

**Public Services and Procurement
Canada (PSPC)**

**Crack Stabilization Works on 13-31
Runway and C and D Taxiways
Pavements at Sept-Iles Airport**

Client Ref.: R.088085.700

TECHNICAL SPECIFICATIONS

ISSUED FOR TENDER

Prepared for:
PSPC

Prepared by:
Stantec Consulting Ltd.

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TECHNICAL SPECIFICATIONS

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"This document shall not be used for Construction"

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END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of the technical specifications.

1.2 LEXICON

- .1 Airport in operation: Period for which flights are planned and the airport is in operation.
- .2 Movement/maneuvering area: Asphalt areas of runways 05-23 (closed), 09-27 and 13-31, of taxiways A, B, C and D as well as apron, on which no tracked machinery may circulate.
- .3 Runway safety area: Defined area located inside the runway strip, intended to reduce the risk of damage to an aircraft due to a runway excursion. Zone extending 75 meters on each side of the center of the runway for runway 09-27 and 40 meters on each side of the center of the runway for runway 13-31 and for which no depression and/or unfilled excavation is permitted during the runway operation hours, as well as outside of the Contractor's shifts when the runway is in operation.
- .4 Runway strip: Defined area in which the runway is included as well as the stop extension, if such an extension is provided, and which is intended to ensure the protection of aircraft flying over this area during take-off or landing operations. Zone extending 122 meters on each side of the center of the runway for runway 09-27 and 75 meters on each side of the center of the runway for runway 13-31 and for which no unfilled excavation of more than 30 meters in long is permitted during the runway operation hours, as well as outside of the Contractor's shifts.
- .5 Contractor: General construction contractor responsible for carrying out the work covered by the contractual documents of this contract.
- .6 Departmental Representative or PSPC Representative: Departmental Representative refers to the representative of the Department of Public Services and Procurement Canada (PSPC).
- 1. Obstacle Limitation Surface (OLS): Surface used to establish the limits that objects can reach in the airspace associated with an aerodrome to ensure the safe operation of aircraft at that aerodrome. These surfaces are illustrated on the site organization plan.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 The work covered by this contract includes, in a non-exhaustive manner:
 - .1 Crack repair on runway 13-31 by paving and clogging.
 - .2 Repair of degraded cold seal on taxiways C and D.
 - .3 All other work indicated in the plans or specified in the technical specifications.

1.4 WORK SEQUENCE

- .1 Execute the work in stages, so as not to interfere with the normal operations of the Airport and the tenants during the work. The work on the various infrastructures must be carried out in series and not simultaneously.
- .2 Coordinate work schedule with Departmental Representative.

- .3 The working schedule is as follows:
 - .1 Day work: 6 a.m. to 5 p.m. (according to the Contractor's schedule)
 - .2 Evening work: 4 p.m. to 2 a.m.
 - .3 Night work: 11 p.m. to 5:30 a.m.
- .4 The Contractor must begin the work within two (2) weeks of the date of award of the contract.
- .5 All work must take place from August 15, 2022, and September 16, 2022. Following the first meeting, the Contractor has a period of four (4) weeks for the supply and realization of the test boards. The lead time includes the time for the submittal and approval of shop drawings.

1.5 CONTRACTOR USE OF PREMISES

- .1 The use of the premises is restricted to the areas necessary for the execution of the work in order to allow:
 - .1 Departmental Representative's occupancy.
 - .2 Work by other contractors.
 - .3 Public usage.
- .2 Coordinate use of premises under direction of Departmental Representative.
- .3 Remove or alter existing work to prevent damage to portions of existing work which remain.
- .4 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .5 Ensure that operations conditions of existing work at completion are still the same, equal to or better than that which existed before new work started.
- .6 Maintain fire access and provide means to combat fire.

1.6 AIRPORT OPERATOR'S OCCUPANCY

- .1 The airport operator will occupy the premises for the duration of the construction work and will continue its normal activities during the work.
- .2 Cooperate with airport operator in scheduling operations to minimize conflict and to facilitate his usage.

1.7 EXISTING SERVICES

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 If work must be carried out near existing pressurized pipes, give the Departmental Representative 48 hours prior notice before the planned time for the network's interruption. Keep the duration of interruptions as short as possible. Carry out the work at the times set by the competent local authorities, with as little disruption as possible to vehicle circulation and site operation.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

- .4 Submit schedule for approval by Departmental Representative for any shutdown or closure of active service or facility including potable water, power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Install site walkways for crossing trenches, in order to maintain normal pedestrian and automobile traffic.
- .6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .7 Protect, relocate or maintain existing active services. When inactive services are encountered, advise Departmental Representative.
- .8 Record locations of maintained, re-routed and abandoned service lines.

1.8 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy of each of the following documents:
 - .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 APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

- .1 Not applicable.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of the technical specifications.

1.2 MONETARY ALLOWANCES

1. Include the monetary allocation indicated in the contract price.
2. Unless otherwise specified, the monetary allowance covers the net cost to the Contractor of products, services, construction materials and equipment, transportation, handling, unloading, storage, and other authorized expenses incurred in carrying out the work or services.
3. The contract price, not the monetary allowance, covers the Contractor's overhead costs and profits in connection with the monetary allocation. No administration fees and profit are applicable in the allowance. The Entrepreneur must distribute them in the other items of the bid form.
4. Submit supporting documents showing costs incurred to Departmental Representative. The contract price will be adjusted in written order, to consider any excess or deficit in relation to the planned monetary allocation.
5. If the actual costs exceed the amount of the monetary allowance, the Contractor will receive compensation for the additional costs incurred that he could justify, in addition to an allowance established for overheads and profits, according to the terms defined in the contractual documents.
6. Advance payments made for authorized work subject to a monetary allowance will be included in the monthly payment certificate issued by the Representative of the Ministry.
7. A schedule must be prepared jointly by the Departmental Representative and the Contractor to indicate when the work packages subject to monetary allowances must be approved by the Departmental Representative for the placing of orders, so that the progress of the work is not delayed.
8. The amounts of each allowance granted for the work or services prescribed in the relevant sections of the estimate are set out below:
 - .1 An allowance of \$20,000 is provided for airport escort services. Technical details are explained in section 01 35 13.13 - Special Project Procedures for Airport Facilities.
 - .2 An allowance of \$5,000 is provided for the use of the airport's runway broom. When available, the broom may be used at the discretion of the Departmental Representative.

Part 2 Products**2.1 NOT APPLICABLE**

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General**1.1 MEASUREMENT FOR PAYMENT PURPOSES**

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.2 ADMINISTRATIVE PROCEDURES

- .1 Schedule project meetings throughout the course of the work, at the request of the Departmental Representative, and manage them.
- .2 Prepare meeting agendas.
- .3 Provide a room or other space for holding meetings and make the necessary arrangements.
- .4 Representatives of the Contractor, subcontractors and suppliers who attend project meetings are empowered and authorized to intervene on behalf of the parties they represent.

1.3 PRECONSTRUCTION MEETING

- .1 Within two (2) weeks after award of Contract, the Departmental Representative will organize a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor, major Subcontractors are to be in attendance.
- .3 Departmental Representative will establish time and location of meeting and notify parties concerned minimum five (5) days before meeting.
- .4 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within five (5) days after meeting.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work, Construction Progress Schedules.
 - .3 Review of the particular conditions of section 01 35 13.13 – Special Procedures for Airport Facilities.
 - .4 Schedule of submission of shop drawings, samples, colour samples. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .6 Delivery schedule of materials.
 - .7 Site security.
 - .8 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

- .10 Appointment of inspection and testing agencies or firms.
- .11 Insurances, transcript of policies.
- .12 Communication procedures.
- .13 Qualitative and quantitative controls of materials.

1.4 PROGRESS MEETINGS

- .1 Departmental Representative will establish a calendar for periodic meetings during the work progress.
- .2 Contractor, major Subcontractors involved in Work, and Departmental Representative are to be in attendance.
- .3 Departmental Representative will notify parties minimum five (5) days prior to meetings.
- .4 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Review of non-conformities in works and corrective action.
 - .13 Health and Safety.
 - .14 Compliance with environmental requirements.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of this specification.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.3 ADMINISTRATIVE TERMS AND CONDITIONS

- .1 This section specifies the general requirements and procedures for the submission of shop drawings, product descriptions and samples by the Contractor to the Departmental Representative for verification.
- .2 Do not undertake work for which the submission of documents and samples is required before the examination of all the submitted documents is completely finished.
- .3 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.
- .4 Present shop drawings, product data, samples, and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .6 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.
- .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are coordinated.
- .9 The fact that the submitted documents and samples are examined by the Departmental Representative in no way relieves the Contractor of his responsibility to submit complete, accurate documents that comply with the requirements of the contract documents.
- .10 The Contractor will not be released from his responsibility for deviations from contractual requirements, even if the Departmental Representative has verified the documents or samples submitted, except in the case where the latter accepts in writing a given deviation.
- .11 Keep one reviewed copy of each submission on site.

1.4 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 Allow three (3) working days for Departmental Representative's review of each submission.

- .3 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.
- .4 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.
- .5 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data, and sample.
 - .5 Exact name according to the specification.
 - .6 Other pertinent data.
- .6 After Departmental Representative's review, distribute copies.
- .7 Submit one (1) electronic copy of shop drawings for each requirement requested in Specifications.
- .8 The term "data sheet" means the manufacturer's catalog sheets, performance or productivity charts and diagrams used to illustrate the standard manufactured products.
- .9 Submit one (1) electronic copy of product data sheets or brochures for requirements requested in specifications and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .10 Submit one (1) electronic copy of test reports prescribed in Specifications 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 three (3) years of date of Contract award for project.
- .11 Submit one (1) electronic copy of certificates prescribed in Specifications and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of product, system or material manufacturer attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of Project Contract complete with project name.
- .12 Submit one (1) electronic copy of manufacturers instructions prescribed in Specifications 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.

- .13 Submit one (1) electronic copy of Manufacturer's Field Reports prescribed in Specifications and as requested by Departmental Representative.
 - .1 Reports of tests and verifications carried out by the manufacturer's representative in order to confirm the conformity of the products, materials, equipment or systems installed with the manufacturer's instructions.
- .14 Submit one (1) electronic copy of Operation and Maintenance Data prescribed in Specifications and as requested by Departmental Representative.
- .15 Delete information not applicable to project.
- .16 Supplement standard information to provide details applicable to project.
- .17 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies 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.

1.5 SAMPLES

- .1 The term "sample" means examples of materials, material, quality, finish or method of manufacture.
- .2 Notify Consultant Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .3 Where colour, pattern, or texture is criterion, submit full range of samples.
- .4 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.
- .7 Submit for review samples in duplicate triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .8 Deliver samples prepaid to site office Departmental Representative's business address.

1.6 SAMPLES OF WORK

- .1 The expression "sample of the work" means the works carried out on site using the prescribed materials and method of execution.
- .2 Take samples of the works in places deemed acceptable by the Departmental Representative.
- .3 The samples of works examined and approved will become the reference standard against which the quality of materials and the quality of workmanship of finished and installed works will be assessed.

1.7 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in .jpg format, high resolution, weekly with progress statement as directed by Departmental Representative.

- .2 Project identification: Name and number of project and date of exposure indicated.
- .3 Number of viewpoints: Minimum five (5) locations. However, the number is related to the state and complexity of completed works. Departmental Representative will determine with the Contractor the number of desired viewpoints.
- .4 Frequency of Photographic Documentation: Weekly or as directed by Departmental Representative.

1.8 CERTIFICATES AND TRANSCRIPTS

- .1 Submit relevant documents required by the Commission for Standards, Equity, Health and Safety at Work (CNESST) immediately after contract award.
- .2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

- .1 Not applicable.

END OF SECTION

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Part 1 General

1.1 DEFINITIONS

- .1 Restricted Area: Any area within an airport enclosure that is marked as prohibited by a sign or is otherwise controlled by any sign is a restricted area.
- .2 Aircraft Movement Area: The portion of an airport used for the movement of aircraft, including maneuvering areas (runway and taxiway) and apron areas.
- .3 Static escort: A security guard who does not move.
- .4 Mobile Escort: A mobile security guard with a restricted radio operator certificate.

