Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises aggregate material supply and stockpiling runway and taxiway pavement, line painting and earthworks located at Churchill Airport, Churchill Manitoba.

.2 Work of this Contract shall include:

- .1 Aggregate Materials Supply and Stockpiling for asphalt and gravel base.
- .2 Runway 15-33 and Taxiway A Pavement Rehabilitation- milling, paving, crack repair and line painting.
- .3 Airfield grading and drainage improvements.

.3 The scope of work includes but is not limited to:

- .1 General requirements including documentation to obtain permits and regulatory approvals necessary to perform the Work.
- .2 Location and protection of existing underground utilities.
- .3 Temporary safety and security fences, gates, markers, barricades, and lighting facilities required for airside Work.
- .4 Temporary construction facilities.
- .5 Dust control, road cleaning, airside pavement cleaning and temporary grading.
- .6 Provision of access control guards and radio escort by others.
- .7 Supply and stockpiling of asphalt paving and granular base aggregate materials.
- .8 Quality control material inspection and testing services.
- .9 Milling and paving includes, but is not limited to:
  - .1 Runway 15-33 asphalt milling and resurfacing overlay at the Runway 15 threshold between Station 4+960 and Station 5+190.
  - .2 Taxiway A asphalt milling and resurfacing overlay.
  - .3 Runway 15-33 major crack repairs in localized areas between Station 5+190 and Station 7+804.
  - .4 Coordinate work with airfield edge lighting work by others.
  - .5 Runway 15-33 crack routing and sealing.
- .10 Airfield grading and drainage improvements including:
  - .1 Abandon Taxiway A culvert and fill with non-shrink grout.
  - .2 Runway 15-33 and Taxiway A shoulder re-grading as required for tie-ins to proposed pavement elevations and to maintain uniform surface drainage and grades.
  - .3 Clear shrub vegetation and re-grade drainage ditches in areas as designated in the Drawings.
- .11 Permanent and temporary pavement markings.
- .12 Cleaning and sweeping of all runway and taxiway surfaces prior to re-opening to aircraft traffic.

.13 Installation monitoring borehole covers, base units, foundations and equipment in Runway 15-33 and Taxiway A paved and shoulder areas as required to provide for on-going ground temperature monitoring data collection by Churchill Airport in advance of the next major pavement rehabilitation project.

.14 Time is of the essence to the Contract.

.15 Contractor will be performing Work located inside the Airside Security fence. Contractor shall comply with all security regulations and procedures established by the Airport Authority.

.16 Contractor will be performing Work on Runway 15-33 and Taxiway A during a a scheduled runway closure between July 9 and August 24, 2020 only. Runway 15-33 and Taxiway A will be in closed 24 hours per day, seven days per week. Runway 07-25, Taxiway B and Apron 1 will remain in service for aircraft operations at all times. Refer to Section 01310 – Construction Schedule for further information.

1.2 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

.3 Coordinate work with airfield edge lighting work by others:

.1 Temporary removal of 8 Runway 15 threshold lights and mounting stakes to facilitate milling and paving.

.2 Re-installation of runway threshold fixtures to suit runway surface elevation.

.3 Supply and installation of riser rings in runway threshold pullpits so that the lids match new runway surface elevation.

.4 Re-installation of 24 runway and taxiway edge lights to match new runway elevation.

1.3 WORK SEQUENCE

.1 Required staging:

.1 Refer to Plan of Construction Operations and Drawing C-02 for the staging and coordination requirements for each work area.

.2 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

.1 Runway and taxiway to be undertaken during a planned runway and taxiway closure.

.2 Co-ordinate use of premises under direction of Departmental Representative.

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

.4 Contractor shall limit use of premises for Work, storage and access, to allow:

.1 Occupancy by the Transport Canada Airport Operations and existing facility operators.

.2 Work by Other Contractors.

.3 Public usage of the existing roads.

.5 In areas of the Site where Work by Other Contractors will be undertaken concurrently with Work by Contractor

.1 Control movements of equipment and personnel.

.2 Allow access to or through work areas.

.3 Cooperate with Transport Canada Airport Operations in scheduling operations to minimize conflict.

1.5 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations. Airport facilitates must remain operational at all times, 24 hours per day, 7 days per week, except as directed by Airport Manager.

.2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.6 EXISTING SERVICES

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

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

.3 Provide alternative routes for vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

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

.6 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.

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

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

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

.10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.7 CODES

.1 Perform Work in accordance with all applicable codes of federal, provincial or local application provided that, in any case of conflict or discrepancy, the more stringent requirements shall apply.

.2 Meet or exceed requirements of:

.1 Contract Documents.

.2 Specific standards, codes and referenced documents.

1.8 DOCUMENTS REQUIRED

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

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed Shop Drawings.

.5 List of Outstanding Shop Drawings.

.6 Change Orders.

.7 Other Modifications to Contract.

.8 Field Test Reports.

.9 Copy of Approved Work Schedule.

.10 Health and Safety Plan and Other Safety Related Documents.

.11 Other documents as specified.

1.9 SITE CONDITIONS

.1 Geotechnical Report

.1 A Geotechnical Information Package is available for this Project. Refer to Appendix B. The Contractor shall draw its own conclusions of the conditions most likely to be encountered on the Site and the costs associated with the performance of the Work specified in the Contract Documents.

1.10 AIRPORTS IN USE

.1 Portions of the Work will be conducted airside, necessitating security procedures and supervision. Qualified Permanent Restricted Area Pass Holders issued by Transport Canada Churchill Airport are required for security escort services. The cost of security escort service shall be paid by the Contractor. Contractor shall be responsible for temporary restricted area and related work passes used for Contractor’s work forces and vehicles.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas.

1.2 USE OF SITE AND FACILITIES

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

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

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

1.3 EXISTING SERVICES

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

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

.3 Provide for vehicular traffic.

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

1.4 SPECIAL REQUIREMENTS

.1 Submit schedule prior to commencement of work. Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

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

1.5 SECURITY

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

.2 Security clearances:

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

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

.3 Security escort:

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

.2 Coordinate work and airside security escorts provided by others and in accordance with the Plan of Construction.

1.6 AIRPORT SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking or vaping is not permitted in any airside area.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Particular requirements for Contractor Quality Control inspection and testing to be carried out by independent Quality Control testing laboratory designated by Contractor are specified under various related sections.

.2 Particular requirements for Quality Assurance inspection and testing to be carried out by independent Quality Assurance testing laboratory designated by Departmental Representative are specified under various related sections.

1.2 APPOINTMENT AND PAYMENT

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

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Mill tests and certificates of compliance.

.4 Tests specified to be carried out by Contractor under supervision of Departmental Representative.

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

1.3 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

.1 Provide access to Work for inspection and testing.

.2 Conduct Quality Control inspections and tests.

.3 Make good Work disturbed by inspection and test.

