

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises rehabilitation of the ATB Gate B located at the Wabush Airport in Wabush, NL; and further identified as the “Work”.

1.2 WORK SEQUENCE

- .1 Construct Work in stages to accommodate Owner's continued use of premises.
- .2 Co-ordinate Progress Schedule and Owner's use of premises during construction.
- .3 Maintain fire access/control.
- .4 Work must be scheduled to maintain traffic along roadways at all times to allow for emergency vehicle access. Contractor shall submit signage/traffic management plan 5 days in advance of Work proceeding for Departmental Representative approval.
- .5 Contractor will submit for approval a phased plan for construction indicating the work area and schedule for each phase.
- .6 Contractor will submit for approval a plan indicating the proposed construction zone to be fenced complete with access points, including any material laydown areas. Gate C will be a designated Contractor access point. Laydown and storage shall be adjacent to Gate C outside of the operational zone. All requirements shall be confirmed and approved by Transport Canada and PCSC after award.

1.3 CONTRACTOR USE OF PREMISES

- .1 Co-ordinate use of premises under direction of Departmental Representative.
- .2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract. Obtain and pay for escort services.

1.4 EXISTING SERVICES

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours 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 operations.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .4 Submit schedule to and obtain approval from Departmental Representative for any shut-down 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 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .9 Record locations of maintained, re-routed and abandoned service lines.
- .10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy of 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.

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 AND EGRESS

- .1 As this facility is an active airport, Transport Canada will designate a Contractor access point to the operational zone.

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Where security of the operations zone is reduced by work, provide temporary means to maintain security. Erect temporary site fencing where required to keep the airport operations zone fully enclosed. Provide lockable gates as required. All fencing and gates shall be a minimum of 2.13 m high. The Contractor shall also employ the services of two (2) commissionaire escorts for the entire duration of the project. The Contractor shall bear the costs associated with escort services.
- .3 Contractor to provide own facilities as deemed necessary to complete the Work. Keep facilities clean.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 EXISTING SERVICES

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.4 SPECIAL REQUIREMENTS

- .1 Work Hours are Monday to Friday from 07:00 to 20:00 hours. Departmental Representative to approve work on Saturdays, Sundays and Statutory Holidays.
- .2 Carry out noise generating work Monday to Friday from 07:00 to 20:00 hours. Departmental Representative to approve work on Saturdays, Sundays and Statutory Holidays.
- .3 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .4 Keep within limits of work and avenues of ingress and egress.
- .5 Ingress and egress of Contractor vehicles at site is limited to the Limit of Construction Area and operational zone access point as approved by Transport Canada.

- .6 Deliver materials to the Site Monday to Friday between 07:00 to 20:00 unless otherwise approved by Departmental Representative.

1.5 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is not permitted.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 GENERAL REQUIREMENTS OF THE TENDER FORM

- .1 A LUMP SUM price bid is for full compensation of the work necessary to compete the Contract and in combination for all work necessary to complete the work as a whole.

1.2 MEASUREMENT AND PAYMENT

- .1 The Contactor shall provide a LUMP SUM price to complete the Work as indicated within the Contract Documents.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 00 – Summary of Work.

1.2 ADMINISTRATIVE

- .1 The Contractor shall schedule and administer project meetings throughout the progress of the work.
- .2 The Departmental Representative will record the meeting minutes and include significant proceedings and decisions and identify actions by parties.
- .3 The Departmental Representative will reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance.
- .4 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRECONSTRUCTION MEETING

- .1 Upon issuance of “Issued for Construction” drawings, the Contractor shall arrange a meeting of parties in the contract to discuss and resolve administrative procedures and responsibilities.
- .2 Representatives of the Owner, Contractor, Subcontractors, field inspectors and supervisors should be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work.
 - .3 Schedule of submission of shop drawings.
 - .4 Requirements for temporary facilities, signage, offices, storage, utilities and temporary fences.
 - .5 Delivery schedule of specified equipment.
 - .6 Site security.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime and administrative requirements.
 - .8 Monthly progress claims, administrative procedures, photographs, and hold backs.
 - .9 Appointment of inspection and testing agencies or firms.

- .10 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

- .1 During course of Work the Contractor shall schedule bi-weekly progress meetings.
- .2 Contractor, Subcontractors, Owner and the Departmental Representative are to be in attendance.
- .3 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings and product data in SI Metric units.
- .4 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada as required.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 14 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing and product data.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections 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 electronic copy of Operation and Maintenance Data for requirements requested in specification Sections 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, reviewed electronic copy will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 DIGITAL COPY

- .1 Provide digital copies in PDF format of all reviewed submittals.

1.4 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 GENERAL

- .1 Prior to start of work, Departmental Representative will arrange for briefing of all Contractor's personnel by Airport Authority on procedures for movement of equipment and personnel, and work on, or adjacent to active runways, taxiways or parking aprons.
- .2 The Departmental Representative will coordinate a safety and security presentation for Contractor and the Contractor's personnel who will require access on site.
- .3 All Contractor's personnel authorized to use airport for accessing the work site will be issued a special area visitor's pass. This pass must be kept on at all times during working hours.
 - .1 All Contractor's personnel will be escorted by Commissionaires. The Contractor shall employ the services of two (2) escorts for the entire duration of the project. The Contractor shall bear the costs associated with escort services.
- .4 The Contractor must be prepared to evacuate all personnel and equipment from operational surfaces and runway strip on 30 minutes notice to move. Contractor to coordinate with airport operations staff to ensure evacuated areas are approved by Departmental Representative as made safe for air operations within required timeline.