1.2 RESPONSIBILITIES OF THE GENERAL CONTRACTOR

- .1 Read the airport and airport safety regulations "Airport Traffic Regulations" and the Construction Exploitation Plan (CEP) specific to this Project so to inform employees and subcontractors.
- .2 The Departmental Representative will provide a copy of the CEP approved by the appropriate authorities.
- .3 The regulations can be found at: <http://www.tc.gc.ca/acts-regulations> under "Government Land Traffic Act".
- .4 Be responsible for personnel, construction vehicles, and subcontractors involved in the Project and required to enter restricted areas.
- .5 Provide the Departmental Representative with a list of responsible personnel, including an escort officer, who, in case of emergency, can be reached after working hours.
- .6 Designate, among employees, a responsible person who will maintain constant with the airport escort.
- .7 Ensure that runway lighting is maintained throughout the duration of the work.

1.3 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.
1. An allowance is provided for airport escort services. Payment details are given in section 01 21 00 – Allowances. The technical details are presented in the article "Airport Escort".

1.4 AIRPORT ESCORTS

- .1 Airport escort services may be provided by an accredited firm.
 - .1 Airport escort is always required to coordinate the movement of Contractor's personnel within the airport restricted area.
 - .2 Escorts must have a restricted radio operator certificate.
 - .3 Escorts will also need to complete the training required to obtain an air-sided driver's license issued by YZV.
- .2 Any vehicle or person that must enter a restricted area must be accompanied by an escort and each vehicle must be equipped with an amber rotating beacon. The access barrier to the airfield side of the installations should always be closed, except for passages authorized by the airport operator, the Departmental Representative, and the Contractor.

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- .3 Access to the site by Contractor's vehicles and equipment will be limited to the secure entry points. These access points always require a security staff during the periods of work and will be provided by the Contractor. These staff must be in constant contact with the team leader leading the work airside.
- .4 No vehicles or other modes of transportation related to the work will use or travel on the paved surfaces (runway, taxiway, and apron) located outside the limits of the designated work sites without an authorized security service escort.
- .5 At all times, no tracked machinery (even rubber) can circulate on paved surfaces (runway, taxiway and apron). This machinery must be loaded on a tanker to cross these surfaces.
- .6 The Contractor and his employees must immediately comply with escort instructions.
- .7 The Contractor shall notify the airport operator at least 24 hours in advance of any changes to the schedule or work program previously approved by the Departmental Representative when escorts are required.
- .8 The Contractor must have written approval of the Departmental Representative, daily, for the registration of time allocated for work tasks.

1.5 WORK TIMETABLE

- .1 The period of closure of the movement area may be carried over, delayed, or modified over time, so to take in account contingencies related to air traffic.
- .2 Perform work in stages and progress in the manner provided in the Contract to allow the day-to-day operations of the airport schedule.

1.6 MAINTAINING AIR TRAFFIC CIRCULATION

- .1 When excavations are carried out, they must be barricaded as required by provincial law. All trenches must be sufficiently marked, signaled and barricaded to ensure adequate protection for the public.
- .2 The Contractor must take note of the operating schedule for runway 09-27. During the operation of this runway, the Contractor may not leave an open trench in the runway safety area. The trenches must be backfilled and compacted with a minimum CBR of 15 or a minimum of the surrounding soil to the satisfaction of the Laboratory.
- .3 The machinery and storage of excavation materials constitute obstacles to the operation of the runways. These obstacles must be stored at least 250 meters from the center of runway 09-27 to allow its operation.
- .4 The Contractor must coordinate an inspection by authorized airport personnel 30 minutes before the scheduled runtime of a runway or taxiway.

1.7 SECURITY MEASURES

- .1 Do not interfere with airport operations without the authorization of the Departmental Representative.
- .2 Take any necessary temporary security measures for the transportation of the public, personnel, pedestrians, equipment, and vehicular traffic.
- .3 Place barriers where indicated by Departmental Representative.
- .4 Parking of equipment and storage of materials will only be permitted in the area designated by the Departmental Representative.

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1.8 MOVEMENT OF EQUIPMENT AND PERSONNEL

- .1 If Work is performed in areas of the airport open to air traffic:
 - .1 Submit the Work Schedule to the Departmental Representative for approval.
 - .2 Control movement of equipment and personnel in accordance with the Departmental Representative's instructions.
 - .3 The Contractor and the Contractor's employees shall comply immediately with the Departmental Representative's instructions.
 - .4 Radios are required for communications between the Contractor, the escort, the Departmental Representative, and Transport Canada Representative will be provided by the Contractor.
 - .5 At the end of each shift, all equipment and materials shall be moved to the designated location within the airport enclosure.

1.9 UNSERVICEABLE AREAS

- .1 Indicate clearly the areas which cannot be used by aircraft during the work provided for in this contract, by placing highly visible danger signs.

1.10 DAILY SECURITY

- .1 Open flames and flammable fuels are not permitted without prior approbation from the airport operator.
- .2 No work with an open flame, nor fire and smoking are permitted on airport grounds, and any contravening of airport regulation regarding this is under the penalty of a fine. This is due to the omnipresence of fuel lines and vapors.
- .3 It is forbidden to eat on airport maneuvering areas.
- .4 Ensure at the end of each workday that the barrier is locked and there are no breaches in the airport's perimeter fence.
- .5 The Contractor must provide security for access to the airport enclosure for the entire period of the execution of Work for the two secured entries identified on the plans.

1.11 DAILY SPECIAL PROCEDURES FOR THE COORDINATION OF WORK

- .1 Verification of Daily Flight Schedules:
 - .1 The Contractor will coordinate with the Departmental Representative to obtain confirmation of flight times (arrival and departure) at Sept-Îles airport. For airside work, airport operations will always take precedence over the Contractor's work.
- .2 Daily Work Program:
 - .1 The Contractor must submit the detailed program of work on a daily basis for approval.

Part 2 Products**2.1 NOT APPLICABLE**

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General**1.1 MEASUREMENT FOR PAYMENT PURPOSES**

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.2 GENERAL NOTE

- .1 In this Section, the term "site" includes all the facilities located at the site where the Work is taking place (construction site, buildings, access, infrastructure, parking, docks, etc.).

1.3 REFERENCES

- .1 Province of Québec.
 - .1 Loi sur la santé et la sécurité du travail L.R.Q., c. S-2.1 (Act respecting Occupational Health and Safety).
 - .2 Code de sécurité pour les travaux de construction L.R.Q., c. S-2.1, r.4 (Safety Code for the Construction Industry).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative, and the CNESST the site-specific prevention program, as outlined in the article "GENERAL REQUIREMENTS", at least 10 days prior to the start of Work.
- .3 Departmental Representative will review Contractor's site-specific prevention program and provide comments to Contractor within TEN (10) days after receipt of the document. Revise plan as appropriate and resubmit to Departmental Representative within five (5) days after receipt of comments from Departmental Representative. Departmental Representative reserves the right not to authorize the start of work on the construction site as long as the content of the prevention program is not satisfactory. The Contractor must then update his prevention program and resubmit it to the Departmental Representative if the scope of work changes or if the working methods of the Contractor differ from his initial plans or for any other applicable new condition.
- .4 Departmental Representative's review of Contractor's site-specific prevention program should not be construed as approval of the program and does not reduce the Contractor's overall responsibility for Construction Health and Safety during the Work.
- .5 Submit copies of Contractor's authorized representative's construction site health and safety inspection reports to Departmental Representative, at least once a week.
- .6 Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by Federal or Provincial health and safety inspectors.
- .7 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard. The investigation report must contain at least the following:
 - .1 Date, time, and place of accident.
 - .2 Name of sub-contractor involved in the accident.
 - .3 Number of persons involved and condition of wounded.

- .4 Witness identification.
- .5 Detailed description of tasks performed at the time of the accident.
- .6 Equipment being used to accomplish the tasks performed at the time of the accident.
- .7 Corrective measures taken immediately after the accident.
- .8 Causes of the accident.
- .9 Preventive measures that have been put in place to prevent a similar accident.
- .8 Submit to Departmental Representative, WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittals. Contractor must also keep one (1) copy of these documents on the construction site.
- .9 Medical Surveillance: Where prescribed by legislation, regulation, or prevention program, submit certification of medical surveillance for construction site personnel prior to commencement of Work, and submit additional certifications for any new construction site personnel to Departmental Representative.
- .10 Submit to Departmental Representative an on-site Emergency Response Plan simultaneously with the prevention program. The Emergency Response plan must contain the elements listed in the article "GENERAL REQUIREMENTS" of this Section.
- .11 Submit to Departmental Representative copies of all training certificates required for the application of the prevention program, in particular (if applicable) for the following:
 - .1 First-aid in workplace and cardiopulmonary resuscitation.
 - .2 Work likely to release asbestos dust (mandatory for all work where asbestos is present).
 - .3 Work in confined spaces (mandatory for all work in confined spaces).
 - .4 Lockout-tagout procedures (mandatory for all work requiring lockout).
 - .5 Safely operating forklift trucks (mandatory for all forklift usage).
 - .6 Safely operating elevating work platforms (mandatory for the use of all elevating platforms).
 - .7 Any other requirement of Regulations or the Safety Program.
- .12 In addition, the certifications of the *Cours de santé et sécurité générale pour les chantiers de construction* (General Health and Safety Training for Construction Sites) must be available on demand on the construction site.
- .13 Engineer's drawings and certificates of compliance: Contractor must submit to the Departmental Representative and to the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST) a copy signed and sealed by an engineer of all drawings and certificates of compliance required pursuant to the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry) or by any other legislation or regulation or by any other clause in the Specifications or in the Contract. The Contractor must also submit a certificate of conformity signed by an engineer once the facility for which these drawings were prepared has been completed and before a person uses the facility. A copy of these documents must always be available on site.

1.5 FILING OF NOTICE OF CONSTRUCTION SITE OPENING

- .1 Notice of construction site opening must be submitted to the CNESST before Work begins. A copy of such notice and acknowledgment of receipt from the CNESST must be submitted to Departmental Representative.

- .2 At the completion of all the work, a notice of construction site closing must be submitted to the CNESST, with a copy to Departmental Representative.
- .3 The Contractor must assume the role of being the Principal Contractor in the limits of the construction site and elsewhere where he must execute work within the framework of this project. The Contractor must recognize the responsibility of being the Principal Contractor of the project and identify himself as such in the notice of the construction site opening he provides to the CNESST.
- .4 The Contractor must always accept to divide and identify the construction site adequately to define time and space throughout the course of the project.

1.6 HAZARD ASSESSMENT

- .1 The Contractor must perform construction site specific safety hazard assessment related to project.

1.7 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
- .2 Contractor's representative with decision power must attend any meetings at which construction site safety and health issues are to be discussed.
- .3 If it is anticipated that there will be 25 workers or more on the construction site at any given time, the Contractor must set up a worksite committee and hold meetings as required by the *Code de sécurité pour les travaux de construction* (S-2.1, r. 4) (Safety Code for the Construction Industry). A copy of the minutes of the meetings of the committee must be provided to the Departmental Representative no later than five (5) days after the committee meeting.

1.8 REGULATORY REQUIREMENTS

- .1 Comply with all legislation, regulations, and Standards applicable to the construction site and its related activities.
- .2 Comply with specified standards and regulations to ensure safe operations on a site containing hazardous or toxic materials.
- .3 Always use the most recent version of the standards specified in the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry), notwithstanding the date indicated in that *Code*.

1.9 COMPLIANCE REQUIREMENTS

- .1 Comply with the *Loi sur la santé et la sécurité du travail* (L.R.Q., c. S-2.1) (Act Respecting Occupational Health and Safety) and the *Code de sécurité pour les travaux de construction* (S-2.1, r. 4.) (Safety Code for the Construction Industry) in addition to respecting all the requirements of this specification manual.

1.10 RESPONSIBILITIES

- .1 The Contractor must acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the *Loi sur la santé et la sécurité du travail* (L.R.Q., ch. S-2.1) (Act Respecting Occupational Health and Safety) and the *Code de sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry).