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

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

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

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

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

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

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

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

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

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

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

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

1.2 REQUIREMENTS

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

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

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

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

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

1.4 PROJECT MILESTONES

.1 Schedule the Work in accordance with the following project milestone dates:

.1	Contract Award:	TBD
.2	Start Contractor Mobilization:	TBD
.3	Complete Contractor Mobilization:	June 30, 2020
.4	Start Runway 15-33 and Taxiway A Milling and Paving:	July 9, 2020
.5	Substantial Completion Runway and Taxiway Rehabilitation:	Aug 20, 2020
.6	Final Completion:	Aug 31, 2020

1.5 MASTER PLAN

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

.2 Departmental Representative will review schedules within 5 working days.

.3 Revise schedule and resubmit within 5 working days.

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

1.6 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

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

.1 Award
.2 Shop Drawings, Samples
.3 Permits
.4 Mobilization
.5 Removals
.6 Runway 15-33 Milling and Paving
.7 Taxiway A Milling and Paving
.8 Runway 15-33 and Taxiway A Shoulder Grading
.9 Pavement Crack Routing and Sealing
.10 Pavement Markings
.11 Airfield Drainage and Grading Modifications
.12 Ground Temperature Monitoring Equipment Installation

1.7 PROJECT SCHEDULE REPORTING

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

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

1.8 PROJECT MEETINGS

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Province of Manitoba

.1 The Workers Compensation Act RSM 1987 - Updated 2013.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan: Prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit electronic copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS MSDS - Material Safety Data Sheets.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor. Revise plan as appropriate and resubmit plan to Departmental Representative after receipt of comments from Departmental Representative.

.8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

.1 Refer to Plan of Construction Operations in Appendix A.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

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

1.4 SAFETY ASSESSMENT

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

1.5 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

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

1.7 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

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

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 COMPLIANCE REQUIREMENTS

.1 Comply with The Workers Compensation Act, Workplace Safety Regulation, Manitoba Reg. 2016.

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 UNFORSEEN HAZARDS

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

1.11 POSTING OF DOCUMENTS

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

1.12 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

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

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

1.13 BLASTING

.1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.

1.14 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Do not proceed with Work affected by submittal until review is complete.

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

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

.4 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.

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

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

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

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

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

1.2 SHOP DRAWINGS AND PRODUCT DATA

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

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

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

.4 Allow 10 working days for Departmental Representative's review of each submission.

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

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

.7 Accompany submissions with transmittal letter containing:

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

.8 Submissions include:

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

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

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

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

.12 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been within 6 months of date of contract award for project.

.13 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

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

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

.14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.

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

.15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

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

.17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.18 Delete information not applicable to project.

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

.20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, 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.

1.3 SAMPLES

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

.2 Deliver samples prepaid to Departmental Representative's business address.

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

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

.5 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.

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

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

1.4 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copies of colour digital photography in jpg format, standard resolution monthly with progress statement.

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

.3 Frequency of photographic documentation: weekly and upon completion of Work.

1.5 CERTIFICATES AND TRANSCRIPTS

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 GENERAL PROTECTION

.1 Refer to the requirements for coordinating airside construction operations outlined in the Plan of Construction Operations attached in Appendix A.

.2 Do not disrupt airport business except as permitted by Departmental Representative. Provide Departmental Representative with 96 hours' notice of any requirement to disrupt normal airport operations.

.3 Provide temporary protection for safe handling of public, personnel, pedestrians and vehicular traffic.

.4 Provide and maintain construction barricades and lights at locations indicated on the drawings and as indicated by Departmental Representative to isolate the work areas from the non-work areas of the airport.

.5 Contractor will provide barricades and lights as required and as indicated by Departmental Representative and Airport Operations and Security. When required, provide and maintain battery operated red obstruction lights at 6 m spacing.

.6 Airport operations take priority at all times over the Contractor's operations and the Work.

.7 Immediately halt operations if instructed to do so by Airport Authority or escort to permit airport operations to continue. Contact Airport Authority Project Manager and Consultant to obtain further instructions.

.8 Instructions and directions from Airport Authority to be obeyed instantly.

.9 Include costs for possible delay, inconvenience and coordination in payment for Work described in other Sections.

1.2 AIRCRAFT OPERATIONS

.1 During the pavement rehabilitation work, Runway 15-33 and Taxiway A will remain closed throughout the pavement rehabilitation construction 24 hours per day, seven days per week.

.2 During the pavement rehabilitation work, Runway 07-25, Taxiway B and Apron 1 will remain fully operational throughout the pavement rehabilitation construction 24 hours per day, seven days per week.

.3 Prior to the pavement rehabilitation work, all runways, taxiways, aprons will remain fully operational 24 hours per day, seven days per week.

1.3 MOVEMENT OF EQUIPMENT AND PERSONNEL

.1 In areas of airport not closed to aircraft traffic:

.1 Review with Departmental Representative's should it be necessary to proceed outside of the barricaded work area.

.2 Control movements of equipment and personnel as directed by Airside security escorts. Direction from Airside security escort to be obeyed instantly.

1.4 INTERFERENCE WITH AIRCRAFT

.1 Take precautions to avoid interference with aircraft operations when necessary to move equipment on any aircraft operating surface. Contractor to yield to aircraft at all times.

.2 The Contractor is prohibited from airside vehicle movements in any area which is not closed to aircraft traffic unless specifically authorized by the Departmental Representative and Airport Operations and Security.

.3 Failure to comply with site regulations for airside vehicle movements or security requirements shall result in suspension of Contractor's airside access until control is reinstated to the satisfaction of the Airport Manager. Such violations may also result in prosecutions for offenses under the Aeronautics Act.

.4 Construction may be temporarily halted as directed by the Departmental Representative and Airport Operations and Security during emergencies to allow taking off or landing of aircraft or during increased security alert levels.

1.5 OPERATIONAL REQUIREMENTS

.1 During the pavement rehabilitation work, Runway 07-25 and Taxiway B must remain operational at all times.

.2 To return airside areas to operational condition perform the work necessary to ensure that the surface is free of debris and has been power broomed after being used by Contractor’s staff and equipment.

.1 Sweep and clean all construction areas and haul routes to ensure removal of all loose materials on runway, taxiway, apron, or adjacent shoulder or grassed areas.

.2 Milled or pavement repair sections are repaved so that there are no depressions in the pavement surface, except as noted and/or as inspected by Departmental Representative.

.3 Surface is free of slippery or tacky areas.

.4 Surface is stable and has attained the designed strengths.

.5 Components and layers of pavement are bonded sufficiently to prevent displacement by thrust or jet blast.

1.6 MONITORING OF WEATHER

.1 There may be occasions when, because of rain, heavy wind, or the threat of rain, it will be necessary to cancel or halt pavement milling or pavement rehabilitation work. Prior to the commencement of each shift, consult the local Weather Service. Should there be a significant chance of rain during the approaching shift, inform Departmental Representative of cancellation of pavement rehabilitation for that night. Contractor will not be compensated for cancellation of work due to weather.