1.2 PROTECTION

- .1 Do not disrupt airport operations except as permitted by Departmental Representative.
- .2 Provide temporary protection to permit safe passage of all personnel, vehicles and aircraft in vicinity of Work.
- .3 Provide barricades and signs, lighted by night or during poor visibility and flags by day where directed by the Departmental Representative. These provisions shall prevent airport personnel from inadvertently crossing into construction areas and construction personnel from crossing into operational areas.
- .4 Provide containers for debris and clean-up is performed as work progresses and at a daily rate to prevent FOD (Foreign Object Damage to Aircraft). Be diligent in preventing refuse, from Work on this project, from being windblown across the airport.
- .5 Provide wetting down of surfaces and areas to prevent FOD or dusting hazards (such as ingestion into the aircraft engine or visibility to aircraft risks).
- .6 Locate all fixed facilities & objects at horizontal distance of not less than 3.0 m from primary security fences on groundside and 1.0 m from security fence on airside.
- .7 Do not park vehicles, construction equipment or stockpile any material within 3.0 metres of any security fence on groundside and within 1.0 metres from security fence on airside when not working on construction of new fences.

1.3 TEMPORARY BARRIERS AND DELINEATORS

- .1 Contractor shall be responsible for supplying all materials, hardware or devices required to delineate the Work Site and various construction phases for safety, security and traffic control requirements, at no additional cost to the Owner.

1.4 CLOSURE OF AIRSIDE FACILITIES

- .1 Carry out work requiring interruption of airport operations at time directed, with minimum of disturbance to airport operations.
- .2 Submit schedule to, and obtain approval from Departmental Representative of interruptions or closure of active airport facilities. Adhere strictly to approved schedule.
- .3 Closed facilities cannot be reopened until inspected and approved by the Departmental Representative.

1.5 COORDINATION OF MOVEMENT IN OPERATIONAL AREAS

- .1 Brief Departmental Representative every day prior to starting work in area adjacent to or on active airport facilities.
- .2 Obtain Departmental Representative's approval on scheduling of Work.
- .3 Control movements of equipment and personnel as directed by Departmental Representative.
- .4 Obey signals from Airport Authority Commissionaire immediately.
- .5 Any persons who fail to comply signals from Airport Authority Commissionaire will result in immediately removal of airside access.

1.6 FLIGHT SAFETY

- .1 Prior to permitting personnel to work adjacent to an active runway, taxiways, parking aprons, or working within 91 m from center line of the runway and 6 m the edge of asphalt from other active facilities (taxiway, apron), establish contact with Department Representative and obtain specific clearances. Once established on airport, maintain radio contact on work site with the Commissionaires at all times. Obey all instructions promptly and explicitly.
- .2 The contractor shall obey the direction of the Commissionaires with regards to pullbacks.
- .3 Obey all instructions promptly and explicitly.
- .4 Prior to starting work obtain necessary closure of adjacent facilities.
- .5 During working hours, supply flagmen at crossings of active facilities.
- .6 All Contractor's vehicles used on the airport must be equipped with an orange rotary beacon or must be escorted by a vehicle equipped with a beacon.

1.7 UNSERVICEABLE AREAS

- .1 Mark off areas made unserviceable for aircraft by work of this Contract by providing plainly visible danger markings by day and red lights by night. Open flames in flammable fuels not permitted.
- .2 Coordinate demolition of unserviceable areas in accordance with Phasing Plan over course of construction.
- .3 Park equipment not in use and stockpile materials in areas approved by Departmental Representative so that equipment:
 - .1 Tops are below a 50 (horizontal) to 1 (vertical) ratio from ends of useable landing strip.
 - .2 Is below 20 (horizontal) to 1 (vertical) ratio from sides of aircraft traffic areas.
 - .3 Is outside limits of pullback zones.
- .4 Where directed, mark mobile equipment tops with lights. Mobile objects, excluding aircraft, on the manoeuvring area are lighted to display flashing yellow lights except for vehicles associated with an emergency situation, which display flashing red light, or flashing red and flashing yellow lights. The characteristics are as follows:
 - .1 an effective intensity of the flash ranging between 40 and 400 candelas;
 - .2 360° azimuth (horizontal) coverage;
 - .3 peak intensity from 0° to 10° above the horizontal and reduced intensity to 1/10 of peak intensity from 10° to 15° above the horizontal; and
 - .4 a flash rate of 75 (±15) flashes per minute.

1.8 FOD

- .1 Foreign Object Damage (FOD) can occur anytime a foreign object comes in contact with an aircraft. Foreign objects are anything foreign to the airfield, including but not limited to: construction dust, hats, rags, pen caps, paper, rocks or mud from vehicle tires, etc.
- .2 Foreign Object Damage (FOD) control procedures will be enforced by the Departmental Representative at all times in the construction and operational area. Keeping active taxiways and aprons adjacent to the work, clean during the Work, will be the responsibility of the Contractor.
- .3 The contractor is to routinely inspect the site for FOD during the work shifts.
- .4 Maintain at the construction site a Departmental Representative approved, sufficiently sized and powered:
 - .1 Street sweeper tractor with power broom or similar vehicle, fitted with a non-metallic motorized rotary sweeper broom, minimum width 2.4m, for FOD control and clean-up of adjacent operational surfaces affected by construction activities. Site FOD sweeps shall be conducted at the end of each working day and when directed by the Departmental Representative.