- .2 The Contractor must be responsible for health and safety of persons on construction site, safety of property on construction site and for the protection of persons adjacent to construction site and the environment to the extent that they may be affected by conduct of the work.
- .3 No matter the size or location of the construction site, the Contractor must clearly define the limits of the construction site by physical means and respect all specific regulation requirements applicable in this regard. The means chosen to define the limits of the construction site must be submitted to the Departmental Representative.
- .4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific prevention Plan.

1.11 GENERAL REQUIREMENTS

- .1 Before undertaking the work, prepare a site-specific prevention program based on the hazards identified according to the article "HAZARD ASSESSMENT" and the article "RISKS INHERENT TO THE WORKSITE" in this Section. Apply this program in its totality from the start of the project until demobilization of all personnel from the construction site.
- .2 The prevention program must take into consideration the specific characteristics of the project and cover all the work to be executed on the construction site.
- .3 The safety program must include at least the following:
 - .1 Company safety and health policy.
 - .2 Description of the stages of the work.
 - .3 Total costs, schedule and projected workforce curves.
 - .4 Flow chart of safety and health responsibilities.
 - .5 Physical and material layout of the construction site.
 - .6 Risk assessment for each stage of the work, including preventive measures and the procedures for applying them.
 - .7 Identification of the preventive measures relative to the specific risks inherent to the worksite indicated in the article "RISKS INHERENT TO THE WORKSITE".
 - .8 Identification of preventive measures for health and safety of employees and / or public works site as indicated in the article "SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC".
 - .9 Training requirements.
 - .10 Procedures in case of accident/injury.
 - .11 Written commitment from all parties to comply with the safety program.
 - .12 Construction site inspection checklist based on the preventive measures.
 - .13 Emergency response plan which must contain at least the following:
 - .1 Construction site evacuation procedures.
 - .2 Identification of resources (police, firefighters, ambulance services, etc.).
 - .3 Identification of persons in charge of the construction site.
 - .4 Identification of the first-aid attendants.
 - .5 Communication organizational chart (including the person responsible for the site and the Departmental Representative).
 - .6 Training required for those responsible for applying the plan.

- .7 Any other information needed, in the light of the construction site's characteristics.
- .14 If available, the Departmental Representative will provide the evacuation procedures to the Contractor who must then coordinate the construction site procedure with that of the site and submit it to the Departmental Representative.
- .4 Departmental Representative may respond in writing, where deficiencies or concerns are noted in the prevention program and may request resubmission with correction of deficiencies or concerns.
- .5 In addition to the prevention program, during the course of the work the Contractor must elaborate and submit to the Departmental Representative specific written procedures for any work having a high risk factor of accident (for example: Demolition procedures, specific installation procedures, hoisting plan, procedures for entering a confined space, procedures for interrupting electric power, etc.) or at the request of the Departmental Representative.
- .6 The Contractor must plan and organize work to eliminate the danger at source or ensure collective protection, thereby minimizing the use of personal protective equipment.
- .7 Equipment, tools, and protective gear which cannot be installed, fitted, or used without compromising the health or safety of workers or the public, must be deemed inadequate for the work to be executed.
- .8 All mechanical equipment (for example, but not limited to: Hoisting devices for persons or materials, excavators, concrete pumps, concrete saws) must be inspected before delivery to the construction site. Before using any mechanical equipment, the Contractor must obtain a certificate of compliance signed by a qualified mechanic dated less than a week prior to the arrival of each piece of equipment on the construction site; the certificate must remain on the construction site and transmitted to the Departmental Representative on demand.
- .9 Ensure all inspections (daily, periodic, annual, etc.) for the hoisting devices for persons or materials required by the current standards are carried out and be able to provide a copy of the inspection certificates to the Departmental Representative on demand.
- .10 The Departmental Representative can always, if he suspects a malfunction or the risk of an accident, order the immediate stop of any item of equipment and require an inspection by a specialist of his choice.
- .11 The Departmental Representative must be consulted for the location of storing gas cylinders and tanks on the construction site.

1.12 RISKS INHERENT TO THE WORKSITE

- .1 In addition to the risks related to the tasks to be carried out, personnel responsible for the execution of the work on the construction site will be exposed to the following risks inherent to the area where the work will be executed.
- .2 At the worksite there may in particular be the presence of the following:
 - .1 Overhead power lines.
 - .2 Underground services (electric, gas, vapour, water system, etc.).
 - .3 Trees and landscaping to preserve and protect.
 - .4 Barbed wire fences.
 - .5 Moving aircraft.

- .3 The Contractor must process to a risk assessment of the site to validate this information and see if other risks are present on the site. He must include in his prevention program all risks that have been identified.

1.13 SPECIFIC REQUIREMENTS FOR THE HEALTH AND SAFETY OF OCCUPANTS AND PUBLIC

- .1 Worksite may be occupied by employees and/or the public, even if they do not have access to the Contractor's worksite. The Contractor must consider the following specific requirements for the protection of employees and / or the public:
 - .1 Construct interior and exterior temporary partitions in compliance with regulations.
- .2 These requirements must be included in the Contractor's site-specific safety plan as well as any other measures provided by the Contractor to protect the health and safety of employees and / or the public on the site.

1.14 UNFORESEEN HAZARDS

- .1 Whenever a source of danger not defined in the Specifications or identified in the preliminary construction site inspection arises as a result of or in the course of the work, the Contractor must immediately suspend work, notify the person responsible for health and safety on the construction site, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must do the necessary modifications to the prevention program or apply the security measures required in order to resume work.

1.15 PERSON IN CHARGE OF HEALTH AND SAFETY

- .1 If the construction site meets the requirements of article 2.5.3 of the *Code de la sécurité pour les travaux de construction* (S-2.1, r.4) (Safety Code for the Construction Industry), the Contractor needs to hire a competent person authorized as a safety officer and appoint this person full time from the beginning of the work. This person's tasks must solely be dedicated to the management of health and safety on the construction site. This safety officer must have the following qualifications:
 - .1 Have a safety officer certificate issued by the CNESST since at least one (1) year.
 - .2 Have site-related working experience specific to the activities associated with the present project.
 - .3 Have working knowledge of occupational health and safety regulations in the workplace.
 - .4 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter the construction site to perform work.
 - .5 Be responsible for implementing, enforcing in detail and monitoring site-specific Contractor's Health and prevention program.
 - .6 Always be on construction site during execution of work.
 - .7 Inspect the work and ensure compliance with all regulatory requirements and those indicated in the Contract Documents or the site-specific prevention program.
 - .8 Keep a daily log of actions taken and submitting a copy to Departmental Representative each week.
- .2 The safety officer's certificate must be submitted to the Departmental Representative before the start of the Work.

- .3 When the hiring of a safety officer is not required or if this person is hired by the Departmental Representative, the Contractor must designate a competent person to supervise and take responsibility for health and safety, no matter the size of the construction site or how many workers are present at the workplace. This person must always be on construction site and be able to take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the construction site and likely to be affected by any of the work. The Contractor must submit the name of this person to the Departmental Representative before the start of work.

1.16 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices, and orders are posted in conspicuous location on construction site in accordance with Acts and Regulations of the Province, and in consultation with Departmental Representative.
- .2 At a minimum, the following information and documents must be posted in a location readily accessible to all workers:
 - .1 Notice of construction site opening.
 - .2 Identification of principal Contractor.
 - .3 Company OSH policy.
 - .4 Site-specific prevention program.
 - .5 Emergency plan.
 - .6 Minutes of worksite committee meetings.
 - .7 Names of worksite committee representatives.
 - .8 Names of the first-aid attendants.
 - .9 Action reports and correction notices issued by the CNESST.

1.17 INSPECTION OF THE CONSTRUCTION SITE AND CORRECTION OF NON-COMPLIANCES

- .1 Inspect the construction site and complete the construction site inspection checklist and submit it to the Departmental Representative in accordance with the article "ACTION AND INFORMATIONAL SUBMITTALS" in this Section.
- .2 Immediately take all necessary measures to correct any situations deemed non-compliant during the inspections mentioned in the previous paragraph or noticed by the Authorities Having Jurisdiction or the Departmental Representative or his agent.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct the situation in case of non-compliance in matters pertaining to health and safety.
- .4 The Contractor must give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order cessation and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and construction site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 The Departmental Representative or his agent may order cessation of work if the Contractor does not make the corrections needed to conditions deemed non-compliant in matters pertaining to health and safety. Without limiting the scope of the preceding articles, the Departmental Representative may order cessation of work if, in his view, there is any hazard or threat to the safety or health of construction site personnel or the public or to the environment.

1.18 PREVENTION OF VIOLENCE

- .1 Health and safety management of Public Works and Government Services Canada construction sites includes the implementation of measures designed to protect the psychological health of all persons who access the construction site where the work is taking place. Consequently, in addition to physical violence, verbal abuse, intimidation and harassment are not tolerated on the construction site. Any person who demonstrates such actions or behaviors will receive a warning and/or could be expelled from the construction site by the Departmental Representative.

1.19 BLASTING

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

1.20 POWDER ACTUATED DEVICE

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.
- .2 Any person using an explosive actuated tool must hold a training certificate and meet all requirements of Section 7 of the *Code de sécurité pour les travaux de construction* (S- 2.1, r. 4). (Safety Code for the Construction Industry)
- .3 Any other explosive-actuated device must be used in accordance with the manufacturer's directions and applicable Standards and Regulations.

1.21 USE OF PUBLIC ROADS

- .1 Where it is necessary to encroach on a public road for operational reasons or to ensure the security of the workers, the occupants or the public (for example: Use of scaffolding, cranes, excavation work, etc.), the Contractor must obtain at his own expense any authorizations and permits required by the competent authority.
- .2 The Contractor must install at his own expense any signage, barricades, or other devices needed to ensure the safety and security of the public and the Contractor's own facilities.

1.22 FUNGAL CONTAMINATION

- .1 It is not anticipated that Work covered by the present specifications involves the manipulation of materials contaminated by mould; however, if the Contractor or the Departmental Representative or his agent discover materials which are susceptible of being contaminated by mould, the Contractor must immediately stop the work and advise the Departmental Representative. If more investigation demonstrates that the materials do contain mould, the Contractor must comply with the following requirements.
 - .1 Prior to starting any work where workers are likely to be in contact with materials contaminated by mould, the Contractor must:
 - .1 Provide a written procedure for the work which respects all the requirements of the *Code de sécurité pour les travaux de construction* S-2.1, r- 4, (Safety Code for the Construction Industry), as well as the requirements indicated in the document "*Mould Guidelines for the Canadian Construction Industry*" published by the Canadian Construction Association (<http://www.cca-acc.com/documents/electronic/cca82/cca82.pdf>).
 - .2 Demonstrate that he has all the material and equipment required on hand to respect the procedure and for safely conducting the work.

1.23 EXPOSURE TO SILICA

- .1 Work in wet environment or use tools with the inflow of water in order to reduce dustiness, if not, collect dust at the source and retain it with a high-efficiency filters not to propagate dust in the environment.
- .2 Clean surfaces and tools with water, never with compressed air.
- .3 Sand and pickle surfaces by using an abrasive containing less than 1% of silica (also called amorphous silica).
- .4 Install shields or other containment device to prevent silica dust from migrating toward other workers or the public.
- .5 Wear individual respiratory and ocular protection equipment during all the operations that could generate silica dust in accordance with the requirements of the *Code de sécurité pour les travaux de construction, S-2.1, r.4* (Safety Code for the Construction Industry).
- .6 Wear coveralls to prevent contamination outside the construction site.
- .7 Do not eat, drink, or smoke in a dusty environment.
- .8 Wash the hands and the face before drinking, eating, or smoking.