1.7 UNSERVICEABLE AREAS

.1 Mark off areas made unserviceable for aircraft by work of this Contract by providing plainly visible danger markings by day and red lights by night. Open flames and inflammable fuels not permitted.

.2 Park equipment not in use and stockpile materials in Contractor’s designated area.

1.8 AIRPORT FACILITIES

.1 Verify location of underground facilities such as cables, pipes and ducts in advance of excavation operations by hand excavation, careful equipment excavation, and/or hydrovac investigation.

1.9 UNSERVICEABLE AREAS

.1 Park equipment in designated areas shown on Drawings when not in use.

.2 Park equipment and stockpile Materials so that their tops are below most Restrictive Zoning Surface, refer to Drawing No. C-02, Construction Staging Plan. Where directed, mark tops with red lights.

1.10 SECURITY

.1 For the Runway 15-33 pavement rehabilitation work, access to the Site will be via the abandoned Taxiway C. Airside Access will be controlled by an Airside security escort authorized by the Transport Canada Churchill Airport.

.2 For the Runway 07-25 aggregate stockpiling work, access to the Site will be via groundside service roads as indicated on Drawing No. C-02, Construction Staging Plan.

.3 Ensure private vehicles are parked in the Contractor's designated parking areas only. No private vehicles are permitted on the runway, taxiways or airside access roads unless authorized by Transport Canada Churchill Airport.

1.11 OPERATIONAL REQUIREMENTS FOR DESIGNATED WORK AREAS

.1 Runway 15-33 and Taxiway A Work Areas:

.1 Access Work Area via abandoned Taxiway C.

.2 Provide safety markers along haul route, across taxiways, and around perimeter of work area as indicated by Departmental Representative to minimize cleanup work required on aircraft surfaces. Remove safety markers at end of construction.

.3 Ensure runway surface is cleaned and stable at end of construction. Collect debris and dispose off-site. Remove loose materials prior to end of construction.

.4 Park equipment within designated area at end of daily work shift.

1.12 TEMPORARY MARKERS AND LIGHTING

.1 Install and remove runway closed markers supplied by Transport Canada Churchill Airport.as required for temporary use on Runway 15-33.

.2 Supply, install and remove 0.5 m high barrel type channelizer traffic markers in airside areas required to identify closed taxiways as required and as indicated by Departmental Representative and Airport Operations and Security.

.3 Supply, install, and remove 0.5 m high barrel type channelized traffic markers, in airside areas required to identify work areas and access routes. When required, provide and maintain battery-operated red obstruction lights at 6 m spacing adjacent to aircraft operational areas. Marker spacing not to exceed 20 m.

1.13 RETURNING AIRSIDE SURFACES TO SERVICE

.1 To return airside areas to operational condition, perform the work necessary to ensure that:

.1 Surface is free of debris and has been power broomed after being used by Contractor's staff and equipment. Sweep and clean all construction areas and haul routes to ensure removal of all loose materials on runway, taxiway, apron, or adjacent shoulder or grassed areas.

.2 The new asphalt pavement is free of any ridges or depressions exceeding 25 mm in height/depth.

.3 Surface is free of slippery or tacky areas.

.4 Elevation of ground adjacent to pavement is within 25 mm of the elevation of the adjacent pavement.

.5 Material adjacent to pavement is well compacted and stable. Granular materials adjacent to edge of Runway 15-33 and Taxiway A shall be paved or covered with asphalt prime coat to prevent displacement by jet blast or thrust.

Part 2 Products

2.1 NOT USED

.1 Not Used

Part 3 Execution

3.1 NOT USED

.1 Not Used

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Canada Green Building Council (CaGBC)

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

.1 EPA 832/R-92-005, Storm Water Management for Construction Activities, Chapter 3

.2 EPA General Construction Permit (GCP)

1.2 DEFINITIONS

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

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit 2 copies of WHMIS MSDS 01 35 43 - Environmental Procedures.

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

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

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

.6 Include in Environmental Protection Plan:

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

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

.3 Names and qualifications of person’s responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting

requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

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

.7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.

.1 Plans to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.

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

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

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

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

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

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

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

.14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

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

1.4 FIRES

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

.2 Provide supervision, attendance and fire protection measures as required.

1.5 DRAINAGE

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

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

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

1.6 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties as indicated.

.2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.

.1 Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Restrict vegetation removal from areas designated in Drawings.

1.7 WORK ADJACENT TO WATERWAYS

.1 Construction equipment to be operated on land only.

.2 Use waterway beds for borrow material only after written receipt of approval. Waterways to be kept free of excavated fill, waste material and debris.

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

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

.5 Avoid indicated spawning beds when constructing temporary crossings of waterways.

1.8 POLLUTION CONTROL

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

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

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

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

1.9 NOTIFICATION

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

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

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

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used

Part 3 Execution

3.1 CLEANING

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

.2 Do not bury rubbish and waste materials on site.

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

.4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment. Waste Management: separate waste materials for recycling and/or re-use.

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

END OF SECTION

Part 1 General

1.1 SUMMARY

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

1.2 REFERENCES TO REGULATORY REQUIREMENTS

.1 Perform Work in accordance with applicable provincial and national code requirements including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

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

.1 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.3 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative. PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.

.2 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.4 BUILDING SMOKING ENVIRONMENT

.1 No smoking or vaping is permitting airside.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: Except as otherwise specified, Contractor will apply for, obtain, and pay fees associated with, permits, licenses, certificates, and approvals required by regulatory requirements and Contract Documents, based on General Conditions of Contract.

Part 2 Products

2.1 EASEMENTS AND NOTICES

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

.2 Contractor will give notices required by regulatory requirements.

2.2 PERMITS

.1 Provincial and Municipal Permits:

.1 Contractor will apply for, obtain and pay for any required permits on behalf of Owner, and other permits required for Work and its various parts.

.2 Contractor will require that Subcontractor's obtain and pay for permits required by authorities having jurisdiction, where their Work is affected by Work requiring permits.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 014501 – Quality Control Appendix I Schedule of Materials Sampling and Testing.

.1 This schedule specifies the type of test for each type of construction and Material with frequency and Standard. As a minimum, perform all tests listed. The Contractor may choose to do additional testing to guide production. Test results are to be provided to the Departmental Representative within 24 hours of completion of tests. The most demanding testing frequency will govern.

1.2 GENERAL REQUIREMENTS

.1 Contractor shall be responsible for the quality of the Work during all phases of the Project and shall demonstrate compliance to the quality requirements of this Contract by implementation of a Quality Control Plan (QCP) as outlined in these Specifications. The cost of the QCP, including inspection and testing provided by the Contractor, shall be included in the Contract Price. Detailed testing and inspection requirements are shown in Appendix 1 of this Specification Section and in individual Specification Sections where appropriate.

