

**TERMS OF REFERENCE AND CONSTRUCTION SPECIFICATIONS  
FOR  
INGONISH COMPOUND ROAD PAVING  
CAPE BRETON HIGHLANDS NATIONAL PARK**

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## SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises of construction of a new road surface for an existing service road complete with 75mm of Type I gravel and 75mm of Type C-HF asphalt on the Ingonish Compound Road between the Golf Course Buildings and the new Salt Shed as shown in the attached sketch.

A contractor is required to supply a 75mm asphalt of Type C-HF Asphalt and install using a spreader meeting the enclosed specifications. Contractor will also be required to gravel the road bed with 75mm of Type I gravel.

Construction of the road bed to be completed using the following minimum road bed standards:

- 1) Road bed width to be a maximum of 7m wide.
- 2) Existing gravel road bed base materials to be graded using a maximum 2% grade from the centerline of the road to outer edge of road.
- 3) Maximum 2% grade to be implemented on 75mm lift of Type I gravel and 75mm lift of Type C-HF asphalt.
- 4) All base materials to be compacted to 95% Standard Proctor Density.
- 5) All work to be completed in accordance with NS Department of Transportation specifications.
- 6) Contractor will be required to make a smooth transition between existing gravel road bed and the new asphalt surface the entire width of the road using an asphalt tapered ramp.

The Contractor must provide all labour, materials, equipment, traffic control, etc. to supply and install 75mm Type C-HF asphalt and 75mm of Type I base gravels.

Work location to include but is not limited to the following:

- Approximately **120m** of asphalt, width of the road is approximately 7m wide. The width of the road may vary a bit throughout the length of the project.
- Approximately **120m** of Type I gravel, width of the road is approximately 7m wide.

Contractor will not be responsible to blend new asphalt into the existing parking lots, and other adjacent surfaces this work will be completed by Parks Canada at a later date. See Appendix A for a sketch of the area to be constructed.

A site visit will be hosted during the tender period to show the above paving location.

### 1.2 CONTRACT METHOD

- .1 Construct Work under unit price contract. Contractor will be required to provide all weigh slips to Departmental Representative onsite prior to installation of material in order to receive payment.

### 1.3 WORK SEQUENCE

- .1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

Detours or road narrowing may be permitted during operating hours or after hour road closures.

**All work scheduling must be pre-approved by Departmental Representative and must be submitted a minimum of 7 days prior to construction.**

- .2 Contractor to provide traffic control as per Nova Scotia Temporary Workplace Traffic Control Manual.
- .3 Contractor must keep one travel lane open to traffic at all times unless alternative approved by Departmental Representative.
- .4 Contractor to Commence work on immediately upon award of contract and completed no later than November 15, 2013.

1.4 CONTRACTOR USE  
OF PREMISES

- .5 Maintain Emergency Services access/control.
- .1 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 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 Department 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 vehicular traffic.
- .3 Provide alternative routes for vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Department Representative of findings.
- .5 Where unknown services are encountered, immediately advise Department Representative and confirm findings in writing.
- .6 Contractor to use extreme caution while working adjacent to water transmission main and valves along with electrical transmission mains located within the project limits.

1.6 DOCUMENTS  
REQUIRED

- .1 Maintain at job site, one copy each

document as follows:

- .1 Specifications.
- .2 Addenda.
- .3 Change Orders.
- .4 Other Modifications to Contract.
- .5 Field Test Reports.
- .6 Copy of Approved Work Schedule.
- .7 Health and Safety Plan and Other Safety Related Documents.
- .8 Other documents as specified.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

## **Submittal Procedures**

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

Contract Documents is not relieved by Departmental Representative review.

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

1.2 SHOP DRAWINGS  
AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in NS, 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 days for Department Representative's review of each submission.
- .5 Adjustments made on shop drawings by Department Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Department 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, in duplicate 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 or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit [3] printed or [1] 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.
- .11 Submit [3] printed or [1] 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 3 years of date of contract award for project.
- .12 Submit [3] printed or [1] 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.
- .13 Submit [3] printed or [1] electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .14 Delete information not applicable to project.
- .15 Supplement standard information to provide details applicable to project.
- .16 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 in duplicate 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 CERTIFICATES  
AND TRANSCRIPTS

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

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

## Health and Safety Requirements

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

.1 Health and safety considerations required to ensure that PWGSC shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC/RPB Departmental Policy DP 073 - Occupational Health and Safety - Construction.

#### 1.2 REFERENCES

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

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)  
.1 Material Safety Data Sheets (MSDS).

.3 Province of Nova Scotia  
.1 Occupational Health and Safety Act, S.N.S. [1996].

#### 1.3 SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:  
.1 Results of site specific safety hazard assessment.  
.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit [2] copies of Contractor's authorized representative's work site health and safety inspection reports to Department Representative.

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

- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section [01 47 15 - Sustainable Requirements: Construction] and Section [02 81 01 - Hazardous Materials].
- .7 Department Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within [3] days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within [3] days after receipt of comments from Department Representative.
- .8 Department 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 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

#### 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 Department Representative prior to commencement of Work.

#### 1.6 REGULATORY REQUIREMENTS

- .1 Comply with Nova Scotia Temporary Workplace Traffic Control Manual requirements.

#### 1.7 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
  - .1 Departmental Representative.

.2 Vehicular traffic using the Cabot Trail.

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

## 1.9 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.

## 1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, Occupational Safety General Regulations, N.S. Reg.

## 1.11 UNFORSEEN HAZARDS

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

jurisdiction and  
advise Departmental Representative  
verbally and in  
writing.

1.12 POSTING OF  
DOCUMENTS

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

1.13 CORRECTION OF  
NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Department Representative.
- .2 Provide Department Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Department Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 BLASTING

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

1.15 POWDER  
ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from Department Representative.

1.16 WORK STOPPAGE

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

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.



## Environmental Procedures

### PART 1 - GENERAL

#### 1.1 REFERENCES

- .1 Definitions:
  - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
  - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-2008 Stipulated Price Contract.
  - .2 U.S. Environmental Protection Agency (EPA)/Office of Water
    - .1 EPA 832/R-92-005-[92], Storm Water Management for Construction Activities, Chapter 3.

#### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.
- .3 Ensure Environmental Protection Plan

includes comprehensive overview of known or potential environmental issues to be addressed during construction.

- .4 Address topics at level of detail commensurate with environmental issue and required construction task.
- .5 Include in Environmental Protection Plan:
  - .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.
  - .2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.
  - .3 Name[s] 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[, EPA 832/R-92-005, Chapter 3 requirements.
  - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
  - .7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud 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. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

- .9 Spill Control Plan including 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 and/or 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.

### 1.3 FIRES

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

### 1.4 DRAINAGE

- .1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Ensure plan includes 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, EPA 832/R-92-005, Chapter 3 requirements.

- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

#### 1.5 SITE CLEARING AND PLANT PROTECTION

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- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Wrap in burlap, 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 drip line during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by Departmental Representative.

#### 1.6 WORK ADJACENT TO WATERWAYS

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- .1 Construction equipment to be operated on

land only.

- .2 Do not use waterway beds for borrow material without Departmental Representative's approval.
- .3 Waterways to be free of excavated fill, waste material and debris.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

#### 1.7 POLLUTION CONTROL

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- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
  - .1 Provide temporary enclosures where [indicated] directed by Departmental Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

#### 1.8 HISTORICAL/ARCHAEOLOGICAL CONTROL

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- .1 Provide historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources,

biological resources and wetlands known to be on project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.

- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

## 1.9 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
  - .1 Do not take action until 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.

## Quality Control

### PART 1 - GENERAL

#### 1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-[94], Stipulated Price Contract.

#### 1.2 INSPECTION

- .1 [Refer to CCDC 2, GC 2.3].
- .2 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.
- .3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. [If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.] [If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.]

#### 1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental

Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

#### 1.4 ACCESS TO WORK

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

#### 1.5 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.



#### 1.6 REJECTED WORK

- .1 Refer to CCDC, GC 2.4.
- .2 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.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

#### 1.7 REPORTS

- .1 Submit 3 copies of inspection and test reports to Departmental Representative.

#### 1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

#### 1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations [acceptable to Departmental Representative [as specified

in specific Section].

- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative.
- .7 Mock-ups may remain as part of Work.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 MILL TESTS

- .1 Submit mill test certificates as requested.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

## Aggregate Materials

### PART 1 - GENERAL

#### 1.1 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 32 11 23 - Granular Base.
- .4 Section 32 12 16 - Asphalt Paving.

#### 1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D 4791-[99], Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

#### 1.3 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Allow continual sampling by Departmental Representative during production.
- .3 Provide departmental Representative with access to source and processed material for sampling.
- .4 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious

manner for use intended.