1.24 EXPOSURE TO ANIMAL'S FECAL DROPPINGS

- .1 Prior to all work where workers are likely to meet materials contaminated by animal's fecal droppings, the Contractor must:
 - .1 Provide a written procedure for the work which respects all the requirements of the *Code de sécurité pour les travaux de construction S-2.1, r. 4*, (Safety Code for the Construction Industry), as well as the requirements indicated in the document "*Des fientes de pigeons dans votre lieu de travail: méfiez-vous*" (Pigeon droppings in your workplace: Beware" published by the CNESST (http://www.csst.qc.ca/publications/100/Documents/DC100_1331_1web2.pdf).
 - .2 Demonstrate that he has all the material and equipment required on hand to respect the procedure and for safely conducting the work.

1.25 RESPIRATORY PROTECTION

- .1 Contractor must ensure that all workers who must wear a respirator as part of their duties have received training for that purpose as well as fit testing of their respirator, in accordance with CSA Standard Z94.4 - *Selection, Use and Care of Respirators*. Submit the certificates of the fit testings to the Departmental Representative on demand.

1.26 HOT WORK

- .1 Hot work means any work where a flame is used or a source of ignition may be produced, i.e., riveting, welding, cutting, grinding, burning, heating, etc.
 - .1 Before the beginning of each shift of work and for each sector, the Contractor must obtain a "Hot Work Permit" emitted by the person responsible for the site.
 - .2 A working portable fire extinguisher suitable to the fire risk must be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.
 - .3 The Contractor must appoint an individual to do continuous monitoring of the fire risks for a period of one (1) hour after the end of the shift of hot work. This individual must sign the section for this purpose on the permit and give it to the person in charge of the construction site after the one-hour period.

- .4 When the hot work is done in areas where there are combustible materials or where the walls, ceilings, or floors are made of or covered with combustible materials, a final inspection of the work area must be scheduled four (4) hours after the work has finished. Unless specified otherwise by the Departmental Representative, the Contractor must assign a person to carry out this monitoring.
- .2 Welding and cutting: In addition to the requirements prescribed in the preceding paragraphs, the Contractor must respect the following requirements:
 - .1 Welding and cutting work must be carried out in accordance with the requirements of the *Code de Sécurité pour les travaux de construction, S-2.1, r.4* (Safety Code for the Construction Industry) and CSA standard W117.2, Safety in Cutting, Welding and Allied Processes.
 - .2 Air extraction system with filters must be used for all welding and cutting work performed inside.
 - .3 Stop all activities producing flammable or combustible gas, vapours, or dust in the vicinity of the welding or cutting work.
 - .4 Store all compressed gas cylinder on a fireproof fabric and make sure that the room is well ventilated.
 - .5 Store all oxygen cylinders more than 6 metres from a flammable gas cylinder (ex: acetylene) or a combustible such as oil or grease, unless the oxygen cylinder is separated from it by a wall made of non-combustible material as mentioned in Article 3.13.4 of the *Code de sécurité pour les travaux de construction, S-2, r. 6* (Safety Code for the Construction Industry).
 - .6 Store the cylinders far from all heat sources.
 - .7 Not to store the cylinders close to the staircases, exits, corridors, and elevators.
 - .8 Do not put acetylene in contact with metals, such as silver, mercury, copper, and alloys of brass having more than 65% copper, to avoid the risk of an explosive reaction.
 - .9 Check that welding equipment with electric arc has the necessary tension and are grounded.
 - .10 Ensure that the conducting wires of the electric welding equipment are not damaged.
 - .11 Place the welding equipment on a flat ground away from the bad weather.
 - .12 Install fireproof canvas when the welding work is done in a superposition and where there is the risk of falling sparks.
 - .13 Move away or protect the combustible materials which are closer than 15 metres from the welding work.
 - .14 Prohibition to weld or cut any closed container.
 - .15 Do not perform any cutting, welding, or work with a naked flame on a container, a tank, a pipe, or other container containing a flammable or explosive substance unless:
 - .1 They have been cleaned and air samples indicating that work can be done without danger has been taken; and
 - .2 Provisions to ensure the safety of the workers have been made.

1.27 WORK NEAR OVERHEAD POWER LINES

- .1 When there is an overhead power line in the work zone and that the Contractor chooses to apply paragraph b) of article 5.2.2 of the *Code de sécurité pour les travaux de construction* (2.1, r.4) (Safety Code for the Construction Industry), a copy of the agreement with the electrical power company and a copy of the work process, required in Article 5.2.2 b), must be submitted to the Departmental Representative before the beginning of the work in relation to these documents.

1.28 HEALTH AND SAFETY SUBORDINATION AGREEMENT

- .1 Agreement to fill out next page; a completed and signed copy to be submitted to the Departmental Representative.

HEALTH AND SAFETY SUBORDINATION AGREEMENT	
Project: _____ Address: _____	
EXTERNAL CONTRACTOR	
<p>I, hereby, agree to submit to the authority of (name of the Principal Contractor's business) _____, which is the Principal Contractor for the project indicated above during the entire duration of our work on the construction site. Accordingly, I confirm that I have reviewed the Principal Contractor's prevention program, and I agree to:</p> <ul style="list-style-type: none"> • Inform my employees of the content of the Principal Contractor's prevention program and ensure that its content is complied with at all times; • Apply the prevention program that is specific to the activities that we carry out under this project; • Inform the Principal Contractor of my actions or dealings on the construction site and obtain the Principal Contractor's agreement before the start of work; and • Follow the health and safety directives provided by the representative of the Principal Contractor on the construction site and, depending on requirements, attend training sessions and health and safety meetings organized by the representative of the Principal Contractor. 	
Name of Representative:	Name of Business:
Description of work to be done on the construction site:	
Approximate dates of work (start-end): Start:	End:
_____ Signature	_____ Date
PRINCIPAL CONTRACTOR	
<p>I hereby agree to allow the business (name of external contractor) _____ to perform the work under this project indicated above and, as Principal Contractor, to take the necessary steps to protect the health and safety of workers on the construction site. Should the Contractor repeatedly refuse or fail to comply with my directives, I agree to inform PWGSC's Departmental Representative of this and to provide documentary evidence of my actions or dealings with the Contractor.</p>	
Name of Representative:	Name of Principal Contractor's Business:
Signature: _____ Date: _____	
Submit a completed and signed copy to Departmental Representative	

Part 2 Products

2.1 NOT APPLICABLE

.1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General**1.1 MEASUREMENT FOR PAYMENT PURPOSES**

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 CSA Group (CSA).
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-0121-M1978 (R2003), Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Occupational Environment.
- .3 U.S. Environmental Protection Agency (EPA)/Office of Water.
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which must be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.4 HOISTING

- .1 Lifting devices (excavator, cranes and boom truck): The Contractor who uses a lifting device must obtain authorization from the airport, seventy-two (72) business hours in advance.
- .2 All lifting devices (excluding excavators) must have a red obstruction light installed on the end of the boom to indicate the presence of equipment.
- .3 Provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .4 Hoists cranes to be operated by qualified operator.

1.5 SITE STORAGE/LOADING

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

1.6 PARKING ON CONSTRUCTION SITE

- .1 Airside work:
 - .1 It will not be allowed to park on the airside site. Workers will have to park in the parking lot in front of the garage.
 - .2 Provide and maintain adequate access to project site.
 - .3 The Contractor is responsible for the protection and maintenance of the service roads used. Roads should be swept regularly to remove debris.

1.7 SECURITY

- .1 The Contractor must provide a site access manager for the safety area at all times during the execution of the work.

1.8 OFFICES/CONSTRUCTION TRAILERS

- .1 No trailer or construction site office installation is required.
- .2 The Contractor must provide a chemical or flush toilet, sink and mirror, and ensure the supply of paper towels and toilet paper. The toilet must be in the work area for each shift and be removed at the end of each shift. The toilet should be drained at least twice a week.

1.9 EQUIPMENT, TOOL, AND MATERIAL STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment, and material.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.10 SANITARY FACILITIES

- .1 Sanitary facilities must be provided by the Contractor. They must be emptied and disinfected at least twice a week.
- .2 At all times, a bottle of hydroalcoholic solution must be available in the sanitary facilities.

1.11 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Protect travelling public from damage to person and property.
- .2 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .3 Verify adequacy of existing roads and allowable load limit on these roads. The Contractor is responsible for repair of damage to roads caused by construction operations.

- .4 Clean runways and (airport) taxiways if construction equipment has been used. It is the Contractor's responsibility to clean the runway, taxiways and apron prior to each aircraft maneuver.
- .5 The surface of runway 13-31 is very degraded. The Contractor must proceed with caution to avoid causing any particular damage. It is required to:
 - .1 Avoid turning with tight turning radii.
 - .2 Avoid excessive vibration of repairs.
 - .3 Provide means of protection when cornering tracked equipment.
- .6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .7 Take the necessary measures to remove dust to ensure the safe conduct of activities at all times.
- .8 Lighting fixtures must provide full visibility over the entire width of construction runways and work areas during evening and night shifts.

1.12 ELECTRICAL ENERGY

- .1 For the construction needs, ensure the temporary supply of electrical energy, and assume the costs and maintenance according to the regulations and ordinances in force.

1.13 TEMPORARY LIGHTING

- .1 For work performed at night, provide portable lighting fixtures in sufficient number and quality to allow the performance of quality and safe work.
- .2 Lighting towers must be provided for the different work areas.
- .3 Temporary lighting equipment must not interfere with flight operations. They must be oriented towards the work area and have deflectors when required.

1.14 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

.1 Not applicable.

END OF SECTION

Part 1 General**1.1 MEASUREMENT FOR PAYMENT PURPOSES**

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.2 REFERENCE STANDARDS

- .1 Reference Standard may be provided in each Section.
- .2 Comply with these Reference Standards, in whole or in part, as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor Design-Builder in event of non-conformance.

1.3 QUALITY

- .1 Products, materials, equipment, and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, provide evidence as to type, source, and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of Work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve the Contractor from his responsibility, but simply a precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in Specifications, maintain uniformity of manufacture throughout building.
- .6 Permanent labels, trademarks, and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

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

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

1.5 STORAGE, HANDLING, AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration, and soiling, and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, on flat, solid supports, and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense, to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

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

1.7 MANUFACTURER'S INSTRUCTIONS

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

1.8 QUALITY OF WORK

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

- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.9 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves, and accessories.

1.10 REMEDIAL WORK

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

1.11 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic and/or building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by Authority Having Jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

- .1 Not applicable.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of the technical specifications.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 For work on Runway 13-31, include the costs in the "Site Organization and Safety" section of the submission form.
- .2 For work on taxiways C and D, the mechanical broom is paid by the hour, according to the actual hours at the site regardless of whether the work takes place day or night. No surcharge will be allowed for overtime work. The price must also include the management and disposal of the aspirated debris. Refer to the "Mechanical Broom" item on the submission form.

1.3 WORKSITE CLEANLINESS

- .1 Maintain worksite in tidy condition, free from accumulation of waste products and debris, other than those caused by Departmental Representative or other Contractors.
- .2 Remove waste materials from site daily after each work shift or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Dispose of debris and waste materials in authorized landfill areas.
- .5 Use only the cleaning products recommended by the manufacturer of the surface to be cleaned, and use them according to the recommendations of the manufacturer of the products in question.
- .6 Provide, onsite, containers for collection of waste materials and debris.
- .7 Provide and use marked separate bins for recycling. Refer to section 01 74 19 - Waste Management and Disposal.
- .8 Clean the runways, taxiways and aprons that have been used by the Contractor's vehicles. Cleaning should be continuous for areas used by aircraft and daily for others, as well as dust removal.
- .9 A joint inspection will be conducted with the Departmental Representative, the Contractor and the airport operator at the end of each sub-phase before reopening the facilities to airport operations.
- .10 The Contractor must immediately carry out all required cleaning and refurbishment operations.

1.4 FINAL CLEANING

- .1 When work is substantially performed, remove surplus products, tools, construction machinery, and equipment from airport grounds.
- .2 Prior to final review, remove surplus products, tools, construction machinery, and equipment.

- .3 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials onsite.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Clean lighting reflectors, lenses, and other lighting surfaces.
- .6 Sweep and wash paved areas.
- .7 When construction vehicles have been granted permission to operate on the movement areas in service, keep appropriate cleaning equipment at the site capable of keeping the portion of the movement areas used by the aircraft free of debris to the satisfaction of the Departmental Representative.
- .8 On a daily basis and before the movement areas are partially reopened to air traffic, inspect the movement areas of the airport with the Transport Canada Escort Officer. If necessary, if the head of Transport Canada deems it appropriate, continue the clean-up work.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 In accordance with section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIAL

- .1 Equipment
 - .1 Provide the necessary equipment and personnel for the proper execution of the cleaning.
 - .2 The equipment used must be able to extract from the pipes dirt, stones, sand and materials that may obstruct the pipes or prevent flow.
 - .3 The choice of equipment must be based on the condition of the pipes to be cleaned present at the site.

Part 3 Execution

3.1 PROCEDURES

- .1 General
 - .1 Perform clean-up and disposal operations in accordance with local ordinances and pollution laws.
 - .2 Prevent the accumulation of waste that presents hazards and risks of FOD.
- .2 Cleaning during construction
 - .1 Keep construction site clean and public property free of debris and waste.
 - .2 Evacuate waste and debris from the construction site on a daily basis.
 - .3 Remove dust and debris from areas of the construction site, including access roads, the perimeter of the site and the deck, using a broom-vacuum truck.

- .4 Use cleaning solutions and methods that are not harmful to health or harmful to vegetation, and that do not endanger wildlife, adjacent waterways and groundwater.
- .3 Final cleaning
 - .1 Upon substantial completion of the work, remove surplus materials, tools, and construction equipment and materials that are no longer required to perform the remainder of the work.
 - .2 Evacuate waste materials off the site or dispose of them according to the Engineer's instructions.
 - .3 Make the necessary arrangements and obtain permits from the competent authorities for the disposal of debris and scrap materials.
 - .4 Examine finishes, accessories and materials to ensure that they meet prescribed requirements for operation and quality of workmanship.
 - .5 Clean materials and equipment thoroughly.

3.2 PRIOR PRECAUTIONS

- .1 During all clean-up operations, take the necessary precautions to protect the storm system from damage caused by inappropriate equipment or a wrong method. When hydraulically propelled equipment is used for pipe cleaning, or any other equipment that decreases or stops the flow of water into the pipe, take precautions to ensure that the pressure, water level or backflow does not create any damage to public or private property.
- .2 The Contractor will be held responsible for damage caused by this cleaning work, following a bad operation or negligence during the execution of the work.
- .3 The Contractor must regularly or at the request of the Departmental Representative clean up all areas.

3.3 USE OF STANDPIPES

- .1 Make the necessary arrangements with the airport or municipal authorities before using a fire hydrant. Ensure free access to standpipes everywhere and avoid wasting water.

END OF SECTION

Part 1 General**1.1 MEASUREMENT FOR PAYMENT PURPOSES**

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.2 DEFINITIONS

- .1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants, or similar materials.
- .2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling operations, repair, and demolition.
- .3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
- .4 Non-hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
- .5 Non-toxic: Not poisonous to humans either immediately or after a long period of exposure.
- .6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- .7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- .8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Return: To give back reusable items or unused products to vendors for credit.
- .10 Reuse: To reuse a construction waste material in some manner on the project site.
- .11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- .12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.
- .13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- .14 Toxic: Poisonous to humans either immediately or after a long period of exposure.
- .15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- .16 Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing:
 - .1 Solvents in paints and other coatings.
 - .2 Wood preservatives; strippers and household cleaners.
 - .3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.

- .4 When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.
- .17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.3 WASTE MANAGEMENT OBJECTIVES

- .1 Before the start of the work, meet with the Departmental Representative to review the waste management plan and objectives.
- .2 The waste management objective is to reduce the total flow of construction/demolition waste to landfills. Transmit to the Departmental Representative documents certifying that comprehensive measures and procedures for waste management, recycling, reuse/reuse of recyclable and reusable materials have been implemented.
- .3 Exercise maximum control over solid construction waste.
- .4 Protect the environment and prevent pollution and environmental impacts.
- .5 Handle and dispose of hazardous materials in accordance with the Canadian Environmental Protection Act, the Transportation of Dangerous Goods Act, and provincial and municipal regulations.

1.4 DOCUMENTS/SAMPLES TO BE SUBMITTED

- .1 Submit the required documents and samples in accordance with section 01 33 00 - Documents/Samples to be submitted.
- .2 Prepare and submit the following prior to the commencement of work, if applicable:
 - .1 Management of excess excavation and planing including paving, concrete, contaminated materials, construction debris, etc. The submitted document must include, but not be limited to, the following:
 - .1 Destination of the indicated waste materials.
 - .2 Location.
 - .3 Protective measures.
 - .4 Precise indication of the storage areas.
 - .5 Details related to the handling and removal of waste materials.
 - .6 Description of the waste management method.
 - .2 Track waste reduction: produce a report and indicate the total volume of scrap materials actually removed from the site.

1.5 DOCUMENTS

- .1 Keep a copy of each of the following documents on the construction site:
 - .1 Waste sorting plan at source.

1.6 SOURCE WASTE SORTING PROGRAM (SWSP)

- .1 Prepare the SWSP prior to the start of work, if applicable.
- .2 According to the methods authorized by the Departmental Representative and with the authorization of the latter, implement the SWSP for all waste generated by the works.

- .3 Provide on-site facilities to collect, handle and store anticipated quantities of reusable/reusable and recyclable waste materials.
- .4 Provide containers in which reusable/reusable and recyclable waste materials will be deposited.
- .5 Place containers in places where it will be easy to deposit waste materials without affecting site operations.
- .6 Waste materials must be collected, handled and stored on the construction site and then disposed of in an unsorted state.
 - .1 Recovered waste materials must be shipped to the premises authorized by the Departmental Representative.
 - .2 Waste materials must be sorted into relevant categories for reuse/re-use or recycling.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 STORAGE, HANDLING AND PROTECTION OF MATERIALS

- .1 Store waste materials recovered for reuse/re-use or recycling at the locations indicated by the Departmental Representative.
- .2 Unless otherwise stated, the waste materials that need to be disposed of become the property of the Contractor.
- .3 Protect, heap, store and catalog recovered items.
- .4 Separate non-recoverable items from recoverable items. Transport and deliver non-recoverable items to the authorized disposal facility.
- .5 Support the works affected by the work. If the safety of the building is likely to be compromised, stop the work and immediately inform the Departmental Representative.
- .6 Protect surface water drainage structures from damage or obstruction; protect electrical installations to the satisfaction of the Departmental Representative.
- .7 Sort and store in designated areas the waste materials generated by the dismantling of structures.
- .8 Prevent contamination of waste materials intended for recovery and recycling, in accordance with the conditions of acceptance of designated facilities.
- .9 Handle and dispose of hazardous materials in accordance with CEPA, TDMA, and provincial and municipal regulations.

3.2 WASTE MATERIALS

- .1 No waste site is available on the Airport's site.
- .2 Transport surplus materials to a site approved by the Departmental Representative. All materials must be removed from the site at the end of the work.

3.3 WASTE DISPOSAL

- .1 It is forbidden to bury scrap or waste.
- .2 It is forbidden to dispose of waste, volatile matter, mineral spirits, hydrocarbons, paint thinner in a watercourse or in a storm or sanitary sewer.
- .3 Keep a record of construction waste, indicating the following:
 - .1 The number of bins and their size.
 - .2 The type of waste placed in each bin.
 - .3 The total tonnage of waste generated.
- .4 Recover scrap materials as the deconstruction/dismantling work progresses.
- .5 Prepare a project summary to control the destination and quantities of each type of waste material identified in the pre-deconstruction audit.
- .6 Dispose of waste in an authorized site.

3.4 USE OF PREMISES AND FACILITIES

- .1 Carry out the work with as little harm as possible to the normal use of the premises.
- .2 Maintain the safety measures established for the existing facility.

3.5 SCHEDULE OF WORK

- .1 Coordinate waste management with other activities to ensure an orderly flow of work.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of this specification.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Include the costs in the "Site Organization and Safety" section of the submission form.

1.3 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act (CEPA).
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures
 - .1 Contractor's Inspection: Contractor: Conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative'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 that tasks have been performed as follows:
 - .1 Work: Completed and inspected for compliance with Contract Documents.
 - .2 Defects: Corrected and deficiencies completed.
 - .3 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 Completion: Where the Departmental Representative considers that deficiencies and defects have been corrected and that the contractual requirements appear to be largely met, submit a request to produce a certificate of substantial completion.

- .6 Beginning of the warranty period and the period of exercise of the right of retention: The date of acceptance by the Client of the declaration of substantial completion of the works submitted will be the date of the beginning of the period of exercise of the right of retention and the guarantee period, unless otherwise prescribed by the regulations relating to the right of retention in force at the place of the works.
- .7 Final payment
 - .1 When the Departmental Representative considers that the deficiencies and defects have been corrected and that the contractual requirements are fully met, submit a request for final payment.
 - .2 If the work is deemed incomplete by the Departmental Representative, complete the items that have not been completed and submit a new request for inspection.
- .8 Payment of the holdback: After the issuance of the certificate of substantial completion of the work, submit a request for payment of the deduction in accordance with the provisions of the contractual agreement.

1.5 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools, and equipment.
- .2 Waste Management: Separate waste materials for recycling reuse in accordance with Section 01 74 19 - Waste Management and Disposal.

Part 2 Products

2.1 NOT APPLICABLE

- .1 Not applicable.

Part 3 Execution

3.1 NOT APPLICABLE

- .1 Not applicable.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of this specification.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Selective demolition of structures is not specifically measured. It must be included in the items on the slip requesting demolition activities. Refer to the submission form.

1.3 REFERENCE STANDARDS

- .1 Health Canada - Workplace Hazardous Materials Information System (WHMIS):
 - .1 safety data sheets (SDS)

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Have the Departmental Representative approve, prior to the start of the work, the demolition method that the Contractor wishes to use. The method must describe the planing plan and the means recommended to limit the circulation on the existing foundation and particularly where the foundation consists of materials stabilized with emulsion. It must also include the weather protection means of exposed granular and stabilized surfaces.
- .3 Shop Drawings
 - .1 Submitted shop drawings must bear the seal and signature of a qualified engineer qualified or licensed to practice in Canada, in the province of Quebec.
 - .2 If required by competent authorities, submit for approval drawings, diagrams or details showing order of demolition, shoring and rework work and items used. to do this.
- .4 Hazardous materials
 - .1 Provide a description of hazardous materials and provide advice to the appropriate authorities prior to commencing work.
- .5 Certificates
 - .1 Provide, when requested by the Professional, certified receipts from authorized landfills and reuse and recycling centers, for all materials removed from the site.

1.5 QUALITY ASSURANCE

- .1 Regulators' requirements: ensure that all work is carried out in accordance with all relevant provincial regulations.

1.6 TRANSPORT, STORAGE AND HANDLING

- .1 Store and manage hazardous materials in accordance with current standards.

- .2 Transportation of demolition materials
 - .1 The transportation of demolition materials in the airport area must be done with trucks covered so that no material can escape.
 - .2 Provincial restrictions and regulations on trucking also apply within the airport limits.
- .3 Storage and protection
 - .1 Protect existing structures that must remain in place as well as those that must be recovered. If they suffer damage, replace or repair them immediately, to the satisfaction of the Departmental Representative, at no additional cost.
 - .2 Remove and store, without damaging them, materials to be recovered.
 - .3 Store and protect materials to ensure maximum preservation.
 - .4 Handle the recovered materials as new.

1.7 CONDITIONS OF IMPLEMENTATION

- .1 Environmental Requirements
 - .1 Ensure that selective demolition work has no adverse effect on adjacent watercourses, groundwater and wildlife and does not generate excessive levels of air pollution or pollution. by the noise.
 - .2 Do not discharge volatile waste materials such as mineral spirits, oils, petroleum-based lubricants or toxic cleaning solutions into waterways, storm or sanitary sewers.
 - .1 Enforce appropriate disposal methods for this type of waste throughout the duration of the work.
 - .3 Do not discharge water containing suspended solids into waterways, storm sewers, sanitary sewers or adjacent lands, by pumping or otherwise.
 - .4 Ensure the disposal of stormwater containing suspended solids or other harmful substances in accordance with the instructions of the Professional.
 - .5 Protect vegetation (trees, plants, shrubs, foliage) in the field and adjacent properties as indicated.