.2 Quality control testing, inspection and reporting services shall be provided by a third party, independent, CSA and CCIL (Type A) certified materials testing laboratory supervised by a Manitoba Registered Professional Engineer.

.3 Additional Quality Assurance testing and inspection undertaken by the Departmental Representative is intended to provide assurance that Work is in accordance with the Contract Documents. If defective Work is found, the Contractor shall bear the costs of any repair or replacement costs and additional inspection costs including that of the independent testing agency, the Engineer and/or the Departmental Representative.

.4 Testing and inspection by the Departmental Representative and reviews by the Departmental Representative will not relieve the Contractor of its responsibility to perform quality control testing and inspection.

1.3 SUBMITTALS

.1 Submit one (1) hard copy and one (1) electronic copy of the QCP for review. After receiving comments on the QCP, revise as required. Resubmit one (1) hard copy and one (1) electronic copy.

.2 Submit one (1) hard copy and one (1) electronic copy of the QC test reports, QC test report summaries and test certification to Departmental Representative for review.

1.4 QUALITY CONTROL PLAN (QCP)

.1 The Contractor shall prepare and implement to the satisfaction of the Departmental Representative, a Quality Control Plan (QCP) which contains as a minimum the following elements:

.1 Identification of the Contractor's Quality Control Manager who will have overall responsibility for coordinating the quality control activities and implementing the QCP.

.2 Identification of the Contractor's independent testing agency who will be responsible for materials sampling and testing as outlined in the QCP.

.3 Detailed work plan and procedures for each element of the Work incorporating proposed inspection activities, materials sampling and testing activities and procedural requirements to achieve completion of the Work within the tolerances specified.

.4 Organizational structure for QCP personnel indicating reporting and line authority relationship to QCM, Contractor, materials sampling and testing agencies, quality assurance inspection and testing agencies and Departmental Representative.

.5 A description of the quality control document control system for inspection, testing, pre-activity approval.

.6 Create and follow a plan for sampling and testing procedures. Plan for how onsite testing locations will be tracked and reported during construction including but not limited to a grid map system. Procedures shall be in accordance with all relevant codes, laws, ordinances, Specifications and referenced standards. Procedures shall detail where and how various material samples will be taken such that they will be representative of the materials actually used in the Work.

.7 Procedures to show how submittals from Suppliers, Subcontractors, and other parties will be reviewed for compliance with the Contract Documents prior to submittal to the Departmental Representative.

.8 Procedures documenting how installed Materials will be inspected to assure continuous conformance to the reviewed submittals. Included here will be copies of inspection checklists proposed for each element of the Work as stated in the contract.

.9 Procedures to show how Materials will be received and tested for compliance with the Contract Documents and how such materials will be stored and tested on an on-going basis to assure compliance with the Contract Documents throughout construction.

.10 List of all tests and inspections as defined by from the MSTS the Contractor will perform and the frequency at which they will be performed.

.11 Procedures to show how inspection and test reports will be distributed to the Contractor, Subcontractors, and Departmental Representative.

.12 Procedures to be used to report deficiencies to the Departmental Representative and Contractor.

.13 Procedures to ensure that non-compliant work is not incorporated into the work and is remediated prior to incorporation or becoming inaccessible.

.14 Procedure for monitoring subcontractors and suppliers to ensure compliance with the Contract Documents and Specifications.

.2 QCP is to be submitted to Departmental Representative for review and acceptance a minimum of fourteen (14) working days prior to commencement of Work. The QCP requires authorization of the Departmental Representative prior to commencement of Work. Adjustments to the QCP may be made after commencement Work once adjustments have been reviewed and accepted by the Departmental Representative.

.3 Contractor to maintain all testing/inspection documentation. Departmental Representative reserves the right to audit documentation and Site to ensure compliance with plans.

1.5 INSPECTION

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

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

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

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.6 SAMPLING, INSPECTION AND TESTING

.1 Refer to Section 01 45 01 Quality Control Appendix 1 for a schedule of materials sampling and testing. This schedule specifies the type of test for each type of construction and Material with frequency and Standard. As a minimum, perform all tests listed. The Contractor may choose to do additional testing to guide production. Test results are to be supplied to the Departmental Representative within 24 hours of completion of tests. The most demanding testing frequency will govern. In the event of a conflict between the MSTS schedule and the Specifications, the more comprehensive testing will govern.

.2 Contractor is obligated to correct any non-compliant item identified either by Independent Testing Authority (ITA), Quality Assurance (QA), or Departmental Representative.

.3 Correlation shall be developed between ITA and QA test values for all materials tests. Contractor shall communicate with Departmental Representative and QA and coordinate time and location of sampling and testing associated with correlations. Development of correlations shall commence during the Site test section phases and continue throughout the Work. Correlation will be considered satisfactory if analysis of results by ITA and QA testing on a particular Material comply with the multi-laboratory precision of the relevant standardized test procedure. If correlation outside the precision is indicated, resolve correlation to satisfaction of the Departmental Representative. The Material property value to be used for comparison with specified requirements shall be the mean of all ITA and QA tests conducted.

.4 If differences are recorded between tests by QC and QA, the initial effort shall be additional sampling and testing of Material from the same source. If this does not resolve the difference, an equally qualified third party, selected jointly between the Contractor and the Departmental Representative, will conduct tests on the same Material and that party will determine the test properties for comparison with Specifications.

.5 All sampling and testing shall be carried out by ITA personnel, not Contractor's production personnel. The characteristics to be tested, and the methods to be employed, shall be as specified in the QCP or as set out in the MSTS.

.6 Identify which inspection/test operations which require the Departmental Representative's surveillance.

.7 Notify Departmental Representative and QA agency of place, date and time at least 48 hours prior to any inspection/test operations for which the Specifications, laws, ordinances, rules, regulations, or orders of any public agency having jurisdiction require the Departmental Representative's surveillance of inspections or tests as defined in the MSTS. The contractor shall bear all costs for inspections and tests conducted by ITA and parties other than the Departmental Representative, or QA.

.8 Inspection and tests conducted by persons or agencies other than ITA will not in any way relieve Contractor of its responsibility and obligation to meet all Specifications and the referenced standards.

.9 Records (reports) of test activities are quality records. Maintain them in a manner that provides integrity of item identification, acceptability, and traceability. Reports to identify the following:

.1 Contractor's name.

.2 Contract number.

.3 Name of item(s) inspected/tested including a physical description and as applicable, model and make.

.4 Where item(s) were installed.

.5 Quantity of items.

.6 Test procedure used. If there are deviations form standards, record those deviations.

.7 Date the sample was taken and the date the test was completed.

.8 Where tests were performed including environmental conditions where applicable.

.9 Name of tester.

.10 Equipment Utilized.

.11 Test Results.

.12 Observations/comments.

.13 Specified requirements in the Contract that the item must meet (acceptance criteria).

.14 Acceptability.

.15 Deviations/non-conformance.

.16 Corrective Action.

.17 Evaluation of results.

.18 Signature of authorized reviewer.

.19 Any other details as required by the testing protocol being followed.

1.7 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies may be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work.

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

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

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect.

1.8 ACCESS TO WORK

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

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

1.9 PROCEDURES

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

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

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

1.10 REJECTED WORK

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

.2 Take remedial actions where indicated by non-compliant MSTS test results or inspections and coordinate re-inspection and retesting. Provide non-conformance report to Departmental Representative and QA.

.3 Upon satisfactory completion of the remedial action, document results of ITA retesting in weekly QC summary report, for minor non-compliances. For major non-compliances items ITA shall complete a remedial action report, distributing copies to Departmental Representative, and QA testing agency.

.4 All completed items of the Work which cannot be brought back into conformance with the Contract requirements shall be deemed defective and shall be removed and replaced with Materials and Work that conforms with the Contract requirements at no cost.

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

1.11 REPORTS

.1 Prepare and submit to Departmental Representative weekly QC summary reports. Such reports will be submitted within 24 hours after testing and shall include running averages of test properties, summary of inspection results, lists of non-compliances for the previous week and how they were addressed, open identified non-compliances, timelines for rectifying non-compliances and summaries of Supplier QC results.

.2 Prepare, identify and maintain all records and documents as required by this Section and Contract and make them available to the Departmental Representative upon request.

.3 Protect records from damage, deterioration, or loss. Retain all sampling and testing records until expiration of warranty period.

.4 Contractor to provide a letter to the Departmental Representative attesting that the Work was completed in accordance with the approved QCP and is verified by the content of the Quality Control Summary Report. The Letter of Assurance is to be signed by the QCM, the site superintendent(s) and the Contractor's corporate representative.

.5 Quality control summary report to be provided at end of project in format approved by Departmental Representative. Report to include summary sections based on the QCP and MSTS for each test/inspection subject. Report is to include all inspection and calibration logs for equipment and manufacturing processes as required by the applicable standards that govern them.

.6 In the end of project summary report, the Material sampling and testing results shall be summarized using statistical methods, including, but not limited to:

.1 Averages, minimums, maximums, standard deviations, and coefficient of variation of all data from each item in Section 01 45 00 Appendix 1.

.2 Summary of histograms of all final tests showing Material compliance with requirements set out in Section 01 45 00 - Appendix 1.

1.12 CONTROL OF MEASURING AND TEST EQUIPMENT

.1 Maintain measuring and test equipment such that it is in good working order as defined by the testing standard. Maintain calibration records as quality records and make available for inspection upon Departmental Representative's request.

.2 Supply devices required to facilitate QA and Departmental Representative's inspection of Work as requested.

1.13 TESTING AND OPERATING STATUS

.1 Maintain hard records at the Site and electronic records at Contractor's head office to show the testing status of Materials, items, and installation, in order to ensure that the required tests have been performed in a timely and correct manner.

1.14 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

1.15 MILL TESTS

.1 Submit mill test certificates as required of specification Sections.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

APPENDIX 1

SCHEDULE OF MINIMUM MATERIALS SAMPLING AND TESTING, TEST PROCEDURES AND FREQUENCIES

This schedule to be read in conjunction with Specification Section 01 45 00 - Quality Control.

Asphalt and Granular Base Aggregate	ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates	1 per individual aggregate product, and 1 combined at job mix formula blend, per mix type, per supply source
	ASTM C117 Standard Test Method for Materials Finer Than 75-µM (NO. 200) Sieve in Mineral Aggregates by Washing	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source
	ASTM D5821 Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate	Combined aggregate: 1 for each blended coarse aggregate (+4.75mm) per separate supply source per mix type, per supply source
	ASTM C123 Standard Test Method for Lightweight Particles in Aggregate	Combined aggregate: 1 for each blended aggregate per mix type, per supply source
	ASTM C127 Standard Test Method for Relative Density (Specific Gravity), And Absorption of Coarse Aggregate	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source
	ASTM C128 Standard Test Method for Relative Density (Specific Gravity), And Absorption of Fine Aggregate	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source
	ASTM C88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source
	ASTM D2419 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source

	ASTM D4791 Standard Test Method for Flat Particles, Elongated Particles, Or Flat and Elongated Particles in Coarse Aggregate	1 per individual product, 1 combined at job mix formula blend, per mix type, per supply source
	ASTM C131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source
	CSA 23.2.29A Test Method for the Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus	1 per individual aggregate product, 1 combined at job mix formula blend, per mix type, per supply source

TABLE 2
MINIMUM TEST FREQUENCY – CONTRACTOR'S PRODUCTION QUALITY CONTROL

	Test Description and Procedure	**Minimum[1] Frequency**
Testing During Aggregate Crushing	ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates	☞ Split Stockpiles: 1 for each aggregate component product for every 300 tonnes of production ☞ Main (combined) stockpile: 1 for every 300 tonnes during every loading or stockpiling operation ☞ Blend Sand: 1 for every 300 tonnes during every loading or stockpiling operation ☞ Mineral Filler (if applicable): 1 for every 50 tonnes during production, loading or stockpiling operation
	ASTM C117 Standard Test Method for Materials Finer Than 75-µM (NO. 200) Sieve in Mineral Aggregates by Washing	1 per day on reduced sample obtained from combined samples during every production, loading or stockpiling operation
	ASTM D5821 Standard Test Method for Determining the Percentage of Fractured Particles in Coarse aggregate	1 per day on reduced sample obtained from combined samples during production operations

TABLE 2
MINIMUM TEST FREQUENCY – CONTRACTOR'S PRODUCTION QUALITY CONTROL

	Test Description and Procedure	Minimum[1] Frequency
Asphalt Products Tests	AASHTO M320 and ASTM D6373, PGAC grade 52-46	One per Manufacturer's batch per product or grade
	Asphalt Tack Coat, CAN/CGSB 16.2, grade SS-1 and Asphalt Prime, CAN/CGSB 16.1 or 16.4, as applicable	One per Manufacturer's batch per product type or grade
Testing During Asphalt Mix Production	ASTM D979 Standard Practice for Sampling Bituminous Paving Mixtures	As required
	ASTM D6927 Standard Test Method for Marshall Stability and Flow of Asphalt Mixtures	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM D2726 Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM D3203 Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM D4469 Standard Test Method for Calculating Percent Asphalt Absorption by The Aggregate in An Asphalt Pavement Mixture	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM D2041 Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures	1 per 500 tonnes or portion thereof per day per mix type per plant source

TABLE 2
MINIMUM TEST FREQUENCY – CONTRACTOR'S PRODUCTION QUALITY CONTROL

	Test Description and Procedure	Minimum[1] Frequency
Tests During Asphalt Mix Production (cont'd)	ASTM D2172 Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures **Note**: Alternatively, subject to Departmental Representative approval, ASTM D6307 Standard Test Method for Asphalt Content of Hot-Mix Asphalt by Ignition Method may be used (to be calibrated to project aggregates prior to use).	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM C117 Standard Test Method for Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	1 per 500 tonnes or portion thereof per day per mix type per plant source
	ASTM C566 Standard Test Method for Total Evaporable Moisture Content of Aggregate (Asphalt Mix) By Drying	Hot Mix Asphalt: 1 per day per mix type per plant source.
	ASTM D5821 Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate	1 per week per mix type per plant source on extracted sample

TABLE 2
MINIMUM TEST FREQUENCY – CONTRACTOR'S PRODUCTION QUALITY CONTROL

	Test Description and Procedure	Minimum[1] Frequency
Test During Asphalt Paving for Density/ Compaction	Obtain and Test Briquettes from Asphalt Mix production	One 15 kg sample for every 500 tonnes (minimum 1 per day per mix type per plant) for field QC lab testing.
	ASTM D5361 Standard Practice for Sampling Compacted Bituminous Mixtures for Laboratory Testing (Core Sampling)	Minimum 3 cores for control/trial section; all other paving - 1 core per 1,000 m^2 per lift per day. No less than 3 cores for any day of placing. All cores to be a minimum of 100 mm diameter.
	ASTM D2726 Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures (Cores)	Minimum 3 cores for control/trial section; all other paving - 1 core per 1,000 m^2 per lift per day. No less than 3 cores for any day of placing.
Pavement Smoothness Testing	Use a 4.5m long straight edge to test completed pavement and joints in both longitudinal and transverse directions except where surface design deviates from a plane surface (at crowns, drainage swales or inlets).	Minimum 3 tests per paving lane both transverse and longitudinal direction.
Pavement Surface Texture	ASTM E965 Standard Text Method for Measuring Pavement Macrotexture Depth	Minimum 3 tests for control/trial section; All other paving – 3 tests per day.
HMA Moisture Susceptibility	ASTM D4867 Test Method for Effect of Moisture in Asphalt Paving Mixtures	One test for 10,000 tonnes of HMA
Ground Temperature Monitoring Equipment Borehole Logs	Prepare borehole logs, photos and conduct visual observations for subsurface soil classification based on the Unified Soil Classification System (USCS) including frozen soil classification based on NRC Publication No 7576 Guide to Field Description of Permafrost	Provide borehole log summary report including one borehole log per borehole location showing pavement elevation, material description, frozen soil classification, depth below pavement surface, soil symbol, sample number, standard penetration test, temperature and photos.

TABLE 2
MINIMUM TEST FREQUENCY – CONTRACTOR'S PRODUCTION QUALITY CONTROL

	Test Description and Procedure	**Minimum[1] Frequency**
Ground Temperature Monitoring Equipment Borehole Laboratory Tests	Obtain field samples and conduct laboratory tests including frozen soil classification, ice description, moisture content (ASTM D2216), Atterberg limits (ASTM D4318), Grain Size Analysis Hydrometer Method (ASTM D422)	Provide laboratory test summary report including sample number, laboratory test report, frozen soil classification, ice description, moisture content, Atterberg limits, grain size analysis and photos. Minimum 3 sets of laboratory tests per borehole location.

[1] These are the minimum frequencies and the contractor is responsible to assess the need to increase testing frequency, where aggregate or asphalt materials are not uniform or when any other condition exists that may warrant it.

Note: QC inspector is responsible to complete the following Asphalt Placement Record form for each paving work shift and submit to Departmental Representative for review.

Asphalt Placement Record

Material : _____ Operator : _____ Date : _____

Truck Number	Ticket Number	Tonnage Del.	Tonnage Cum.	Times Arrival	Times On Paver	Times Off Paver	Temperatures (°C) Delivery	Temperatures (°C) Paver-Out	Temperatures (°C) Rolling	Location	Rip	Start Chainage	Finish Chainage	Remarks
			Maximum Mixing Temperature = 175				Min 135	Min 135	Min 100					
Time														
Wind Speed														
Air Temp														

END OF SECTION

Part 1 eneral

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 TEMPORARY UTILITIES

.1 Submit plans showing all temporary utilities including service size/capacity, location, duration and other as required to Departmental Representative for approval.

.2 Contractor is responsible for providing and installing meters for water, electricity, natural gas and other as required to Work Site.

1.4 TELECOMMUNICATIONS

.1 Arrange for connections and disconnection and removal of all required communication equipment and services.

1.5 SANITARY FACILITIES

.1 Toilets in Airport Authority facilities are not available for Contractor or Subcontractor use.

.2 Provide, maintain and pay for flush type (wash cars), chemical and portable toilets for the use of all workers of the Contractor, Subcontractors, and all others associated with the Work. Chemical and portable toilets are to be used only at locations where access to wash cars is restricted or not practical.

.3 Portable and chemical toilets shall not be emptied into the Airport sewer system and shall be serviced regularly.

.4 Temporary facilities must be kept in a clean condition to the satisfaction of the Departmental Representative at all times.

1.6 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.7 WATER SUPPLY

.1 Arrange for supply of potable water for construction use.

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.8 TEMPORARY POWER AND LIGHT

.1 Contractor to provide temporary power during construction for temporary lighting and equipment.

.2 Arrange for connection with appropriate utility company as necessary. Pay costs for installation, maintenance and removal.

1.9 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

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

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

1.2 INSTALLATION AND REMOVAL

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

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

.3 Indicate use of supplemental or other staging area.

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

.5 Remove from site all such work after use.

1.3 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.

1.4 CONSTRUCTION PARKING

.1 Parking will be permitted on site in groundside areas. Only vehicles and equipment required for construction will be permitted airside.

.2 Provide and maintain adequate access to project site.

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

1.5 SECURITY

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

1.6 FIELD OFFICES

.1 The Contractor shall use areas designated by the Departmental Representative for temporary site offices.

.2 Contractor’s site office layout plan is to be submitted to and approved by the Departmental Representative.

.3 Securing the site offices will be the Contractor’s responsibility. Coordinate security and safety procedures with the Departmental Representative who will have access to all areas of the Site at all time.

.4 Departmental Representative’s Field Office:

.1 Provide a minimum 12 m x 3 m trailer at the equipment area for temporary use by the Departmental Representative during construction.

.2 Provide and maintain field office equipped with heat, air conditioning, light, wireless internet, photocopier, table, chairs, desk, shelving, file cabinet and necessary office furnishings for the field inspection personnel.

.3 Maintain in clean condition.

.5 The Departmental Representative's office equipment is not available for use by the Contractor.

.6 Subcontractors' Offices:

.1 Subcontractors are to provide themselves with offices as necessary, located where directed by the Contractor and in accordance with the approved layout plan.

.7 First Aid Facilities:

.1 Provide and maintain lockable first aid facilities on site in accordance with the regulatory requirements.

1.7 ASPHALT PLANT AND STOCKPILE SITE

.1 Stockpile materials at location approved by the Departmental Representative.

.2 Contractor shall maintain stockpiles in a clean and orderly condition as directed by the Departmental Representative.

.3 Contractor may use the designated asphalt plant site located west of Runway 15-33 for construction use.

.4 Arrange, pay costs for the installation, maintenance and removal of any temporary physical works and related work that may be required to prepare the Site for the proposed use.

.5 Apply for, obtain and pay costs for all applicable permits. Contractor shall be responsible to prepare a detailed asphalt plant site layout with the necessary details regarding the proposed use of the facility including:

.1 Plant Information: manufacturer, date manufactured, type of plant, type of power supply, emission specifications.

.2 Production Information: plant design capacity, projected maximum production (tonnes/hour).

.3 Plant location and heights.

.4 Fuel Usage Information: type/grade of fuel, hourly consumption.

.5 Site specific Dust Control Management Plan and Spills Containment Plan.

.6 Site specific Water Quality Plan and Sediment Control Plan.

.6 Remove temporary facilities from Site after use. Restore site to satisfactory condition acceptable to Departmental Representative.

1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

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

1.9 SANITARY FACILITIES

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

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

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

1.10 CONSTRUCTION SIGNAGE

.1 provide project identification site sign comprising of, framing, and 1200 x 2400 mm signboard as detailed and as described below.

.1 Foundations: 15 MPa concrete to CSA-A23.1 minimum 200 mm x 900 mm deep.

.2 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.

.3 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA O121.

.4 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.

.5 Fasteners: hot-dip galvanized steel nails and carriage bolts.

.6 Vinyl sign face: printed project identification, self adhesive, vinyl film overlayner. Locate project identification sign as directed by Departmental Representative. and construct as follows:

.1 Build concrete foundation, erect framework, and attach signboard to framing.

.2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.

.3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.

.2 Direct requests to erect Contractor signboard to Departmental Representative. For consideration general appearance of Contractor signboard must conform to project identification site sign. Wording in both official languages.

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

.4 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project.

1.11 CONSTRUCTION LIGHTING

.1 For all Work completed during periods of darkness (1/2 hour before dusk and ½ hour after dawn), supply the necessary temporary lighting to provide an average illumination level of 20 horizontal lux with a uniformity ratio of 5:1.

.1 Use 1000-Watt metal Halide floodlight units mounted on portable masts spaced along the edge of the runway or taxiway.

.2 Provide vehicular lighting for all construction equipment.

.3 Aim lighting away from Flight Service Station to eliminate glare.

.4 Provide single floodlight unit for areas less than 30 m by 30 m only.

.5 Provide multiple floodlight units at maximum 50 m longitudinal spacing and 30 m width.

.2 Use mobile engine-driven generator units suitable to power one (1) or a group of lighting units.

.3 In addition to the above overall floodlighting, maintain a minimum illumination level of 50 lux in the following areas:

.1 An area 7.5 m wide and 10 m long immediately behind each asphalt spreader during the operation of the machine.

.2 An area 7.5 m wide and 10 m long immediately behind each grinder for milling of asphalt and concrete during the operation of the machine.

.3 An area 4.5 m wide by 10 m long immediately in front and back of all rolling equipment during the operation of the equipment.

.4 An area 4.5 m wide by 10 m long at any point where tack coat is being placed prior to placement of the hot mix asphaltic concrete.

.5 Use smaller self-contained lighting units in other localized work areas to provide sufficient illumination to ensure that the installation does not suffer due to inadequate illumination.

.4 Keep a sufficient number of spare units on site to eliminate any reduction in quality and illumination level in the work area at any time during construction, should any of the operating units fail.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads as necessary to maintain traffic.

.2 Maintain and protect traffic on affected roads during construction period. Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

.3 Protect travelling public from damage to person and property.

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

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

.6 Construct access and haul roads necessary.

.7 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

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

.10 Location, grade, width, and alignment of construction and hauling roads: subject to review by Departmental Representative. Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.11 Provide snow removal during period of Work.

.12 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.13 CLEAN-UP

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

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

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

.1 Not used.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

.1 This section specifies requirements for truck weigh scales for weighing of materials where measurement for payment is based on mass.

1.2 DEFINITIONS

.1 Measurement Canada — an agency of Industry Canada, Government of Canada.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Weigh scales must be approved by Measurement Canada for current usage and certified for accuracy by an authorized service provider of Measurement Canada.

Part 2 Products

2.1 EQUIPMENT

.1 Weigh scales: of sufficient capacity to weigh loaded vehicles in a single operation.

.2 Scale house:

.1 To enclose mass indicator and in which Contractor's personnel can perform Work and maintain records. Arrange for inspection access for Departmental Representative upon request.

.2 To be weatherproof and have minimum 750 lux of illumination, one sliding window facing scale platform, one other window for cross ventilation, shelf desk at least 0.6 x 1.8 m, and heat to maintain inside temperature at 20o C. Entrance door not to face onto scale platform.

2.1 MAINTENANCE

.1 Maintain scale platform and scale mechanism clean and free from gravel, asphalt and debris.

.2 Maintain approach ramps in good condition free from sags and ruts.

.3 Have scales retested and recertified if requested by Departmental Representative.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Roads and Transportation Association of Canada

.1 Manual of Uniform Traffic Control Devices for Canada (MUTCD).

1.2 PROTECTION OF PUBLIC TRAFFIC

.1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

.2 When working on travelled way:

.1 Place equipment in position to minimize interference and hazard to travelling public.

.2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.

.3 Do not leave equipment on travelled way overnight.

.3 Close lanes of road only after review with Departmental Representative.

.1 Before re-routing traffic erect suitable signs and devices.

.4 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.

.5 Provide gravelled detours or temporary roads as required after review with the Departmental Representative to facilitate passage of traffic around restricted construction area.

.6 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Departmental Representative.

1.3 INFORMATIONAL AND WARNING DEVICES

.1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

.2 Supply and erect signs, delineators, barricades and miscellaneous warning devices. Place signs and other devices.

.3 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, review with Departmental Representative.

.4 Continually maintain traffic control devices in use:

.1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Remove or cover signs which do not apply to conditions existing from day to day.

1.4 CONTROL OF PUBLIC TRAFFIC

.1 Provide competent flag personnel, trained in accordance with, and properly equipped to Traffic Accommodation in Work Zones for situations as follows:

.1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.

.2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.

.3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.

.4 Where temporary protection is required while other traffic control devices are being erected or taken down.

.5 For emergency protection when other traffic control devices are not readily available.

.6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

.7 At each end of restricted sections where pilot cars are required.

.8 Delays to public traffic due to contractor's operators:15 minutes maximum.

.2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.

.1 Adjust, as necessary, and regularly maintain system during period of restriction.

.2 Ensure signal system meets requirements of Manual of Uniform Traffic Control Devices for Streets and Highways.

1.5 HAUL ROUTES

.1 Contractor can enter the Site by way of the designated Contractor access route shown on Drawings.

.2 Cooperate with Other Contractors in use of existing haul routes.