- .2 Water truck capable of supplying enough water for dust control as well as construction needs.
- .5 Where access routes cross active runways, taxiways or parking aprons, keep crossings free of FOD mud and debris at all times. Broom clean immediately.
- .6 Routinely inspect and clean equipment as necessary to remove rocks, dirt and mud that may accumulate. Inspection and cleaning of equipment shall occur before equipment enters the airfield and before equipment transitions from airfield soil surfaces to runway, ramp or associated concrete or asphalt surfaces.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Canada Occupational Health and Safety Regulations (1986). Amended.
- .2 Provincial legislation - Occupational Health and Safety Regulations (2012).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 Plan shall include procedures on how the Contractor intends to mitigate COVID-19 during construction.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS SDS - Safety Data Sheets.
- .6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor.
- .7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work. Provide the Departmental Representative with a copy of the filed Notice(s) prior to commencement of the work.

1.4 SAFETY ASSESSMENT

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

1.5 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.6 GENERAL REQUIREMENTS

- .1 Contractors are required under the Newfoundland and Labrador Occupational Health and Safety Act, and the Regulations made pursuant to the Act to have in place a Health and Safety Program. Compliance requirements for the content, detail and implementation of the program resides with the provincial authority. For the purpose of this contract the Health and Safety Program shall include a site-specific Health and Safety Plan (the "Plan") that acknowledges, assesses and addresses hazardous substances and/or hazardous conditions known and identified and on-going hazard assessments performed during the progress of work identifying and documenting new or potential health risks and safety hazards not previously known and identified.
- .2 Provide one copy of the Health and Safety Program to the Departmental Representative prior to commencement of work on the work site. The copy provided to the Departmental Representative is for the purpose of review against the contract requirements related to the known hazardous substances and/or hazardous conditions. The review is not to be construed to imply approval by the Departmental Representative that the program is complete, accurate and legislatively compliant with the Newfoundland and Labrador Occupational Health and Safety Act, and the Regulations made pursuant to the Act, and shall not relieve the Contractor of their legal obligations under such legislation.
- .3 The Health and Safety Program shall include no texting or cell phone use permitted when driving or operating heavy equipment.
- .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 Contractor shall ensure that all site personnel are familiar with the contents of the Plan and maintain records for proof.
- .6 Contractor shall employ measures to ensure all personnel entering the site are advised to abide by the Plan.
- .7 The Departmental Representative reserves the right to demand the removal of any persons not complying with the Plan. Any persons removed from the site shall not be permitted re-entry unless authorized by Departmental Representative.

1.7 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Constructor as described in the Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.8 COMPLIANCE REQUIREMENTS

- .1 Comply with the latest edition of the Occupational Health and Safety Act, and the Regulations made pursuant to the Act.
- .2 Observe and enforce construction safety measures required by:
 - .1 National Building Code of Canada (latest edition).
 - .2 Newfoundland and Labrador Health and Safety Act.
 - .3 Provincial Worker's Compensation Board.
 - .4 Municipal statutes and ordinances.
 - .5 In event of conflict between any provisions of above authorities the most stringent provision shall apply.
- .3 Provide and maintain Worker's Compensation Board coverage for all employees for the duration of the contract. Prior to commencement of the work, at the time of Interim Completion and prior to final payment, provide to the Departmental Representative a letter of Clearance from the Workers' Compensation Board indicating that the Contractor's account is in good standing.

1.9 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.10 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related experience specific to activities performed under this Contract.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work and report directly to the site supervisor.

1.11 POSTING OF DOCUMENTS

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

1.12 ACCIDENT REPORTING

- .1 Investigate and report incidents and accidents as required by the Newfoundland and Labrador Occupational Safety and Health Act, and the Regulations made pursuant to the Act.
- .2 For the purpose of this contract, immediately investigate and provide a report to the Departmental Representative on incidents and accidents that involve:
 - .1 A resulting injury that may or may not require medical aid but involves lost time at work by the injured person(s).
 - .2 Exposure to toxic chemicals or substances.
 - .3 Property damage.
 - .4 Interruption to adjacent and/or integral infrastructure operations with potential loss implications.
- .3 In the investigation and reporting of incidents and accidents, the Contractor is required to respond in a timely fashion to correct the action that was deemed to have caused the incident and/or accident and advise in writing on the action taken to prevent a re-occurrence of the incident and/or accident.

1.13 SITE CONTROL AND ACCESS

- .1 Control all work site access points and work site activities. Delineate and isolate the work site from adjacent and surrounding areas by use of appropriate means to maintain control of all work site access points.
- .2 Make provisions for granting permission to access onto work site to all persons who require access. Procedures for granting permission to access are to be in accordance with the Newfoundland and Labrador Occupational Health and Safety Act, and the Regulations made pursuant to the Act and the Contractor's Health and Safety Program.
- .3 Ensure persons granted access to the work site are in possession of and wear the minimum personal protective equipment (PPE) designated by the Contractor's Health and Safety Program. Ensure persons granted access to the work site are provided with, trained in the use of, and wear, appropriate PPE that are required above and beyond the designated minimums previously noted and as specifically related to the work site activity that they are involved in. Be responsible for the efficacy of the PPE that is provided above and beyond the designated minimums.
- .4 Erect signage at access points and at other strategic locations around the work site clearly identifying the work site area(s) as being "off-limits" to non-authorized persons. Signage must be professionally made with well understood graphic symbols and is not to be used as advertising but for the specific use as related to site safety and key contact information.
- .5 Secure the work site at all times to protect against un-authorized access.

1.14 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.15 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.16 WORK STOPPAGE

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

Part 2 Products

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 REFERENCES

- .1 Fisheries Act, 1985, and relevant regulations. Amended.
- .2 Migratory Birds Convention Act, 1994 and relevant regulations. Amended.
- .3 Species at Risk Act (SARA), 2002 and relevant regulations. Amended.
- .4 Canadian Environmental Assessment Act, 2012.
- .5 Federal Policy on Wetland Conservation, 1991.
- .6 Canadian Environmental Protection Act (1999) and relevant regulations. Amended.
- .7 Provincial legislation - Water Resources Act (2002). Amended.
- .8 Provincial legislation - Endangered Species Act (2001). Amended.
- .9 Provincial legislation - Occupational Health and Safety Regulations (2012).
- .10 Canada Occupational Health and Safety Regulations (1986). Amended.

1.2 GENERAL

- .1 Comply with all federal, provincial, and municipal regulatory requirements and guidelines for environmental protection and natural resource conservation.
- .2 Failure to comply with environmental requirements may result in a stop work order or assessment of damages commensurate with repair of damage.
- .3 The Contractor will include in the bid all necessary costs to meet the environmental requirements. Request for extras will not be entertained.

1.3 CONTRACTOR'S RESPONSIBILITIES

- .1 It is the Contractor's responsibility to be aware of environmental requirements and the best management practices and pollution control measures necessary to meet them.
- .2 The Contractor is responsible to provide awareness training to site personnel with respect to spill response and sediment and erosion control.
- .3 The Contractor is required to furnish all materials, labour, tools and equipment and perform all operations necessary to meet regulatory requirements and the environmental protection requirements of this project.
- .4 The Contractor must comply with federal, provincial and local laws, ordinances, codes and regulations when handling, removing or disposing of impacted soil, water, waste materials, debris and rubbish.
- .5 Provide and maintain for the duration of the contract the control features as laid out in this contract. During the course of the work, evaluation of the control features may indicate a requirement for additional features or modifications to existing control features. The Contractor will be required to implement changes as necessary to meet the environmental protection objectives. Do not remove the control features unless authorized by the Departmental Representative.

1.4 MITIGATION PROCEDURES

- .1 The Contractor shall ENSURE the following Mitigation procedures are followed:
 - .1 Petroleum, Oils and Lubricants
 - .1 Do not refuel equipment within 100 meters of any watercourse, wetland or storm water catchbasin unless protection against spills is in place and location is approved by Departmental Representative.
 - .2 Use petroleum containers approved for products with no spill fill spouts for dispensing fuels. Ensure pour nozzle has a self closing valve; prevent any flow of fuel until the nozzle is inserted into the receiving container. On removal from the receiving container, the slide valve closes to eliminate any fuel spill. Nozzles are to be equipped with automatic vent eliminating the need for the user to open or close air inlets on the pouring container.
 - .3 Nozzle must support the weight of the pouring container. Use Nozzles that automatically stop the flow when the receiving container becomes full.
 - .4 All spills of hydrocarbon based products such as gasoline, kerosene, naptha, lubricating oils, engine oils, greases and de-icing fluids or antifreeze no matter how small must reported to Departmental Representative.
 - .2 Clearing and Grubbing
 - .1 Minimize stripping of topsoil and vegetation to prevent erosion and sedimentation of watercourses.
 - .2 Protect trees and plants on site and adjacent properties where required.
 - .3 Protect roots of trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
 - .3 Waste Management
 - .1 Do not bury rubbish and waste materials on site.
 - .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers. Ensure proper disposal procedures in accordance with CEPA, TDGA, all applicable provincial regulations.
 - .3 Fires and burning of rubbish on site not permitted.
 - .4 Surface Water Management
 - .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .2 Do not pump water containing suspended materials or sediment into waterways, sewer or drainage systems.
 - .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
 - .5 Equipment Movement & Maintenance
 - .1 Park equipment on level ground in locations away from watercourses/wetlands and as approved by Departmental Representative. Equipment with leaks must be removed from site.
 - .2 When parking equipment on site, the equipment is to be secured from entry, inspected for leaks and the ground protected from leaks.
 - .3 Oil changes or equipment repairs is not permitted on site.
 - .4 Refuelling to be performed on level surfaces, PCC Portland cement concrete or HMAc surfaces when approved by the Departmental Representative.

- .6 Erosion & Sediment Control
 - .1 Exposed soil must be stabilized as soon as possible through compaction, spreading Hay and/or seeding/sodding.
 - .2 Place hay bales between stockpiles and catch basins to minimize sediment transport.
 - .3 All perimeter control structures (e.g. silt fencing) must be installed prior to any land disturbance.
 - .4 Erosion control structures need to be maintained and shall not be removed until the area is stabilized after construction activities are complete.
- .7 Other Controls
 - .1 Ensure construction work does not adversely affect adjacent watercourses, wet lands, groundwater and wildlife.
 - .2 Maintain temporary erosion and pollution control features installed under this contract.
 - .3 Control emissions from equipment and plant to local authorities emission requirements.
 - .4 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
 - .5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
 - .6 Ensure construction work does not contribute to excess air noise pollution exceeding municipal or any other applicable standards.
 - .7 Employ reasonable means necessary which has been approved by the Departmental Representative to protect salvaged materials from vandalism, theft, adverse weather, or inadvertent damage by heavy machinery.
 - .8 Use natural lighting to do Work where possible. Shut off lighting except those required for security purposes at end of each day.
 - .9 The Contractor shall remove all temporary structures at completion of work.

1.5 EMERGENCY & CONTINGENCY PLANNING

- .1 The Contractor is responsible for emergency preparedness and contingency planning for all Environmental Incidences.
 - .1 The Contractor must have adequate supplies on site for clean up of any potential hazardous materials used for the completion of the work ie. fuel, oil, lubricants, etc.
 - .2 In the event of a spill the Contractor will immediately take corrective action to stop, contain and clean up the material.
 - .3 All spills are to be reported immediately to the Departmental Representative. In the event of a spill of over one (1) litre of a hazardous material, the Contractor will immediately inform proper authorities.
 - .4 Contractor employees to be trained in the use of the spill control kit and the equipment they contain.
 - .5 Contractor is to protect all wells, catch basins, drywells, drains, wetlands and watercourses from contamination in event of a spill.
 - .6 If a spill occurs, the Contractor must take necessary remedial action at no cost to the Owner and immediately remove as much of the contaminated soils as

possible. Any remaining clean-up is to be performed at no cost to Owner. Clean-up shall be to the Departmental Representative's satisfaction.

- .7 Disposal of spilled materials is to be off-site at approved locations for the materials to be disposed of. Contaminated soils/materials are to be placed in containers compatible to the contaminants.

1.6 KEY CONTACT LIST

- .1 Prior to commencing construction activities or delivery of materials to site, the contractor shall provide:
 - .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection requirements.
 - .2 Name[s] and qualifications of person[s] responsible for training site personnel.
 - .3 Descriptions of environmental protection personnel training program.

1.7 HISTORICAL ARCHAEOLOGICAL CONTROL

- .1 If during construction, historical, archaeological, cultural resources, biological resources and/or wetlands are discovered, the Contractor will give immediate notice to Departmental Representative and await written instructions before proceeding with work.

1.8 NOTIFICATION

- .1 The Departmental Representative will notify the Contractor in writing of observed noncompliance with Federal, Provincial or Municipal Environmental laws or regulations, permits, and this contract document. Most stringent shall apply.
- .2 Contractor: after receipt of such notice, inform the Departmental Representative of proposed corrective action and take such action for approval by the Departmental Representative.
- .3 The Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions will be granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 GENERAL

- .1 Due to nature of this Facility, and client operations therein, security regulations pertaining to site will be in place during the work resulting in need for:
 - .1 Control and limit movement of construction workers at the site.
 - .2 Escort and continuous supervision of workers by security personnel.
 - .3 Specific rules and regulations as specified in this section and as directed by the Departmental Representative to be stringently followed.
- .2 It is the Contractor's responsibility to:
 - .1 Oversee Day-to-day activities on site during construction.
 - .2 Be familiar with and abide by security rules and regulations.
 - .3 Brief all workers and subcontractors in respect of the security regulations and ensure that they abide by all rules and directives.
- .3 The Departmental Representative will coordinate a pre-construction meeting between Contractor, Facility Management and Security Personnel who will provide details and directives on control and movement on site.
- .4 Any infraction of site security regulations on the part of the Contractor, members of work force or any Subcontractor in his employ, could result in:
 - .1 Immediate removal of offending party from the site.

1.2 CONTRACTOR'S PERSONNEL

- .1 Submit an organization chart to the Departmental Representative prior to commencing Work on site. Chart to identify and give contact information for the following individuals:
 - .1 Site Superintendent/Foreman.
 - .2 Commissionaires.
 - .3 QC Manager
 - .4 Safety Offices
 - .5 Trade Supervisors
 - .6 All Subcontractor Managers

1.3 SECURITY PERSONNEL

- .1 Obtain and pay for the services of security personnel, employed by the Canadian Corps of Commissionaires to provide escort and security supervision of all workers during the

work.

- .2 Minimum of two (2) Commissionaires to be on site at all times when work is carried out, having the following responsibilities:
 - .1 Limit movement of workers to within the boundaries established by the Departmental Representative for each work phase;
 - .2 Maintain security control list of workers authorized to be on site as determined by Contractor and the Departmental Representative;
 - .3 Manage the distribution and control of worker ID tags;
 - .4 Escort workers who need to circulate on site beyond the established boundaries of work, including the corridors, stairwells and elevators used for access to and from work areas.
 - .5 Escort and supervise short term visitors who need access to the work site such as for material deliveries or to conduct inspections.
- .3 Provide additional commissionaires when required to perform supervision or escort function as may be needed due to Contractor's work operations in order that no worker is left unsupervised on site.
- .4 Ensure Commissionaires are present on site for entire work shift including work breaks and time period after work shifts until all workers have left site.
- .5 Commissionaires must stay within the actual construction area and provide surveillance of all workers ensuring that security rules and requirements are obeyed and to limit movement to approved work areas of site.
- .6 Commissionaires must also escort workers from approved entrances and work area(s).
- .7 Escort and supervision of workers by Commissionaires is required at all times regardless as to whether work shifts are in the daytime or during Facility off hours.
- .8 Commissionaires will report directly to the Facility security personnel and ensure that site security directives are obeyed by all workers.
 - .1 Empower Commissionaires with authority to remove any worker deemed non-compliant with security directives.
- .9 Ensure Commissionaires are fitted and wear approved safety hard hat, safety footwear and other personnel protective equipment appropriate to work in accordance with applicable Occupational Health and Safety requirements specified.

1.4 SECURITY PASSES

- .1 Visitor or worker ID Tags are required for all personnel requiring access to airside. Airside is the operational area of the airport contained within the security fence perimeter.
- .2 ID Tags will be provided by the Facility Security, issued to Contractor for distribution to authorized workers and placed on the Security Control List specified below.
- .3 All persons, while on site, must wear the ID Tag issued to him regardless of daytime or nighttime work.
- .4 Be responsible to obtain ID Tags before work commences, including those required by subcontractors, and continually control their distribution and use by workers. Submit request for tags as early as possible prior to commencement of work.
- .5 For the duration of this contract, anyone not in possession of the ID Tag will not be allowed access on site.
- .6 At end of project, return to Departmental Representative all tags issued to workers and to subcontractors.
- .7 Immediately report any lost, stolen or destroyed ID Tags to the Departmental Representative.

1.5 SECURITY CONTROL LIST

- .1 Provide a list of employee names from workforce and from subcontractors who will be present at site during the course of Work.
- .2 List to include each person's name, address and telephone number.
- .3 Submit copy of list to Departmental Representative and to Security Commissionaire for control of workers.
- .4 Update list as work progresses.
- .5 Verify each worker can provide proof of identity upon demand, when requested by Facility's Security Personnel, Departmental Representative or by Facility Management.

1.6 AIRSIDE ACCESS

- .1 Gate keys necessary for access to airside areas may be issued at the discretion of the Departmental Representative. Follow all instructions in regards to use, care and disposition of keys so issued. Key training is a prerequisite.
- .2 Keys and security access cards given to the Commissionaire for his sole possession, as determined by Departmental Representative, shall not under any circumstances be given to any worker or subcontractor.
- .3 Do not, under any circumstances, make or allow workers to make duplicates of keys issued.
- .4 At end of project, return to Departmental Representative all keys and access cards

issued.

- .5 Immediately report to Departmental Representative any lost, stolen or destroyed keys.

1.7 SITE SECURITY

- .1 When Work must be carried out during off hours or beyond the work hours previously agreed upon at start of work, provide notice within 48 hours beforehand to allow airside security coordination to be arranged for by Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 PERMITS

- .1 Contractor shall apply for and obtain all construction related permits as required to complete the Works.

1.2 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (2015) including amendments up to tender closing date and other codes of provincial or local application provided that 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.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures.

1.2 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.3 TESTING AGENCIES

- .1 Departmental Representative may engage a third-party materials testing agency for purpose of quality assurance to test portions of Work as normally required under each Section.
- .2 The contractor will be responsible for its own quality control activities to ensure conformance with the contract documents. Quality assurance provided by a third-party testing agency hired by the Departmental Representative does not release the Contractor of its own quality control activities.
- .3 If defects are revealed during inspection and/or testing, Departmental Representative 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 Owner. Pay for costs of re-testing and re-inspection.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

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

- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

- .1 Provide copies to subcontractor of work being inspected or tested.

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.

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 ACTION AND INFORMATIONAL SUBMITTALS

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

1.2 INSTALLATION AND REMOVAL

- .1 Indicate use of supplemental or other staging area.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.

1.3 HOISTING

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment.
- .2 Hoists to be operated by qualified operator.

1.4 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.5 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.6 SECURITY

- .1 Where security of the operations zone is reduced by work, provide temporary means to maintain security. Erect temporary site fencing where required to keep the airport operations zone fully enclosed. Provide lockable gates as required. All fencing and gates shall be a minimum of 2.13 m high. The Contractor shall also employ the services of two (2) escorts for the entire duration of the project. The Contractor shall bear the costs associated with escort services.

1.7 OFFICES

- .1 Not required under this contract.

1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials if deemed necessary to perform the Work.

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

1.9 TEMPORARY WATER AND SEWER

- .1 Provide any temporary water and sanitary facilities for work force in accordance with governing regulations and ordinances.

1.10 TEMPORARY COMMUNICATIONS FACILITIES

- .1 Provide any temporary telephone, fax, data hook up lines and equipment as required to complete the work.

1.11 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site unless approved or instructed by Departmental Representative.
- .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 on completion of project or earlier if directed by Departmental Representative.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor is responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads as necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.

- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work as required.
- .14 Provide and maintain fire truck access in accordance with governing codes and regulations.
- .15 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.13 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.
- .5 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .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-O121-M1978(R2003), Douglas Fir Plywood.

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 FENCING

- .1 Where security of the operations zone is reduced by work, provide temporary means to maintain security. Erect temporary site fencing where required to keep the airport operations zone fully enclosed. Provide lockable gates as required. All fencing and gates shall be a minimum of 2.13 m high. The Contractor shall also employ the services of two (2) escorts for the entire duration of the project. The Contractor shall bear the costs associated with escort services.
- .2 Protect existing trees and landscaping elements from damage by equipment and construction procedures.