Part 2 Products

2.1 EQUIPMENT

- .1 Use equipment with adequate characteristics and specifications to carry out the work efficiently while achieving the desired level of precision.
- .2 Machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 EXAMINATION

- .1 With the Departmental Representative, inspect the site and verify the location and extent of works that must be removed, disposed of, recovered, recycled, recovered, and those that must remain in place.

- .2 Identify and protect utility lines. Protect existing service lines that pass through the site to keep them in good working order.
- .3 Before commencing demolition work, notify and obtain approval of utility companies.

3.2 REMOVAL AND DEMOLITION OPERATIONS

- .1 Remove items as indicated.
- .2 Disruption of items designated to remain in place is not permitted. The Contractor shall use a demolition and removal technique accordingly. This technique will have to be submitted for approval by the Departmental Representative.
- .3 Removal and planing of pavements
 - .1 Delineate the surfaces that must remain in place by a saw line or by any other method approved by the Departmental Representative. The demarcated surfaces must be vertical, without breakage and without crumbling.
 - .2 The demolition method used must not damage granular materials under the removed coatings or structures when they are to be preserved. Avoid running heavy machinery and trucks loaded on the foundations above which the coatings have been removed.
 - .3 Protect the support of coatings that must remain in place from erosion. In case of excavation, limit the intervention to 600 mm of the existing coatings.
- .4 Salvage:
 - .1 Dismantle items containing materials for salvage and stockpile salvaged materials at locations as indicated.
- .5 Disposal of Material:
 - .1 Dispose of materials not designated for salvage or reuse on site as instructed by Departmental Representative.
 - .2 If the demolitions are eliminated on the construction site itself, rehabilitate the areas used for this purpose, to the satisfaction of the Departmental Representative.

3.3 STOCKPILING

- .1 No depositing is allowed in the work area. The demolition and excavation materials must be disposed of off site as and when required by the Departmental Representative.

3.4 REMOVAL FROM SITE

- .1 Any materials not recovered or not reused by others at the site and other materials identified by the Departmental Representative are considered as scrap. The Contractor must remove, transport and dispose of them off site in locations that meet environmental requirements.
- .2 Ordinary excavation will be removed, transported and disposed off site in accordance with environmental regulations and requirements.
- .3 Demolished asphalt and concrete pavements must be transported offsite unless otherwise specified by the Departmental Representative.

3.5 REPAIR

- .1 Return surfaces and structures outside demolition areas as they were before work commenced.
- .2 Use only soil treatment methods and products that are not harmful to health or harmful to vegetation, and do not endanger wildlife, adjacent watercourses and the underground water table.

3.6 CLEANING

- .1 Cleaning During Work: Perform cleaning according to Section 01 74 00 - Cleaning.
 - .1 Leave the premises clean at the end of each working day.
 - .2 Upon completion, remove debris, sweep surfaces and leave site clean.
 - .3 Surfaces and structures outside the demolition areas must be returned to the condition they were in before the start of the work.
- .2 Use cleaning solutions and methods that are neither harmful to health nor harmful to vegetation, and do not endanger wildlife, adjacent watercourses and groundwater.
- .3 Final cleaning: remove surplus materials/materials, waste, tools and equipment from the site in accordance with section 01 74 00 - Cleaning.
- .4 Waste management: sort waste for reuse/re-use and recycling, in accordance with 01 74 19 - Waste management and disposal.
 - .1 Remove recycling bins and dumpsters from the job site and dispose of materials at the appropriate facilities.

3.7 PROTECTION

- .1 Repair damage to adjacent materials, equipment or property by selective demolition of site development.

END OF SECTION

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Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of the technical specifications.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 The sawing and cleaning of the reservoir shall be measured by the linear meter really carried out in accordance with the specifications of the "Crack opening" section and shall include removal and disposal of all residues associated with the sawing. Refer to the item "Sawing and cleaning of a 38x38mm reservoir for more than 25mm crack repair" of the submission form.
- .2 Surface cleaning and application of a pavement repair mastic is measured at the KG of product applied in accordance with the specifications of the "Crack Preparation" and "Crack Sealing" sections. Refer to the item "Surface cleaning and application of a hot pavement repair mastic for more than 25mm crack repair" of the submission form.
- .3 The supply of the sealing product is measured in KG of product delivered. The price must include preparation, transport, unloading on the airport site, at the place specified by the Departmental Representative. Refer to the item "Supply of crack sealant" of the submission form.

1.3 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM D36/D36M-14(2020), Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
 - .2 ASTM C131/C131M-20, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
 - .3 ASTM D3111-19, Standard Practice for Flexibility Determination of Hot-Melt Adhesives by Mandrel Bend Test
 - .4 ASTM D5329-20, Standard Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphalt Pavements and Portland Cement Concrete Pavements
 - .5 ASTM D6690-21, Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
 - .6 ASTM D8260-20, Standard Specification for Hot-Applied Asphalt Aggregate-Filled Mastic

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit the required documents and samples in accordance with section 01 33 00 – Documents / Samples to be submitted.
- .2 Data sheets and working methods
 - .1 At least four (4) weeks before the start of the work, submit the technical data sheets of the products and equipment used as well as the applicable working methods.

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- .3 Samples
- .1 At least four (4) weeks before the start of the work, submit a 4-litre sample of the proposed pavement repair mastic product for the work.

Part 2 Product

2.1 MATERIALS

- .1 Pavement repair mastic that complies with ASTM D8260 Type I and the following requirements:

Test	Requirements
Polymer modified bitumen	
Cone penetration, at 25°C (ASTM D5329)	Max. 60
Cone penetration, at 50°C (ASTM D5329)	Max. 120
Softening Point (ASTM D36)	≥ 93°C
Flow, 25.4 mm, 180°, 10 sec (ASTM D3111 mode.)	Success at 0°C
Aggregates	
Abrasion Resistance (ASTM C131)	Max. 35%
Mixed product	
Flow, at 0°C (ASTM D5329)	Success
Adhesion, at 25°C (ASTM D5329)	172 KPa
Density	1.7 – 2.0
Application temperature	Min. 190°C –max. 204°C

- .2 Crack sealant that complies with ASTM D6690 Type III and the following requirements:

Test	Requirements
Cone penetration, at 25°C (ASTM D5329)	100-150
Cone penetration, at -18°C (ASTM D5329 mod.)	25 min.
Creep, at 60°C, 5h (ASTM D5329)	10 mm max.
Resilience (ASTM D5329)	30-60%
Adhesion, -29°C, 200% ext. (12.7mm thick) (ASTM D5329)	Success at 3 cycles
Bitumen Compatibility (ASTM D5329)	Success

2.2 HARDWARE

- .1 The Contractor must provide the Departmental Representative one week in advance with a complete list accompanied by technical data sheets with the specified characteristics of all the materials and equipment required for the execution of the work. All equipment presented must be designed for the type of product applied.

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- .2 Boiler
 - .1 The boiler must be double walled. The heat transfer liquid must meet the requirements of the boiler manufacturer. The temperature of the heat transfer liquid must be controlled automatically and within the limits specified by the manufacturer of the boiler and sealing material.
 - .2 Thermometers graduated in degrees Celsius should indicate the temperature of the sealing material and the heat transfer liquid. When thermometers are graduated in Degree Fahrenheit, the Contractor shall provide the Departmental Representative with a table of equivalencies in degree Celsius.
 - .3 The boiler must be equipped with a mixer that is always operational to ensure a homogeneous temperature for the sealing material. For loaded sealing materials (containing aggregates), the mixer must be designed in such a way as to maintain homogeneity.
- .3 Spreader
 - .1 The device used for the installation of the pavement repair mastic must be able to control the width, thickness, and profile during its application.
 - .2 The spreader must be fitted with a straight steel squeegee to smooth flat surfaces and remove any excess sealant on the horizontal surface.
 - .3 The temperature of the product at application must be always maintained, within the limits prescribed by the manufacturer, by recirculating the product in the boiler.
 - .4 Any device that does not allow the product to be placed within the prescribed temperatures is not acceptable.
- .4 Equipment for crack opening
 - .1 The equipment proposed by the contractor must be specially designed to follow irregular cracks without tearing, grinding, or crumbling the edges, and capable of producing clear and vertical side walls. It is forbidden to practice open grooves in "V".
 - .2 Spinning tops or milling machines must be changed at least every 2,000 meters in order to obtain clear grooves and vertical walls.
- .5 Heated compressed air
 - .1 The compressed air to clean the cracks must be heated and the flow sufficient to clean and blacken in a single operation.
 - .2 The Contractor must use equipment that is manufactured and has the specified characteristics. The technical leaflet of the device indicating its characteristics must be given to the Departmental Representative at the first site meeting.
 - .3 The Contractor must use equipment that is manufactured and has the following characteristics:
 - .1 Pressure: 690 kPa (100 psi)
 - .2 Flow Rate: 4.2 m³/min (150 cu. ft./min)
 - .3 Temperature: 1,370°C (2,500°F)
 - .4 Speed: 610 m/s (2,000 ft/s)
 - .4 The air compressor must be equipped with a filter to capture oil and moisture. The thermopneumatic lance system must be internal combustion and not of the external flamethrower type to avoid burning the asphalt.

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- .5 If the compressed air does not sufficiently remove all debris or dust coatings, additional cleaning procedures such as sweeping with a hard or metal bristle broom, sandblasting or milling are recommended.
- .6 Homemade equipment will be refused.

Part 3 Execution

3.1 CRACK OPENING

- .1 The Departmental Representative will designate the cracks that need to be hollowed out, cleaned, and sealed.
- .2 Hollow out cracks to a width of 38 mm or more using equipment approved by the Departmental Representative. The walls of the groove should be well vertical.
- .3 Hollow out cracks to a depth of 38 mm.
- .4 The center of the recessed slot shall not deviate more than 8 mm from the center of the crack. If, because of deficient or incorrect milling or spinning techniques, cracks or other superficial damage such as crumbling and breakage occur, stop the work until the situation is corrected.

3.2 CRACK PREPARATION

- .1 Clean all open and unopened cracks.
- .2 Remove the premises from the materials removed from the cracks, as directed by the Departmental Representative.
- .3 Clean and dry hollowed out cracks with a jet of hot compressed air, heated as specified. This work must be done within two minutes before the installation of sealing materials to remove any particles stuck in the cracks and to warm the crack walls. The operator must ensure that the bituminous mixture is not oxidized by maintaining an adequate and constant rate of operation.
- .4 The Contractor must carry out the final cleaning of the cracks from the center of the pavement and proceed to the side of the pavement by holding the thermopneumatic lance at 50 mm of the opening.

3.3 CRACK SEALING

- .1 Immediately before sealing the cracks, make sure they are clean and dry.
- .2 Slowly heat the pavement repair mastic to the temperature recommended by the manufacturer.
- .3 Fill the cracks with the pavement repair mastic immediately after cleaning and heating them. No more than two minutes should elapse between the application of the hot compressed air jet and the filling of the crack.
- .4 Seal cracks when the surface temperature is not below 4°C and rain is not expected.
- .5 Use squeegees of adequate width after sealing to remove any excess product from the surface.
- .6 Any pavement repair mastic heated to a temperature exceeding the upper limit determined by the manufacturer shall be rejected and removed.

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- .7 Prohibit all traffic on the repaired roadway for at least one hour, to allow the pavement repair mastic to cool.

3.4 ENFORCEMENT CONTROL

- .1 Full-time supervision of the work will be carried out by a representative of the Departmental Representative.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 All sections of this specification.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 The tack coat is not measured specifically. It is included in the "Milling and paving crack repair" item of the submission form.

1.3 REFERENCE STANDARDS

Latest edition of the following documents:

- .1 ASTM International
 - .1 ASTM-D140/D140M-16, Standard Practice for Sampling Asphalt Materials
- .2 Ministère des Transports du Québec (MTQ)
 - .1 Norme 4105 – Émulsions de bitume, tome VII – Matériaux
- .3 International Organization for Standardization (ISO)
 - .1 ISO 9001 :2015 « Système de management de la qualité ».

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Data Sheets
 - .1 At least four (4) weeks prior to start of work, submit manufacturer's material data sheets for proposed materials and instructions and documentation for application method of tack coat. The data sheets must indicate the characteristics of the materials, the performance criteria and the limits.
 - .2 The method of application must indicate the equipment used, include certificates of maintenance and calibration of equipment, the plan of application on surfaces (dimensions and limits), the means to control the rate of application, the means for ensuring the tack coat maturing and the means of protection of the sectors where the tack coat has been applied until the laying of the asphalt layer.
 - .3 Provide certificates of compliance for each batch of tack coat prior to shipment to the work site. Each certificate must contain all the information specified in standard 4105 of Volume VII, Materials of the MTQ.
 - .4 Provide proof that the proposed tack coat is compatible with the aggregates used prior to the start of the work, and this, each year of work.
 - .5 Provide proof that the manufacturer of the tack coat holds a registration certificate attesting that the quality system meets the requirements of ISO 9001 "Quality Management System". The certification must be valid for the period of the work.

1.5 QUALITY ASSURANCE

- .1 At the request of the Departmental Representative, submit the results of the tests and the certificate issued by the manufacturer to ensure that the tack coat meets the requirements of this section in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The tack coat must be produced by a manufacturer whose plant holds a registration certificate attesting that the quality system meets the requirements of ISO 9001 "Quality Management Systems".
- .3 For each delivery of bitumen emulsion, the Contractor must provide the supervisor with a certificate of compliance, as specified in MTQ Materials Standard 4105, Volume VII.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Transport, store and handle materials in accordance with ASTM D140 and in accordance with manufacturer's written instructions.

Part 2 Products

2.1 MATERIAL

- .1 Cationic bitumen emulsion of CRS type respecting the following performances:
 - .1 Compatible with aggregates used in the manufacture of HMA.
 - .2 Not adherent to vehicle tires or to the tracks of pavers used for the installation of asphalt.
 - .3 Allow installation in spring and fall periods.
 - .4 Comply with the requirements of standard 4105 of Volume VII Materials of the MTQ.

2.2 EQUIPMENT

- .1 The equipment required for the work covered by this section must be in good working order and maintained throughout the duration of the work.
- .2 Pressure spreading equipment
 - .1 Designed, equipped, maintained and operated so that the bituminous material can meet the following conditions:
 - .1 Be maintained at a constant temperature;
 - .2 Be applied uniformly on surfaces of variable width equal to or less than 5 m;
 - .3 Be applied under uniform pressure;
 - .4 Be spread in a uniform spray, without spraying, and at the required temperature.
 - .2 Equipped with a meter used to record the number of meters traveled per minute, said meter to be placed in plain view of the driver in order to allow the latter to maintain the constant speed required to apply the bituminous material at the prescribed rate.
 - .3 Equipped with a pump whose flow meter placed in view of the driver is sufficiently graduated to allow control of the application rate with precision. The pump must be actuated by an autonomous motor group, independent of that of the truck.

- .4 Equipped with a precise, easy-to-read measuring device used to record the temperature of the emulsion contained in the tank.
 - .1 Measure temperature to the nearest whole number.
- .5 Equipped with an accurate volumetric counter.
- .6 Equipped with a pressure distribution manifold with sprinklers of the same brand and dimensions, adjustable according to the desired width and orientation. All the sprinklers must operate and the parallelism of the boom with respect to the surface to be covered must be ensured. The height of the nozzles must allow the jets to overlap on the surface so as to obtain a double or triple overlap.
- .7 For vertical surfaces a manual sprayer with sprinklers must be used.
- .8 Cleaned after the use of any material incompatible with the material to be spread.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of conditions: before proceeding with the installation of the impregnation bitumen layer, ensure that the condition of the surfaces / supports previously implemented under other sections or contracts is acceptable and achieves the work in accordance with the written instructions of the manufacturer.
 - .1 Visually inspect surfaces / supports in the presence of the Departmental Representative.
 - .2 Inform the Departmental Representative immediately of any unacceptable conditions found.
 - .3 Drain the liquid accumulate in the boom after long shutdowns without use or in cold weather to avoid contamination of the material inside the spreader tank.
 - .4 Verify the operation of the spreading equipment and adjust the nozzles to obtain the intended application rate.
 - .5 Start tack coat application only after correcting unacceptable conditions and receiving written approval from Departmental Representative.

3.2 APPLICATION

- .1 Have the existing surface accepted by the Departmental Representative before applying the tie coat. On the stabilized base, the tack coat must be applied immediately after leveling and cleaning the surface to be covered.
- .2 Heat the tack coat at the temperatures prescribed by the manufacturer for pumping and spreading.
- .3 Clean the surface using a mechanical broom with rotary movements and supplement if necessary, by manual sweeping. The surface must be free of dust, contaminating elements, free particles, foreign bodies, oil and grease.
- .4 Apply the coat of tack coat only on a clean and dry surface.
- .5 Before the start of each application of the tack coat, notify the Departmental Representative, so that the latter can take the meter reading, as well as at the end of spreading.

- .6 Apply the coat of tack coat uniformly using the pressure distribution manifold previously adjusted and verified in the presence of the Departmental Representative:
 - .1 at a residual rate of at least 0.20 l / m² on a new asphalt;
 - .2 at a residual rate of at least 0.25 l / m² on a used asphalt or smooth concrete surface;
 - .3 at a residual rate of at least 0.30 l / m² on a leveled asphalt or rough concrete surface;
 - .4 before each application, the Contractor must first assess and adjust the residual rate according to site conditions in order to obtain a good bonding of the layers over the entire surface, without excess and without tearing off by vehicle tires or the tracks of the pavers. The tolerance for the application rate is 10%.
- .7 Vertical surfaces in contact with HMA shall also be coated with the tack coat.
- .8 The spreading of the tack coat must be done when the ambient air temperature is higher than the temperature recommended by the manufacturer and rain is not expected within two (2) hours.
- .9 It is prohibited to apply a tack coat during rain, on a wet or frozen surface.
- .10 Do not coat with bonding adhesive adjacent surfaces already covered or which are not to be covered.
- .11 Sweep the surface to uniformly distribute any excess bonding agent deposited on the roadway, according to the Departmental Representative's directives.
- .12 Prohibit all circulation on coated surfaces until curing of the tack coat is complete.
- .13 Touch up surfaces that have been soiled or whose bonding agent has been damaged.
- .14 Wait for the curing of the bonding layer to be completed before proceeding with the implementation of the bituminous coating.
- .15 The Contractor must inspect the applied bonding layer to ensure its uniformity.
 - .1 Spread again, using a spray, the tack coat where the layer is insufficient or not uniform, according to the indications of the Departmental Representative.
 - .2 Ensure that the layer of tack coat applied manually is uniform and sufficient.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 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 All section of the technical specifications.

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Include all costs in this section in the "Milling and paving crack repair" item on the submission form.
- .2 Milling activities are not specifically measured. They must be carried out in accordance with section 02 41 13 of the technical specification.
- .3 The application of the tack coat is not specifically measured. It must be carried out in accordance with section 32 12 13.16 of the technical specification.

1.3 REFERENCE STANDARDS

- .1 American Association of State Highway and Transportation Officials (AASHTO)
 - .1 AASHTO M156 (2013) « Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures »
- .2 Bureau de la normalisation du Québec
 - .1 BNQ 2560-114 (2014), Travaux de génie civil- Granulats.
- .3 Direction du laboratoire des chaussées et normes – Ouvrages routiers, du Ministère des Transports du Québec (MTQ)
 - .1 Tome VII Matériaux – Norme 4101 (2021) : Bitumes.
 - .2 Tome VII Matériaux – Norme 4202 (2021) : Enrobés formulés à chaud selon la méthode de formulation du Laboratoire des chaussées.
- .4 International Organization for Standardization (ISO)
 - .1 ISO 9001 :2015 « Système de management de la qualité ».
- .5 Gouvernement du Québec
 - .1 Loi sur la qualité de l'environnement RLRQ, chapitre Q-2 (2018)

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit required documents and samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Data Sheets and Methods of Work
 - .1 At least two (2) weeks prior to start of work, submit product data sheets, manufacturer's instructions and documentation for asphalt mixes, aggregates, bitumen and sealant. The data sheets must indicate the characteristics of the materials, the performance criteria, the type of materials, the origin and the limits.
- .3 Certificates
 - .1 At least two (2) weeks before the start of the work, provide certificates of compliance with MTQ Standard 4101.

- .2 At least two (2) weeks before the start of the work, provide proof that the bitumen manufacturer holds a registration certificate attesting that the quality system meets the requirements of ISO 9001. The certification must be valid for the period of the work.
- .3 At least two (2) weeks before the start of the work, provide a copy of the ISO record of the asphalt plant as well as the quality plan for the manufacture of bituminous asphalt.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Transport unused tar asphalt to an appropriate site off the Airport grounds.

1.6 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle materials and equipment in accordance with the section to the manufacturer's written instructions.
- .2 Upon receipt of the bituminous binder, submit copies of waybills and waybills to the Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 For 50 mm thick bituminous asphalt layers, the EC-10 type bituminous asphalt specified in the planes may be substituted by ESG-10 asphalt. To do this, the documents to be submitted for approval must have been previously approved. The Departmental Representative must also be informed at least 24 hours in advance of this substitution.
- .2 Asphalt type EC-10 or ESG-10
 - .1 Bitumen: Bituminous binder type PG 58S-28 (or higher grade), compliant with MTQ standard 4101.
 - .2 Aggregates: Complies with MTQ Standard 4202 and the following requirements:
 - .1 Large aggregates of minimum class 3c: compliant with NQ 2560-114.
 - .2 Fine aggregates of minimum class 2: compliant with NQ 2560-114.
 - .3 The use of recovered bituminous aggregates (GBR) is allowed in a maximum proportion of 20%. The use of post-manufacture (GMP) and post-consumer (PCB) asphalt shingles is prohibited.
- .3 Water: to the satisfaction of the Departmental Representative.

2.2 MIX DESIGN

- .1 Asphalt type EC-10 and ESG-10
 - .1 The formula for the determination of the mixture shall be determined using the LC method to meet the requirements and guidelines of Standard 4202.
 - .2 The composition of the mixture must not be changed without the prior approval of the Engineer. If a change in the source of supply of a material is proposed, a new dosing formula for the mixture must be approved by the Departmental Representative.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of conditions: prior to laying asphalt pavement, ensure condition of surfaces / supports previously implemented under other sections or contracts is acceptable and allows work to be performed in accordance with written instructions. from the manufacturer.
 - .1 Visually inspect surfaces / supports in the presence of the Departmental Representative.
 - .2 Inform the Departmental Representative immediately of any unacceptable conditions found.
 - .3 Begin installation work only after correcting unacceptable conditions and receiving written approval from Departmental Representative.

3.2 EQUIPMENT

- .1 Paver: Use a self-propelled shoulder paver that can spread the mixture according to the alignment and existing slope, within the prescribed tolerance limits.
- .2 Compactors: Use enough compactors of the appropriate type and weight to obtain a compacted mixture at the prescribed density. Use a bituminous asphalt vibrating compactor at least 1.5 metric tons and at least 1,000 mm wide. Hybrid rollers are not allowed.
- .3 Trucks: use enough trucks whose dimensions, speed and condition are likely to ensure the continuous and orderly progress of operations, and which have the following characteristics:
 - .1 The skip of trucks used to transport asphalt must be watertight.
 - .2 Before loading the asphalt, the inside of the bucket must be free of dust, screening, petroleum-based hydrocarbons, or any other material that may deteriorate the asphalt.
 - .3 The dumpster must be fitted with a compliant tarpaulin, composed of a waterproof material and of dimensions at least equivalent to those of the dumpster. The tarpaulin must be kept at or lower than the upper level of the bucket walls using a mechanized system or simply by using straps. The tarpaulin must be held in place until the time of unloading.
 - .4 The Departmental Representative may refuse any truck equipped with a tarpaulin that does not conform or whose capacity, dimensions, speed, or condition impede the normal progress of the work.
- .4 Manual tools
 - .1 For spreading and finishing work, use squeegees or smoothers with coated teeth.
 - .2 Use pounding tools with a minimum mass of 12 kg and a maximum contact area of 310 cm² to compact materials along curbs, gutters, and other structures inaccessible to compactors. Instead of steel pounding tools, mechanical compaction equipment may be used when permitted by the Departmental Representative.
 - .3 Rules of 4.5 m in length, provided by the Contractor, to check the level of the finished surface.

3.3 PLANT AND MIXING REQUIREMENTS

- .1 Batch and continuous mixing plants:
 - .1 The mixing plants must comply with the AASHTO M156 standard. Additionally, the Contractor must submit to the Departmental Representative, for the mixing plant, a compilation of the following: at least twenty results for a similar production formula for the current or previous year. The results must demonstrate that the production is within the allowable range.

3.4 TRANSPORTATION OF MIX

- .1 Transport mix to job site in vehicles cleaned of foreign material.
- .2 Unless the Departmental Representative allows artificial lighting for installation at night, schedule delivery so that materials are set up in daylight.
- .3 Deliver loads continuously in covered vehicles and immediately spread and compact.
 - .1 During delivery and installation, the temperature of the mixture must be within the limits specified on the bitumen certificate of conformity, but must never be lower than 135°C.

3.5 PREPARATORY WORK

- .1 When asphalt is to be applied to a surface that is already hard coated, clean the surface.
- .2 Before applying the road surface, place the attachment binder in accordance with the requirements of section 32 12 13.16.
- .3 Before starting to spread work, clean and remove surfaces to be coated with non-adherent or foreign substances.
- .4 When more than one layer of asphalt is required, apply a layer of hooking bitumen between the layers.

3.6 HMA PLACING

- .1 Before the asphalt is installed, have the substrate visually approved by the Departmental Representative.
- .2 After milling, have the profiles approved by the Departmental Representative before the asphalt is installed. All areas that do not respect the projected profiles must be corrected at the contractor's expense.
- .3 Conditions of implementation:
 - .1 Place asphalt only when the ambient air temperature is at least 5 °C and the conditions allow the specified compactness to be obtained. The Contractor shall use additional compaction equipment when the cooling factor is significant.
 - .2 Do not apply a asphalt when it rains, if there are puddles of stagnant water on the surface to be covered, or if the surface is wet.
 - .3 The tack coat must be completely cured before the asphalt is implemented.
- .4 Apply the bituminous asphalt in layers having the thickness indicated in the drawings, after compaction.
 - .1 The verification of the profile must be done regularly by the Contractor by means of a 4.5 m long ruler.

- .2 Correct irregularities in the coated surface immediately after the paver has passed. Remove surplus materials forming bumps with shovels or squeegees. Fill the cavities with hot bituminous mixture and smooth. It is forbidden to spread materials on the fly on the surfaces to be repaired.
- .3 Do not spread surplus materials on surfaces that have just been leveled.

3.7 COMPACTING

- .1 Compact the bituminous coating continuously, according to the compacting method established for the test board, until a density of at least 93 % of the maximum density is obtained, not exceeding 98 %.
- .2 Start the compacting as soon as the mixture put in place can support the weight of the compactors without excessive displacement of materials or cracking of the surface. Ensure that the temperature of the HMA is within the limits specified for compaction on the bitumen certificate.

3.8 FINISH TOLERANCES

- .1 Each coat layer must have a uniform texture, a closed and non-slippery surface, without segregation or bleeding, be regular and conform to the profiles so that no accumulation of water occurs on the surface of the coatings.
- .2 After the final compaction of each layer, the Departmental Representative checks the routes and slopes.
 - .1 Finished asphalt surface not to have irregularities exceeding 5 mm when checked with 4.5 m straight edge placed in any direction.
 - .2 The verification of these irregularities is done using a 4.5-metre rule that the Contractor must have at all times on the site of the work.
- .3 All joints must be closed, without segregation, without elevation and level.

3.9 DEFECTIVE WORK

- .1 The Contractor shall correct the irregularities, described in sections 3.8 "Seals" and 3.10 "Finishing Tolerances" of this section, that occur before the end of compaction, loosening the bituminous mix and adding or removing materials, as required. If irregularities or defects persist even after finishing compaction, remove surface layer promptly, spread new layer of material to obtain a level, level surface and immediately compact to specified density.
- .2 Repair, at the contractor's expense, areas that show signs of segregation, cracking, and ripple according to a method previously approved by the Departmental Representative.

END OF SECTION

Part 1 General**1.1 CONTENTS OF THE SECTION**

- .1 This section defines the requirements for infrared asphalt repair. The work of this section will be carried out under the direct supervision of the Departmental Representative.

1.2 RELATED SECTIONS

- .1 All sections of the technical specifications.

1.3 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Infrared asphalt repairs will be paid on a controlled expense basis at the bid unit rates for the different categories of labor, equipment or material identified in the submission form.
- .2 The rates tendered will include all direct and indirect costs, administrative, profit, mobilization and demobilization costs and other costs incurred in carrying out this work. Paid hours are the hours worked on site.
- .3 Daily, submit to the Departmental Representative for approval a work slip showing the hours worked and equipment affected, and other expenses incurred for the execution of crack repair work. Only expenses that appear on a work slip signed daily by the Departmental Representative will be considered for payment purposes. A summary of the repairs carried out measured in linear meters, located on a reference plan as well as numbered photos of each of the repairs must be attached to the work slip.
- .4 The disposal of mills, asphalt and crack filling material will not be measured. These materials must be disposed of from the airport site and sent to a recycling or disposal center accepting such materials and in accordance with the provisions of section 01 74 21 – Management and disposal of construction/demolition waste. The costs inherent in the disposal of these materials must be included in the section "Site organization".

1.4 REFERENCE STANDARDS

- .1 Bureau de la normalisation du Québec
 - .1 BNQ 2560-114 (2014), Travaux de génie civil- Granulats.
- .2 Direction du laboratoire des chaussées et normes – Travaux routiers, ministère des Transports du Québec (MTQ)
 - .1 Volume VII Materials – Standard 4101: Bitumen.
 - .2 Volume VII Materials – Standard 4202: Hot-formulated asphalt according to the formulation method of the Pavement Laboratory.
- .3 International Organization for Standardization (ISO)
 - .1 ISO 9001 :2015 « Système de management de la qualité ».

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit the required documents and samples in accordance with section 01 33 00 – Documents / Samples to be submitted.
- .2 Equipment:
 - .1 During the tender period, the contractor must submit the infrared heater data sheet for approval. If no device is submitted during the tender period, the Departmental Representative reserves the right to refuse any equipment deemed unsuitable.
 - .2 At least two (2) weeks before the start of the work submit for approval the list of all equipment used.
 - .3 At least two (2) weeks before the start of the work submit the certificates of maintenance and calibration of the equipment.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Transport mills, asphalt and crack filling to an appropriate site off the Airport grounds.

1.7 TRANSPORTATION, STORAGE AND HANDLING

- .1 Transport, store and handle materials and equipment in accordance with the section to the manufacturer's written instructions.

Part 2 Products**2.1 MATERIALS**

- .1 Bituminous asphalt, refer to section 32 12 16.

Part 3 Execution**3.1 MANPOWER**

- .1 Specialized worker: Worker specializing in the installation and repair of asphalt with a minimum of two years of experience. The typical work team will be composed of 4 specialized workers.
- .2 Foreman: A foreman specializing in the installation and repair of asphalt with a minimum of five years of experience. The typical work team will consist of one foreman.

3.2 HARDWARE

- .1 Cold milling machine and operator: Milling machine mounted on wheels and equipped with a milling drum placed at the rear of the machine having the following characteristics:
 - .1 Mass: more than 4,500 kg
 - .2 Milling width: 350 mm

- .2 Infrared heaters: 200,000 BTU heater with a dimension of 2.4m by 0.45m, movable by one or two specialized workers. The device must be commercially manufactured and not a "homemade" assembly. The Contractor must provide 2 devices for the work. The equipment must be transferred to the airport at the end of the project.
- .3 Compactors: Articulated vibrating compactor with bituminous asphalt of at least 1.5 metric tons with a width of at least 9,000 mm. Hybrid rollers are not allowed.
- .4 Heated box:
- .1 Heated box that can hold at least 2 metric tons of HMA and can maintain them at a temperature of 135°C for a period of 12 hours. The dumpster must have the following characteristics:
- .1 Infrared type heating.
- .2 Automated temperature control.
- .3 Internal ventilation.
- .4 Opening of the loading doors allowing refueling at the asphalt plant.
- .5 Side doors for manual unloading.
- .5 Service vehicles and trailers:
- .1 Large format vans capable of towing all the equipment required for the work. Vehicles must be in good working order.
- .2 Open or closed trailer capable of accommodating all equipment.
- .6 Manual tools
- .1 The Contractor must provide the following equipment:
- | Description of tools and equipment | Usage | Suggested quantity |
|--|--|--------------------|
| Ice cream cutter 8.5" ex: Garant LB9 or YFSW9 | Crack seal removal | 2 |
| Digital infrared thermometer | Evaluation of the temperature of the heated asphalt | 1 |
| Propane torch +-450,000 btu | Heating of ice cutters for removal of crack sealant | 1 |
| Square shovels for asphalt | Reshuffling of asphalt | 6 |
| 36" aluminium asphalt rake ex: Garant Grizzly EAAL36 | Reshuffling of asphalt | 2 |
| 40lbs propane cylinder | Infrared power supply to the heater | 2 min. |
| Metal container of 5 gal. With removable cover | Disposal of crack sealing material | 50 |
| 4.5 m long ruler | Measuring the repair profile and delineating repairs | 1 |
- .7 Any loss of time associated with the breakage of equipment provided by the Contractor shall be borne by the Contractor. The worked hours will be recorded jointly with the Departmental Representative at the end of shifts.

3.3 PREPARATION OF SURFACES TO BE REPAIRED

- .1 Delineate the areas to be repaired using a 4.5-metre ruler. Draw a line on each side or the pavement begins to descend.
- .2 Removal of the crack sealant (excess location or as directed by the representative)
 - .1 Remove as much crack sealing material as possible using hot blades before proceeding with the infrared machine and dispose of the removed material in metal containers.
 - .2 Obtain approval from the Departmental Representative for alternative method of removing the crack sealant.
- .3 Milling of the existing asphalt:
 - .1 Mill the existing asphalt in the path of the cold joint over a total width of 300 or 350 mm. The crack must remain as much as possible in the center of the milled width.
 - .2 Remove any remaining milling residues from the flat surface using the mechanical broom sweeper.

3.4 HEATING THE ASPHALT USING THE INFRARED APPARATUS

- .1 Heat the asphalt in the flat area using infrared heaters. Proceed section by section, place the infrared machine to cover as much width as possible on the crack or degraded surface.
- .2 Do not overheat the mixture so as not to oxidize it. If the fire takes under the infrared plate, immediately remove the plate so as not to damage it. Remove any paving that has been oxidized.
- .3 As the heating of the asphalt continues, it will be necessary to move the machine and remove with a shovel the excess crack sealing material that will be in liquid form.
- .4 When the asphalt reaches a temperature of 120°C, rework the bottom of the crack to homogenize the substate and allow the addition of HMA.

3.5 INSTALLATION OF HMA AND COMPACTION

- .1 Place the HMA in the section and feast the surfaces. Leave an excess in height to compensate for crushing due to compaction.
- .2 Compact starting with the sides of the section and then cylindering to densify the current section. Check the level achieved using a ruler of 4.5 meters. If the level of the repair is too high or too low by more than 5mm, loosen again by heating the repair and adjust the level of the material.
- .3 Compact until roller leaves no trace on the repair.

3.6 FINISH TOLERANCES

- .1 The tolerance is 5 mm measured with a ruler of 4.5 meters.

3.7 CLEANING

- .1 Gradually clean the surfaces soiled by the work. Remove all materials stuck to the pavement and sweep surfaces to the satisfaction of the Departmental Representative.

END OF SECTION