- .2 Flat and elongated particles of coarse aggregate: to ASTM D 4791.
  - .1 Greatest dimension to exceed [five] times least dimension.
- .3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
  - .1 Natural sand.
  - .2 Manufactured sand.
  - .3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
- .4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
  - .1 Crushed rock.
  - .2 Gravel composed of naturally formed particles of stone.
  - .3 Light weight aggregate, including slag and expanded shale.

## 2.2 SOURCE QUALITY CONTROL

- .1 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least 1 week prior to commencing production.
- .2 If, in opinion of Departmental Representative, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .3 Advise Departmental Representative 1 week in advance of proposed change of material source.
- .4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

## PART 3 - EXECUTION

### 3.1 CLEANING

- .1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- .2 Leave any unused aggregates in neat compact stockpiles as directed by [Engineer] [Consultant].
- .3 For temporary or permanent abandonment of aggregate source, restore source to condition meeting requirements of authority having jurisdiction.

## **Aggregate Base Courses**

### PART 1 - GENERAL

#### 1.1 Related Sections

- .1 Section [31 05 16 - Aggregate Materials.

#### 1.2 Measurement Procedures

- .1 Measure granular base in per tonne basis as accepted by Departmental Representative.
- .2 Measure hauling granular base material in lump sum price as approved by Departmental Representative.

#### 1.3 References

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C 117-[95], Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C 131-[96], Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
  - .3 ASTM C 136-[96a], Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .4 ASTM D 698-[00a], Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft<sup>3</sup>) (600kN-m/m<sup>3</sup>).
  - .5 ASTM D 1557-[00], Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft<sup>3</sup>) (2,700kN-m/m<sup>3</sup>).
  - .6 ASTM D 1883-[99], Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
  - .7 ASTM D 4318-[00], Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-[M88], Sieves, Testing,  
Woven Wire, Metric.

.3 Nova Scotia Department of Transportation  
Standard  
Specifications

1.4 Delivery,  
Storage, and  
Handling

.1 Deliver and stockpile aggregates in  
accordance with Nova Scotia  
Department of Transportation Standard  
Specifications minimum [50]% of total aggregate  
required prior to beginning operation.

PART 2 - PRODUCTS

2.1 Materials

.1 Granular base: material in accordance with  
Section 31 05 16 - Aggregate Materials and  
following requirements:  
.1 Crushed stone or gravel.  
.2 Gradations to be within limits  
specified when tested to ASTM C 136 and  
ASTM C 117. Sieve sizes to CAN/CGSB-8.1.  
.2 Type 1S (Gravel) Gradation to Nova Scotia  
Department of Transportation Standard  
Specifications  
.3 Liquid Limit: to ASTM D4318, Maximum 25  
.4 Plasticity Index, to ASTM D4318, Maximum  
6  
.5 Los Angeles degradation: to ASTM C131.  
Max % loss by weight: 45  
.6 Soaked CBR: to ASTM D1883, Min 100, when  
compacted to 100% of ASTM D1557.

## **Hot Mix Asphalt Paving**

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- .1 Materials and installation for asphalt concrete paving for roads and shall meet the general requirements of Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) Standard Specifications Division 4 Section 7 except where noted herein.
- .2 Paving operations shall be completed no later than November 15, 2013.

#### 1.2 RELATED SECTIONS

- .1 Section [01 33 00 - Submittal Procedures].
- .2 Section [31 05 16 - Aggregate Materials].
- .3 Section [32 12 13.16 - Asphalt Tack Coat].

#### 1.3 MEASUREMENT PROCEDURES

- .1 Measure asphalt concrete paving in [tonnes] of asphalt concrete actually incorporated into Work. All weigh slips must be given to Departmental Representative on the job site in order to be receive payment.

#### 1.4 REFERENCES

- .1 Asphalt Institute (AI)
  - .1 AI MS2-[1994] [Sixth Edition], Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.
  - .2 American Society for Testing and Materials International, (ASTM)
    - .1 ASTM C 88-[99a], Standard Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.



.2 ASTM C 117-[95], Standard Test Method for Material Finer Than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing.

.3 ASTM C 123-[98], Standard Test Method for Lightweight Particles in Aggregate.

.4 ASTM C 127-[01], Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.

.5 ASTM C 128-[01], Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.

.6 ASTM C 131-[01], Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

.7 ASTM C 136-[01], Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

.8 ASTM C 207-[91(1997)], Standard Specification for Hydrated Lime for Masonry Purposes.

.9 ASTM D 995-[-95b(2002)], Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.

.10 ASTM D 2419-[02], Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

.11 ASTM D 3203-[94(2000)], Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.

.12 ASTM D 4791-[99], Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1-[88], Sieves Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-[M88], Sieves Testing, Woven Wire, Metric.

.3 CAN/CGSB-16.3-[M90], Asphalt Cements for Road Purposes.

.4 Nova Scotia Department of Transportation and Infrastructure Renewal, Division 4, Section 4

### 1.5 PRODUCT DATA

- .1 Submittals in accordance with Section [01 33 00 - Submittal Procedures].
- .2 Submit viscosity-temperature chart for asphalt cement to be supplied showing either Saybolt Furol viscosity in seconds or Kinematic Viscosity in centistokes, temperature range 105 to 175 degrees C at least [2] weeks prior to beginning Work.
- .3 Submit manufacturer's test data and certification that asphalt cement meets requirements of this Section which also includes the specific gravity of the asphalt cement.
- .4 Submit asphalt concrete mix design in writing and trial mix test results to Departmental Representative for approval at least 2 weeks prior to beginning Work.

### 1.6 SAMPLES

- .1 Submit samples in accordance with Section [01 33 00 - Submittal Procedures].
- .2 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least 1 week prior to beginning Work.

### 1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver and stockpile aggregates in accordance with Section [31 05 16 - Aggregate Materials]. Deliver and stockpile outside of park boundaries a minimum 50% of total amount of aggregate required before beginning asphalt mixing operation.
- .2 Coarse aggregate stockpile shall contain no more than 15% passing 5000 sieve.
- .3 Fine aggregate stockpile shall contain no more than 15% retained on 5000.
- .4 When necessary to blend aggregates from

one or more sources to produce required gradation, do not blend in stockpiles.

- .5 Stockpile fine aggregate separately from coarse aggregate, although separate stockpiles for more than two mix components are permitted.
- .6 Provide approved storage, heating tanks and pumping facilities for asphalt cement.

PART 2 -  
PRODUCTS

2.1 MATERIALS

- .1 Asphalt cement: to AASHTO PPP6, PG 58-28 Grade
- .2 Aggregates: The aggregate shall meet the following gradation requirements using sieve to CAN/CGSB-8.2:

<u>Sieve Designation</u>	<u>Cumulative % Passing Surface, Type C-HF</u>
28 000	
20 000	100
14 000	95-100
10 000	---
5 000	45-60
2 500	25-55
315	5-20
80	3-6.5

- .3 Coarse aggregate: aggregate retained on 5000 µm sieve and fine aggregate is aggregate passing 5000 µm sieve when tested to ASTM C 136.
- .4 When dryer drum plant or plant without hot screening is used, process fine aggregate through 5000 µm sieve and stockpile separately from coarse aggregate.
- .5 Fine Aggregate Angularity: AASHTO TP33.  
Min 45%

- .6 Sand equivalent: to ASTM D2419. Min 50
- .7 Magnesium Sulphate soundness: to ASTM C88. Max % loss
  - by mass:
    - .1 Course aggregate surface course: 15.
    - .2 Fine aggregate, surface course: 10.
- .8 Do not use aggregates having known polishing characteristics in mixes for surface courses.
- .9 Los Angeles degradation: Grading B, to ASTM C 131. Max% loss by mass:
  - .1 Coarse aggregate, surface course: 30.
- .10 Absorption: to ASTM C 127. Max % by mass:
  - .1 Coarse aggregate, surface course: 1.75.
  - .2 Fine aggregate, surface course: 2.00
- .11 Flat and elongated particles: to (with length to thickness ratio greater than 5): Max% by mass:
  - .1 Coarse aggregate, surface course: 15.
- .11 Crushed fragments: at least 95% of particles by mass within each of following sieve designation ranges, to have at least 2 freshly fractured face. Material to be divided into ranges, using methods of ASTM C 136.

Sieve Designation,  $\mu\text{m}$

<u>Passing</u>	<u>Retained on</u>
20 000	10 000
10 000	5 000

.12 Regardless of compliance with specified physical requirements, fine aggregates may be accepted or rejected on basis of past field performance.

.13 Mineral filler:

- .1 Finely ground particles of limestone, hydrated lime, Portland cement or other approved non-plastic mineral matter, thoroughly dry and free from lumps.
- .2 Add mineral filler when necessary to meet job mix aggregate gradation or as directed to improve mix properties.
- .3 Mineral filler to be dry and free flowing when added to aggregate.