1.4 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

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 ACCESS TO SITE

- .1 Provide and maintain access roads, ramps and construction ways as may be required for access to Work.

1.7 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.8 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.10 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

1.11 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.2 SURVEY REFERENCE POINTS

- .1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .2 Make no changes or relocations without prior written notice to Departmental Representative.
- .3 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .4 Require surveyor to replace control points in accordance with original survey control.

1.3 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, fill and landscaping features.
- .4 Stake slopes and berms.

1.4 EXISTING SERVICES

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 Remove abandoned service lines within 2m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.5 LOCATION OF EQUIPMENT AND FIXTURES

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

1.6 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

- .1 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .2 Submit certificate signed certifying those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.8 SUBSURFACE CONDITIONS

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

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 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.
- .7 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

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 review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .8 Remove dirt and other disfiguration from exterior surfaces.
- .9 Sweep and wash clean paved areas.

1.3 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures.

1.2 REFERENCES

- .1 Definitions:
 - .1 Approved/Authorized recycling facility: waste recycler approved by applicable provincial authority.
 - .2 Approved disposal area: Disposal area as designated by the Owner.
 - .3 Class III: non-hazardous waste - construction renovation and demolition waste.
 - .4 Construction, Renovation and/or Demolition (CRD) Waste: Class III solid, non-hazardous waste materials generated during construction, demolition, and/or renovation activities.
 - .5 Inert Fill: inert waste - exclusively asphalt and concrete.
 - .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
 - .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
 - .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
 - .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
 - .11 Separate Condition: refers to waste sorted into individual types.
 - .12 Source Separation: act of keeping different types of waste materials separate beginning from the point they became waste.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit on monthly basis, throughout project or at intervals agreed to by Departmental Representative the following:
 - .1 Receipts, scale tickets, waybills, and/or waste disposal receipts that show quantities and types of materials reused, recycled, or disposed of.

- .2 Written monthly summary report detailing cumulative amounts of waste materials reused, recycled and landfilled, and brief status of ongoing waste management activities.
- .3 Submit prior to final payment the following:
 - .1 Provide receipts, scale tickets, waybills, waste disposal receipts that confirm quantities and types of materials reused, recycled or disposed of and destination.

1.4 USE OF SITE AND FACILITIES

- .1 Execute Work with minimal interference and disturbance to normal use of premises.
- .2 Maintain security measures established by facility.

1.5 WASTE PROCESSING SITES

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

1.6 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations so as to not interfere with Work.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to designated disposal facility.
- .5 Protect structural components not removed and salvaged materials from movement or damage.
- .6 Protect surface drainage, mechanical and electrical from damage and blockage.
- .7 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .8 Separate and store materials produced during project in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Obtain waybills, receipts and/or scale tickets for separated materials removed from site.
 - .4 Materials reused on-site are considered to be diverted from landfill and as such are to be included in all reporting.

1.7 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.

- .2 Do not dispose of waste type into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials on-site as Work progresses.

1.8 SCHEDULING

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 APPLICATION

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

3.2 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 78 00 – Closeout Submittals.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .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 of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .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 Tasks: submit written certificates in 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, balanced and fully operational.
 - .4 Operation of systems: demonstrated to Owner's personnel.
 - .5 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.
 - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

- .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 When Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.3 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse or recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 77 00 - Closeout Procedures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide as-builts, surveys, shop drawings, O&M manuals, system operational sequences, warranties, test records and certificates.

1.3 FORMAT

- .1 Provide survey CAD files in dwg format on memory stick.
- .2 Provide redline as-built drawing mark-ups in PDF format on memory stick or in hardcopy.
- .3 Provide other documentation in PDF format on memory stick.

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.5 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.

- .4 Change Orders and other modifications to Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents in field office apart from documents used for construction.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents available for inspection by Departmental Representative.

1.6 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line drawings.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Field changes of dimension and detail.
 - .4 Changes made by change orders.
 - .5 Details not on original Contract Drawings.
 - .6 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, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.7 FINAL SURVEY

- .1 Submit final site topographic survey certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.
 - .1 Prepare a complete in-trench survey for all utilities.
 - .2 Prepare a complete as-built topographical survey to capture all surface features.
- .2 Locate all, roadways, pads, buildings, trees, posts, fencing, gates, abandoned utilities, capped utilities and new utilities/pipes within the construction area.
- .3 Provide survey on memory stick in AutoCAD dwg format along with CSV or ASCII file of raw data points.

1.8 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan to Departmental Representative.
- .3 Warranty management plan to include required actions and documents to assure that Owner 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 Assemble approved information on memory stick as follows:
 - .1 Separate each warranty or bond to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.
- .6 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .7 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Owner to proceed with action against Contractor.

1.9 DELIVERY SCHEDULE

- .1 Accompany Record Information submissions with a transmittal containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Other pertinent data.

- .2 Within four (4) weeks of substantial completion, or as otherwise agreed, the Contractor shall deliver the Record Information package with the data required as identified herein.
- .1 Allow ten working days for the Departmental Representative's or Owner's review of each submission.

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 SUMMARY

- .1 Section Includes:
 - .1 General requirements relating to commissioning of gate operators.
- .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.

1.2 GENERAL

- .1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. 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 Ensure appropriate documentation is compiled into the BMM.
 - .3 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.