.3 Repair and maintain haul route roads, signs, gates, and fencing in their original condition for the duration of the project.

.4 Provide continuous routine maintenance of haul routes, including grading and debris and dust control.

.5 All vehicles travelling Airside shall be clean of loose Foreign Object Debris (FOD), including but not limited to rocks, mud, dirt, snow, ice etc. Tires and exposed decks shall be brushed and subject to inspection prior to entering the Airside environment.

.6 To avoid spillage, do not overfill trucks. Repeated overfilling or spillage will result in vehicle pass being rescinded. If spillage occurs, clean-up immediately. Contractor to ensure that no native Material is tracked onto any haul roads. If, in the opinion of the Departmental Representative, Material is being tracked onto haul roads the Contractor will be required to cease hauling immediately and remediate the road to pre-existing condition.

.7 Keep drainage ditches free from haul material during construction.

.8 Protect all underground and aboveground structures and utilities.

.9 Obtain all required permits including municipal permits for use of public roads as haul roads.

1.6 TEMPORARY ROADS

.1 Build, maintain and remove temporary roads as required after review with the Departmental Representative. Contractor is not permitted to use owner supplied materials to building or maintain temporary roads.

.2 Protect all underground and aboveground structures and utilities.

.3 Repair and maintain temporary road signs, gates, and fencing in their original condition as required for the duration of the project.

.4 Provide continuous routine maintenance of temporary roads, including grading and dust control.

1.7 OPERATIONAL REQUIREMENTS

.1 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under contract and when measures have been taken as specified and reviewed by Departmental Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:

.1 Maintain existing conditions for traffic crossing right-of-way.

.2 Maintain existing conditions for traffic crossing right-of-way except when required for construction.

.2 Part of the Work is in the restricted area and will require escort services by qualified airside security pass holders.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.2 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around any open excavations.

1.3 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.4 PUBLIC TRAFFIC FLOW

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

1.5 FIRE ROUTES

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

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

.2 Be responsible for damage incurred.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS.

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

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

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

1.2 QUALITY

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

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

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is 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 for any particular or like item throughout building.

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

1.3 AVAILABILITY

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

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

1.4 STORAGE, HANDLING AND PROTECTION

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

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

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

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

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

.6 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.

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

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

1.5 TRANSPORTATION

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

1.6 MANUFACTURER'S INSTRUCTIONS

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

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions.

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

1.7

1.8 CO-ORDINATION

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

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

1.9 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.

1.10 LOCATION OF FIXTURES

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

.2 Inform Departmental Representative of conflicting installation.

1.11 FASTENINGS

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

.2 Prevent electrolytic action between dissimilar metals and materials.

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

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

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

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

1.12 FASTENINGS - EQUIPMENT

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

1.13 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.

.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

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Departmental Representative identification of existing survey control points and property limits.

1.2 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on Drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Departmental Representative. Report to Departmental Representative when reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.

.4 Require surveyor to replace control points in accordance with original survey control.

1.3 DIGITAL INFORMATION PROVIDED BY AIRPORT AUTHORITY

.1 Departmental Representative will, upon request, provide the Contractor two-dimensional (2D) digital files for the Drawings in either AutoCAD format for reference only for the purpose of assisting the Contractor in setting out the Work. Departmental Representative will provide three-dimensional (3D) digital files for the Drawings if Work was designed in BIM. Coordinate information provided in the digital files is in the Airport coordinate system.

.2 All digital files of the Drawings are to be considered as property of Departmental Representative and are not to be used for any other purposes except for reference in the setting out of the Work.

.3 Information provided in digital form shall be considered as a supplementary reference to the Drawings. For the purposes of interpreting the Contract Documents, the Drawings will take precedence over the information provided in digital form.

1.4 SURVEY REQUIREMENTS

.1 Contractor is fully responsible for the construction layout and as-built survey.

.2 Complete field engineering survey services to measure and set out the Work.

.3 Assume responsibility for and execute complete field engineering survey services to establish and confirm location of the Work.

.4 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.5 Establish lines and levels, locate and lay out, by instrumentation.

.6 For the asphalt milling and resurfacing overlay:

.1 Layout milling areas, elevations, and depth of milling every 5 m longitudinally for each milling lane.

.2 Layout overlay elevations and depth of overlay every 5 m longitudinally for each paving lane.

.3 Complete survey immediately following overlay work to verify compliance with specified tolerances.

.4 Intermediate surveys shall be carried out for each level/layer of pavement structure on a continuous basis as portions of the Work are completed for the purpose of confirming horizontal and vertical control of the Work.

.7 For airfield grading and ditch excavation, provide survey points for grading, fill and shoulder placement.

.8 For airfield pavement markings, provide survey points for pavement markings.

.9 For ground temperature monitoring borehole locations, provide survey points for borehole location and elevation.

1.5 EXISTING SERVICES

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

.2

1.6 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Departmental Representative of impending installation.

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

1.7 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 After paving provide an as-built of the runway surface elevations on a 5x5 m grid for the major rehabilitation areas. Survey the location of the localized pavement repairs and boreholes.

.3 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

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

1.8 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit name and address of Surveyor to Departmental Representative.

.2 On request, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform with Contract Documents.

1.9 SUBSURFACE CONDITIONS

.1 Promptly notify Departmental Representative if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from site at daily regularly scheduled times. Do not burn waste materials on site. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.3 Provide and use marked separate bins for recycling. Dispose of waste materials and debris off site.

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

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

1.2 FINAL CLEANING

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

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

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

.4 Remove waste products and debris. Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Clean airfield lighting reflectors, lenses, and other lighting surfaces.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for recycling.

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

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

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

.2 Review:

.1 Departmental Representative to review Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

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

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

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, and fully operational.

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

.5 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 Refer to General Conditions.

1.2 FINAL CLEANING

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

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

.2 Waste Management: separate waste materials for recycling.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide evidencefor type, source and quality of products supplied.

1.2 FORMAT

.1 Organize data as instructional manual.

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

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

.1 Identify contents of each binder on spine.

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

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

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

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

.8 Drawings: provide with reinforced punched binder tab.

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

.9 Provide scaled CAD files in dxf and .pdf formats.

1.3 CONTENTS - PROJECT RECORD DOCUMENTS

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

.1 Date of submission; names.

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

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

.2 For each product or system:

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

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

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

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

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

1.4 AS -BUILT DOCUMENTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

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

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

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

.1 Provide files, racks, and secure storage.

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

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

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

.1 Do not use record documents for construction purposes.

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

1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of opaque drawingsUse felt tip marking pens, maintaining separate colours for each major system, for recording information.

.2 Record information concurrently with construction progress.

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

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

.1 Field changes of dimension and detail.

.2 Changes made by change orders.

.3 Details not on original Contract Drawings.

.4 Referenced Standards to related shop drawings and modifications.

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

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

.2 Changes made by Addenda and change orders.

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

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

1.6 FINAL SURVEY

.1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION