

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 31 00 99 – Earthworks for Minor Works.

1.2 REFERENCES

- .1 American Association of State Highway and Transportation Officials (AASHTO)
 - .1 AASHTO M320-10(2015), Standard Specification for Performance Graded Asphalt Binder.
 - .2 AASHTO R29-08, Standard Specification for Grading or Verifying the Performance Graded of an Asphalt Binder.
 - .3 AASHTO T245-2015 Standard Method of Test for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
- .2 Asphalt Institute (AI)
 - .1 AI MS-2-1994, Mix Design Methods for Asphalt Concrete and Other Hot-Mixes.
- .3 ASTM International
 - .1 ASTM D2172-2011, Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.
 - .2 ASTM D2489-2008, Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures.
 - .3 ASTM D3203-2011, Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.
 - .4 ASTM D698-12, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- .4 Nova Scotia Department of Transportation and Infrastructure Renewal, Standard Specification.
- .5 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
 - .1 MPI #32, Traffic Marking Paint, Alkyd.

1.3 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Samples: At least three (3) weeks prior to commencing work, inform Departmental Representative of proposed source of aggregates, liquid asphalt and asphalt cement and provide access for sampling.
- .3 Material Certification:
 - .1 At least three (3) weeks prior to commencing work, 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°C.
 - .2 Submit manufacturer's test data and certification that asphalt cement meets requirements of this section.

- .4 Mix Designs: Submit mix designs for asphalt Type B-HF and Type C-HF to Departmental Representative for record.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and stockpile aggregates in accordance with erosion and sedimentation control plan. Stockpile minimum 50% of total amount of aggregate required before beginning asphalt mixing operation.
- .3 When necessary to blend aggregates from one or more sources to produce required gradation, do not blend in stockpiles.
- .4 Stockpile fine aggregate separately from coarse aggregate, although separate stockpiles for more than two mix components are permitted.
- .5 Provide approved storage, heating tanks and pumping facilities for asphalt cement.
- .6 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Granular sub-base: 350 mm gravel sub-base, Type 2.
- .2 Granular base: 200 mm gravel base, Type 1.
- .3 Prime coat: to requirements in Table 4.5.1 of the Nova Scotia Department of Transportation and Infrastructure Renewal Specification.
- .4 Tack coat: to same requirements as liquid asphalt primer.
- .5 Asphalt concrete: Composition of asphalt mixture: to grading and asphalt content requirements in Table 4.4.1-Physical Requirements of Asphalt Concrete of the Nova Scotia Department of Infrastructure Renewal Specification, Type B-HF and Type C-HF mix. Minimum Marshall Stability to be 7.5 kN @ 60°C formulated for truck route traffic.
 - .1 50 mm Asphalt concrete, Type C-HF.
 - .2 75 mm Asphalt concrete, Type B-HF.
- .6 Traffic paint: yellow to MPI # 32.
- .7 Paint thinner: as recommended by product manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for asphalt paving in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.

- .1 (continued)
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

- .1 Make vertical saw cut to full depth of asphalt concrete in straight lines. Cut back 300 mm minimum from edge of excavation or beyond to eliminate tension cracks.
- .2 Remove additional existing asphalt in locations where longitudinal strips less than 1 m wide and/or asphalt "islands" less than 10 m² in size occur after saw cutting and replace with new asphalt.
- .3 Cold mill an additional 300 mm wide by 40 mm deep longitudinal strip along all saw cut joints to facilitate an overlap joint in the surface asphalt.
- .4 Place or remove gravel to depth indicated.
- .5 Shape, fine grade and compact gravel surface to 100 percent standard proctor density.

3.3 PLACING

- .1 Obtain Departmental Representative's approval of granular base and preparation prior to placing asphalt.
- .2 Before placing asphalt, clean surface of loose and foreign material. Apply liquid asphalt primer to Nova Scotia Department of Transportation and Infrastructure Renewal specifications. Application rate: 1.0 l/m².
- .3 Apply liquid asphalt tack coat to Nova Scotia Department of Transportation and Infrastructure Renewal Standard Specification between Class B-HF binder and Class C-HF surface courses, and as primer at all cold joints. Application rate: 0.5 l/m².
- .4 Place asphalt concrete in compacted lifts to thicknesses, grades and lines as indicated or as directed by Departmental Representative.
- .5 Place catch basin and manhole covers, and water distribution system fittings into final position prior to placement of Type C-HF asphalt.
- .6 Placing conditions:
 - .1 Place asphalt mixtures only when air temperature is above 5°C.
 - .2 When temperature of surface on which material is to be placed falls below 10°C, provide extra rollers as necessary to obtain required compaction before cooling.
 - .3 When the air temperature is 5°C, or less, or after the 31st of October, the Contractor will not be permitted to lay any asphalt pavement, unless otherwise directed by the Departmental Representative.
 - .4 Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.

.7 Place, roll and compact asphalt concrete in accordance with Division 4, Section 4, Province of Nova Scotia, Department of Transportation and Infrastructure Renewal, Standard Specification.

.8 Rake all joints.

.9 The minimum density acceptable shall be 95% of the theoretical Maximum Relative Density determined according to ASTM D3203.

3.4 DISSIMILAR JOINTS

.1 Apply 2mm x 50mm TOK tape against faces of surfaces to be asphalted against.

3.5 ASPHALT PATCHING

.1 Remove existing asphalt by saw cutting in straight lines and removing cut asphalt with suitable excavating equipment to full depth of asphalt.

.2 Provide tack coat on edges of saw cut.

.3 Reinstate asphalt to full depth of existing asphalt using mix type C-HF asphalt concrete.

.4 Dispose of excavated asphalt at approved disposal site.

3.6 FINISH TOLERANCES

.1 Finished asphalt surface to be within 6 mm of design elevation but not uniformly high or low.

.2 Finished asphalt surface not to have irregularities exceeding 6 mm when checked with a 3 m straight edge placed in any direction.

3.7 PROTECTION

.1 Restrict traffic during setting period to prevent damage as directed by the Departmental Representative.

3.8 DEFECTIVE WORK

.1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form a true and even surface and compact immediately to specified density.

.2 Repair areas showing checking or rippling.

.3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

- .4 If, at any time before the Work is finally accepted, any ravelling, shoving or other fault develops in the pavement as laid, remove all mixed materials in such places, cut edges of joints square and paint with tack coat. Place fresh asphalt mixture and compact. Do all such removal and replacement of unsatisfactory material at no additional expense to the Contract.

3.9 TRAFFIC MARKINGS

- .1 Paint parking space divisions and other pavement markings in accordance with manufacturers recommendations and as indicated.
- .2 Use paint thinner in accordance with manufacturer's requirements.

3.10 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal. Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION