjacent finishes: refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

.1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

**Part 2 Product**

**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 PROJECT CLEANLINESS

.1 Maintain work in tidy condition, free from accumulation of waste products and debris, including that generated by owner or other contractors.

.2 Remove debris and waste materials from construction site daily. Burning waste materials on construction site is prohibited.

.3 Clear snow and ice from access to building. Remove snow off site.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of debris and waste materials.

.5 Provide on-site containers for removal of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.7 Dispose of debris and waste materials off-site.

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

.9 Store volatile waste in covered metal containers; remove from premises at end of each working day.

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

.11 Only use cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by the said product manufacturer.

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

### 1.2 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 inspection, remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris including that generated by owner or other contractors.

.5 Dispose of waste materials from construction site at regularly-scheduled times or dispose of as directed by Departmental Representative. Burning waste materials on construction site is prohibited.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of debris and waste materials.

.7 Inspect finishes, fittings and equipment and ensure specified workmanship and operation.

.8 Broom clean and wash exterior sidewalks, steps and surfaces; rake or broom clean other surfaces of grounds.

.9 Sweep and wash clean paved surfaces.

.10 Clean equipment and fixtures to sanitary condition; clean or replace mechanical equipment filters.

.11 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.12 Remove snow and ice from access paths to building.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

.1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

**Part 2 Product**

**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 OBJECTIVES

.1 Prior to start of work, conduct meeting with Departmental Representative to review and discuss PWGSC's waste management goals and Contractor's proposed waste reduction plan in terms of construction, renovation and demolition (CRD) waste generated for the project.

.2 PWGSC's waste management goal is to reduce the total flow of project waste to landfill sites. Prior to start of work, provide Departmental Representative documentation certifying that waste management, recycling, and reuse of recyclable and reusable materials have been extensively practiced.

### 1.2 DEFINITIONS

.1 Class III non-hazardous materials: Construction, renovation and demolition waste.

.2 Inert fill/waste: Asphalt and concrete, exclusively.

.3 Material Source Separation Program (MSSP): Sorting activities that ensure designated waste is separated into appropriate categories.

.4 Recyclable: Ability of product or material to be recovered at end of its lifecycle and re-manufactured into new product for reuse.

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

.6 Recycling: Process of sorting, cleaning, 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.

.7 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from remodelling 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.

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

.9 Separate condition: Refers to waste sorted into individual types.

.10 Source separation: Acts of keeping different types of waste materials separate, beginning from first time they became waste.

.11 Waste management coordinator (WMC): Contractor representative responsible for supervising waste management activities as well as coordinating required submittal and reporting requirements.

## 1.3 DOCUMENTS

.1 Post one copy of the following documents in prominent location on construction site:

.1 Material Source Separation Program

## 1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prepare and submit following prior to start of work:

.1 One (1) hard copy and one (1) electronic copy of Material Source Separation Program (MSSP) description.

.3 Prepare and submit following to Departmental Representative prior to start of work:

.1 One (1) hard copy and one (1) electronic copy of Material Source Separation Program description.

.4 Submit following prior to final payment:

.1 Summary of waste materials salvaged for reuse, recycling or disposal.

.2 Failure to submit could result in hold back of final payment.

.3 Provide receipts, waybills, bills of lading and show quantities and types of materials reused, recycled, or disposed of.

.4 For each material reused, sold or recycled from project, include amount in tonnes by number, type and size of items, as well as destination.

.5 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

## 1.5 MATERIAL SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 MSSP to detail methodology and activities planned on site in view of separating reusable and recyclable materials from waste to dump.

.3 Provide list and drawings of locations available for sorting, collecting, handling and storing anticipated quantities of reusable/recyclable materials.

.4 Provide sufficient on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.5 Place containers in locations that facilitate deposit of materials without hindering construction site operations.

.6 Locate separated materials in area that minimizes material damage.

.7 Clearly and safely label containers to indicate type/condition of acceptable materials.

.8 Monitor activities associated with on-site waste management, performing periodic inspections on premises to verify condition of signs, levels of contamination, location and condition of bins, employee participation, use of waste monitoring forms and collection of waybills, receipts and invoices.

.9 On-site sale of recovered waste materials is not permitted without Departmental Representative's written authorization and only under condition that on-site safety regulations and related safety requirements are met.

**1.6 USE OF PREMISES AND FACILITIES**

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Enforce established safety measures for installation.

**1.7 WASTE PROCESSING SITES**

.1 Assume responsibility for finding waste reclamation resources and service suppliers. Transport recovered waste materials to approved and authorized recycling facility or to material recyclers.

**1.8 QUALITY ASSURANCE**

.1 Following award of Contract, a mandatory site examination will be conducted within the context of this project for the Contractor and subcontractors responsible for construction, renovation and demolition waste management.

.1 Departmental Representative to establish date, time and location.

.2 Waste management meeting: Waste management coordinator to provide update on waste reclamation and management situation at each meeting.

**1.9 STORAGE, HANDLING AND PROTECTION OF MATERIALS**

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

.2 Materials for removal become Contractor's property, unless otherwise indicated.

.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. Remit recoverable scrap stipulated to owner.

.5 Protect structural components not removed and recovered waste 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, as well as mechanical and electrical installations from damage and blockage.

.8 Provide on-site facilities and containers for collection, handling, 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 Provide bills of lading, receipts and/or waybills for waste materials that were sorted and removed from premises.

**1.10 WASTE DISPOSAL**

.1 Burying rubbish or waste materials is prohibited.

.2 Do not dispose of waste, volatile materials, mineral spirits, paint thinner or hydrocarbons 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 Destination of reused or recycled waste

.4 Remove waste materials as work progresses.

**1.11 WORK SCHEDULE**

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

**Part 2 Product**

**2.1 NOT USED.**

.1 Not used.

**Part 3 Execution**

**3.1 GENERAL**

.1 Do work in compliance with MSSP.

.2 Handle waste, which is not reused, recovered or recycled, in compliance with relevant codes and regulations.

**3.2 CLEAN UP**

.1 Progress cleaning: clean in accordance with Section 01 74 11 – Clean Up.

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

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

## 3.3 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale of waste materials is not permitted.

## 3.4 MATERIAL DIVERSION REPORT

.1 At end of project, prepare waste diversion report, indicating quantities of materials reused, recycled or disposed of, as well as following:

.1 Indicate final diversion results and measure achievement of waste reduction plan objectives.

.2 Compare final diverted material quantities/percentages with initial projections from waste audit and waste reduction plan. Explain discrepancies.

.1 Provide supporting documentation.

.2 Provide bills of lading and monitoring forms.

.3 Describe problems, solutions and lessons learned.

**END OF SECTION**

## Part 1 General

### 1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of work procedure

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

.1 Notify Departmental Representative in writing once inspection is complete and corrections have been implemented.

.2 Request Departmental Representative's inspection.

.2 Departmental Representative's inspection:

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

.2 Contractor to correct work as directed.

.3 Completion of 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, adjusted and balanced and fully operational.

.4 Commissioning of mechanical systems: completed in accordance with Section 01 91 13 – General Commissioning (Cx) Requirements to Departmental Representative.

.5 Work: complete and ready for final inspection.

.4 Final inspection

.1 When aforementioned tasks are done, request final joint inspection of work by Departmental Representative and Contractor.

.2 When work is deemed 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.

.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.

**1.2 FINAL CLEANING**

.1 Clean in accordance with Section 01 74 11 – Clean Up.

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

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

**Part 2 Product**

**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 REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one (1) week prior to contract completion with Contractor's representative, Departmental Representative and Consultant, in accordance with Section 01 31 19 – Project Meetings to:

.1 Verify project requirements

.2 Review warranty requirements and manufacturer's installation instructions

.2 Departmental Representative shall establish communication procedures for:

.1 Notification of construction warranty defects

.2 Determining priorities relating to type of defect

.3 Determining a reasonable time for response

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two (2) weeks prior to substantial performance of work, submit four (4) final copies of operating manuals in French to Departmental Representative.

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

.4 Provide evidence, upon request, of type, source and quality of products provided.

### 1.3 FORMAT

.1 Organize data as instructional manual.

.2 Binders: Vinyl, hardcover, three (3) “D” rings, loose leaf, 219 mm 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 typed or printed “Project Record Documents” title, project title and Table of Contents.

.5 Arrange content by systems, according to 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. Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scale CAD files in .dwg format on CD.

## 1.4 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for each volume: indicate project title

- .1 Date of document submission
- .2 Name, address and telephone number of Departmental Representative with name of representatives
- .3 Schedule of products and systems, indexed to content of volume

.2 For each product or system indicate the following:

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

.3 Technical data sheets: mark each sheet to identify specific products, component parts and data applicable to installation; delete all irrelevant information.

.4 Drawings: drawings to supplement technical data sheets and to illustrate relation between various equipment and system component parts; to include control and flow diagrams.

.5 Typewritten text: as required to supplement technical data sheets.

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

.6 Training: refer to Section 01 79 00 - Demonstration and Training.

## 1.5 AS-BUILT DOCUMENTS AND SAMPLES

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

- .1 Contract drawings
- .2 Specifications
- .3 Addenda
- .4 Change orders and other contract amendments
- .5 Reviewed shop drawings, technical data sheets, 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, shelves, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Clearly print “Project Record" on each document label.

.4 Maintain project record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

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

## 1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of opaque drawings.

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

.3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.

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

- .1 Field changes of dimension and detail
- .2 Changes made by change orders
- .3 Details not on original Contract Documents
- .4 References to related shop drawings and modifications

.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 Other documents: maintain manufacturer's certifications, inspection certifications, and field test records required by individual specifications sections.

.7 Provide digital photos for site records.

## 1.7 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 colour-coded installed 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 troubleshooting, as well as instructions for disassembly, repair, reassembly, alignment, adjustment, balancing, and checking of system components.

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

.7 Provide manufacturer's printed operating and maintenance instructions.

.8 Provide sequence of operation by control manufacturers.

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

.10 Provide installed control diagrams from various control manufacturers.

.11 Provide Contractor's coordination drawings with colour-coded installed piping diagrams.

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

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be kept in stock.

.14 Include test and balancing reports as specified in Sections 01 45 00 – Quality Control and 01 91 13 – General Commissioning (Cx) Requirements.

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

## 1.8 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 specification sections.

## 1.9 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 and store in location indicated.

.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 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 materials to and store in location indicated.

.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 special tools to and store in location indicated.

.4 Receive and catalogue items.

.1 Submit inventory listing to Departmental Representative.

.2 Include approved listings in maintenance manual.

## 1.10 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 Departmental Representative.

## 1.11 WARRANTIES AND BONDS

.1 Develop warranty management plan including all information relevant to Warranties.

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

.3 Warranty management plan to include required actions and documents to ensure 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 and submit upon acceptance of work. Organize binder as follows: Comply with the following provisions:

.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 designated responsible party for each one.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) 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, do not modify date of beginning of time of warranty until date of substantial performance is determined.

.8 Conduct joint four (4) month and nine (9) month warranty inspections, calculated from time of acceptance by Departmental Representative.

.9 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 for people responsible within the involved Contractor's, subcontractors', manufacturers' or suppliers' organizations.

.2 Listing and status of delivery of certificates of warranty for extended warranty items, to include fire protection systems, sprinkler systems and commissioned systems.

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

.1 Name of item, material, system or lot

.2 Model and serial numbers

.3 Location installed

.4 Name and phone numbers of manufacturers or suppliers

.5 Names, addresses and telephone numbers of spare part suppliers

.6 Warranties and terms of warranty: include one-year overall warranty of construction Items, materials, systems or lots that have extended warranties and show separate warranty expiration dates

.7 Cross-reference to warranty certificates as applicable

.8 Warranty period start and end dates

.9 Summary of maintenance procedures required to ensure warranty is maintained

.10 Cross-reference to specific relevant operating 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

.4 Contractor's plans for attendance at four (4) and nine (9) month post-construction warranty inspections

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

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

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

.11 Written verification to follow oral instructions. Failure to respond will be cause for Departmental Representative to proceed with action against Contractor.

**1.12 WARRANTY TAGS**

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

.2 Attach tags with copper wire and spray with waterproof silicon 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 Contractor’s signature

**Part 2 Product**

**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 REQUIREMENTS

.1 Demonstrate operation and maintenance of equipment and systems to Owner's personnel.

.2 Owner: provide list of personnel to receive training, and co-ordinate their attendance at agreed-upon times.

.3 Preparation

.1 Ensure that the conditions under which the operational demonstrations of instruments, equipment and systems as well as the training sessions comply with requirements.

.2 Ensure that all designated persons are in attendance.

.3 Ensure equipment has been inspected and put into operation.

.4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 – General Commissioning (Cx) Requirements and that equipment and systems are fully operational.

.4 Demonstration and training

.1 Demonstrate how the start-up, operation, control, adjustment, failure diagnostics (troubleshooting), upkeep and maintenance of each instrument is to be ensured.

.2 Teach staff members every step of operating and maintaining the instruments, equipment and systems, using the supplied operating and maintenance manuals.

.3 Review manual content in detail, explaining every aspect of operations and maintenance.

.4 Collect and add any additional information necessary for training to operating and maintenance manuals, as applicable.

.5 Time allocated for training: ensure amount of time required for training on each item of equipment or system as follows:

.1 Each contractor shall allow adequate training time to ensure designated personnel has been properly trained on all installed equipment.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit a schedule indicating date and time for each instrument, equipment and system operation demonstration to Departmental Representative for approval two (2) weeks prior to specified dates.

.3 During subsequent week, submit documents attesting that demonstrations were actually performed and adequate training was provided satisfactorily.

.4 Indicate date and time of each demonstration that took place, as well as a list of people in attendance.

.5 Provide complete copies of the operating and maintenance manuals for all instruments, equipment and systems used for demonstrations and related training sessions.

**1.3 QUALITY ASSURANCE**

.1 Where it is specified that a manufacturer's authorized representative shall demonstrate the operation of equipment, materiel or system installed:

.1 Train Owner's personnel.

.2 Provide a written statement confirming that the said demonstration and related training took place.

**Part 2 Product**

**2.1 NOT USED.**

.1 Not used.

**Part 3 Execution**

**3.1 NOT USED.**

.1 Not used.

**END OF SECTION**

# 1 GENERAL

## 1.01 SUMMARY

.1 General requirements relating to commissioning of project's components and systems.

.2 Acronyms:
- .1 AFD - Alternate Forms of Delivery, service provider.
- .2 BMM - Building Management Manual.
- .3 Cx - Commissioning.
- .4 EMCS - Energy Monitoring and Control Systems.
- .5 O&M - Operation and Maintenance.
- .6 PI - Product Information.
- .7 PV - Performance Verification.
- .8 TAB - Testing, Adjusting and Balancing.

## 1.02 GENERAL

.1 Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:
- .1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.
- .2 Effectively train O&M staff.

.2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.
- .1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.
- .2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.

.3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

## 1.03 COMMISSIONING OVERVIEW

.1 Cx activities supplement field quality and testing procedures described in relevant technical sections.

.2 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the built facility is constructed and proven to operate satisfactorily under weather, environmental and occupancy conditions to meet functional and operational requirements. Cx activities includes transfer of critical knowledge to facility operational personnel.

.3 Departmental Representative will issue Interim Acceptance Certificate when:
- .1 Equipment, components and systems have been commissioned.
- .2 O&M training has been completed.

**1.04 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS**

.1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related systems as deemed required by Departmental Representative, to ensure effective performance.

.2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

**1.05 PRE-CX REVIEW**

.1 Before Construction:
- .1 Review contract documents, confirm by writing to Departmental Representative.
  - .1 Adequacy of provisions for Cx.
  - .2 Aspects of design and installation pertinent to success of Cx.

.2 During Construction:
- .1 Co-ordinate provision, location and installation of provisions for Cx.

.3 Before start of Cx:
- .1 Ensure installation of related components, equipment, sub-systems, systems is complete.
- .2 Understand completely design criteria and intent and special features.
- .3 Ensure "As-Built" system schematics are available.

**1.06 COMMISSIONING SCHEDULE**

.1 Provide detailed Cx schedule as part of construction.

.2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:
- .1 Approval of reports.
- .2 Verification of results.
- .3 Repairs, retesting, re-commissioning, re-verification.
- .4 Training.

**1.07 STARTING AND TESTING**

.1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

**1.08 WITNESSING OF STARTING AND TESTING**

.1 Provide 14 days notice prior to commencement.

.2 Departmental Representative to witness of start-up and testing.

**1.09 MANUFACTURER'S INVOLVEMENT**

.1 Integrity of warranties:
- .1 Use manufacturer's trained start-up personnel where specified elsewhere in other divisions

or required to maintain integrity of warranty.

.2 Qualifications of manufacturer's personnel:
- .1 Experienced in design, installation and operation of equipment and systems.
- .2 Ability to interpret test results accurately.
- .3 To report results in clear, concise, logical manner.

## 1.10 PROCEDURES

.1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.

.2 Conduct start-up and testing in following distinct phases:
- .1 Included in delivery and installation:
  - .1 Verification of conformity to specification, approved shop drawings.
  - .2 Visual inspection of quality of installation.
- .2 Start-up: follow accepted start-up procedures.

## 1.11 TEST RESULTS

.1 If commissioning and testing results are not satisfactory, repair or replace the defective equipment, if applicable, or repeat the required commissioning procedures until acceptable results are achieved.

.2 Provide manpower and materials, assume costs for re-commissioning.

## 1.12 START OF COMMISSIONING

.1 Notify Departmental Representative at least 14 days prior to start of Cx.

.2 Start Cx after elements of building affecting start-up.

## 1.13 COMMISSIONING PERFORMANCE VERIFICATION

.1 Carry out Cx:
- .1 Under actua] operating conditions, over entire operating range, in all modes.
- .2 On independent systems and interacting systems.

.2 Follow equipment manufacturer's operating instructions.

## 1.14 WITNESSING COMMISSIONING

.1 Departmental Representative to witness activities and verify results.

## 1.15 COMPLETION OF COMMISSIONING

.1 Upon completion of Cx leave systems in normal operating mode.

## 1.16 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

.1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

## 2 PRODUCTS

### 2.01 NOT USED

.1 Not Used.

## 3 EXECUTION

### 3.01 NOT USED

.1 Not Used.