1.3 COMMISSIONING OVERVIEW

- .1 Cx to be a line item of Contractor's cost breakdown.
- .2 Cx activities supplement field quality and testing procedures described in relevant technical sections.

- .3 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 system 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.
- .4 Departmental Representative will issue Interim Acceptance Certificate when:
 - .1 Completed Cx documentation has been received, reviewed for suitability and approved by Departmental Representative.
 - .2 Equipment, components and systems have been commissioned.
 - .3 O&M training has been completed.

1.4 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.

1.5 PRE-CX REVIEW

- .1 Before Construction:
 - .1 Review Contract Documents
 - .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 Fully understand Cx requirements and procedures.
 - .3 Have Cx documentation shelf-ready.
 - .4 Understand completely design criteria and intent and special features.
 - .5 Submit complete start-up documentation to Departmental Representative.
 - .6 Ensure systems have been cleaned thoroughly.
 - .7 Ensure As-Built system schematics are available.
- .4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

- .1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.
- .2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit no later than 4 weeks after award of Contract:
 - .1 Name of Contractor's Cx agent.
 - .2 Draft Cx documentation.
 - .3 Preliminary Cx schedule.
 - .2 Request in writing to Departmental Representative for changes to submittals and obtain written approval at least 8 weeks prior to start of Cx.
 - .3 Submit proposed Cx procedures to Departmental Representative where not specified and obtain written approval at least 8 weeks prior to start of Cx.
 - .4 Provide additional documentation relating to Cx process required by Departmental Representative.

1.8 COMMISSIONING DOCUMENTATION

- .1 Departmental Representative to review and approve Cx documentation.
- .2 Cx documentation to be provided by manufacturer.

1.9 COMMISSIONING SCHEDULE

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

1.10 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.

1.11 WITNESSING OF STARTING AND TESTING

- .1 Provide 14 days notice prior to commencement.
- .2 Departmental Representative to witness of start-up and testing.
- .3 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.12 MANUFACTURER'S INVOLVEMENT

- .1 Factory testing: manufacturer to:
 - .1 Provide testing documentation for approval by Departmental Representative.
- .2 Obtain manufacturers installation, start-up and operations instructions prior to start-up of components, equipment and systems and review with Departmental Representative:
 - .1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.
 - .2 Modify procedures detrimental to equipment performance and review same with manufacturer before start-up.
- .3 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 Verify with manufacturer that testing as specified will not void warranties.
- .4 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.

1.13 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 Visual inspection of quality of installation.
 - .2 Start-up: follow accepted start-up procedures.
 - .3 Operational testing: document equipment performance.
 - .4 System PV: include repetition of tests after correcting deficiencies.
 - .5 Post-substantial performance verification: to include fine-tuning.
- .3 Correct deficiencies and obtain approval from Departmental Representative after distinct phases have been completed and before commencing next phase.
- .4 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:
 - .1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.
 - .2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.

.3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.

.1 Rejected equipment to be remove from site and replace with new.

.2 Subject new equipment/systems to specified start-up procedures.

1.14 START-UP DOCUMENTATION

.1 Start-up documentation to include:

.1 Factory and on-site test certificates for specified equipment.

.2 Pre-start-up inspection reports.

.3 Signed installation/start-up check lists.

.4 Start-up reports,

.5 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

1.15 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

.1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.

.2 With assistance of manufacturer develop written maintenance program and submit Departmental Representative for approval before implementation.

.3 Operate and maintain systems for length of time required for commissioning to be completed.

.4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

1.16 TEST RESULTS

.1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.

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

1.17 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 and performance verification of systems have been completed.

1.18 INSTRUMENTS/EQUIPMENT

.1 Submit to Departmental Representative for review and approval:

.1 Complete list of instruments proposed to be used.

.2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.

.2 Provide the following equipment as required:

- .1 Equipment as required to complete work.

1.19 COMMISSIONING PERFORMANCE VERIFICATION

- .1 Carry out Cx:
 - .1 Under actual operating conditions, over entire operating range, in all modes.
 - .2 On independent systems and interacting systems.
- .2 Cx procedures to be repeatable and reported results are to be verifiable.
- .3 Follow equipment manufacturer's operating instructions.
- .4 Manufacturer's start-up checklists to be used for Cx forms.
- .5 EMCS trending to be available as supporting documentation for performance verification.

1.20 WITNESSING COMMISSIONING

- .1 Departmental Representative to witness activities and verify results.

1.21 AUTHORITIES HAVING JURISDICTION

- .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.
- .2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.
- .3 Provide copies to Departmental Representative within 5 days of test and with Cx report.

1.22 SUNDRY CHECKS AND ADJUSTMENTS

- .1 Make adjustments and changes which become apparent as Cx proceeds.
- .2 Perform static and operational checks as applicable and as required.

1.23 DEFICIENCIES, FAULTS, DEFECTS

- .1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.
- .2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.24 COMPLETION OF COMMISSIONING

- .1 Upon completion of Cx leave systems in normal operating mode.
- .2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.
- .3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

1.25 ACTIVITIES UPON COMPLETION OF COMMISSIONING

- .1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.26 TRAINING

- .1 Demonstration and Training to take place after Cx checks have been completed.

1.27 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

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

1.28 OCCUPANCY

- .1 Cooperate fully with Departmental Representative during stages of acceptance and occupancy of facility.

1.29 OWNER'S PERFORMANCE TESTING

- .1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION