**Special Provisions**

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STSP’S Revised November 7, 2014

**SPECIAL PROVISIONS**

1. General.

Perform the work under this construction contract for Project 8590-22-60, South County Line to Radisson, STH 40, Sawyer County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2016 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.

100-005 (20141107)

1. Scope of Work.

The work under this contract shall consist of milling, HMA paving, sign replacement, pavement markings, ditch clearing and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

104-005 (20090901)

1. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the time frame for construction of the project within the 2016 construction season to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Assure that the time frame is consistent with the contract completion time. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the beginning of the approved time frame.

To revise the time frame, submit a written request to the engineer at least two weeks before the beginning of the intended time frame. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department’s scheduled resources.

The contractor shall submit to the engineer a substantially complete ECIP 14 days prior to holding the preconstruction conference.

The contractor shall coordinate construction activities so that traffic does not travel on any milled asphaltic surface for longer than 5 (five) calendar days prior to placement of the HMA pavement layer.

The contractor shall coordinate construction activities so that traffic does not travel on the milled asphaltic surface during any periods of time covered by the holiday work restrictions.

Hold a pre-pave meeting prior to the start of milling and paving operations.  In addition to discussing normal operation procedures and traffic handling, provide a contingency plan to handle machinery breakdowns or other uncontrollable events that would affect the ability to replace the milled asphaltic surface with the HMA pavement layer or the ability to apply pavement markings.  The engineer must approve this contingency plan prior to the start of milling and paving operations.

1. Traffic.

Use the appropriate traffic control devices, as shown in the plans, to accomplish the work. STH 40 shall be kept open to through two way traffic at all times during construction activities.

When construction operations make it impractical to maintain two-way traffic within the project limits, the contractor may restrict traffic to a one-lane operation. Each lane restriction shall not exceed one mile in length. The single lane restriction shall apply to any work performed on STH 40 and all intersecting roads under this contract. Multiple restrictions on mainline STH 40 shall be a minimum of one mile apart. Such restrictions will only be allowed during daytime hours and only when work is being prosecuted on the project. Two-way traffic shall be restored at the end of each day.

The contractor shall provide flaggers and appropriate warning signs to control traffic approaching each one-lane operation as shown in the plans or as directed by the engineer. Coordinate schedules, including flagging operations, with local emergency vehicles to assure that emergency personnel are aware of local roadways affected by the construction work.

A detour of up to 5 consecutive calendar days will be allowed on Project 8590-22-60 to facilitate installation of deep culverts that are not feasible to be done half at a time. See detour plans for route information. The 5 consecutive calendar day detour on Project 8590-22-60 may not begin until the detour onto STH 40 under project 8180-02-70 has ended.

Project 8180-02-70, Ladysmith – Ojibwa, Thornapple River Bridge B-54-0120 was let on December 8, 2015 and awarded to Pheifer Brothers Construction Co., Inc. Project 8180-02-70 includes a detour of STH 27 onto STH 40 between USH 8 at Bruce and STH 27 at Radisson. It is anticipated that this detour under Project 8180-02-70 will end in mid-September 2016. Coordinate with Pheifer Brothers Construction Co., Inc. regarding any issues or conflicts that occur because of the Project 8180-02-70 detour. If conflicts or issues cannot be resolved between the Project 8590-22-60 contractor and Pheifer Brothers Construction Co., Inc. then Pheifer Brothers Construction Co., Inc. shall make the decision and the Project 8590-22-60 contractor shall adjust operations to accommodate the decision made by Pheifer Brothers Construction Co., Inc. There will be no additional compensation or contract time under Project 8590-22-60 for decisions made by Pheifer Brothers Construction Co., Inc. to resolve detour issues or conflicts.

All culvert replacements must be complete before surface layer HMA pavement is placed.

Coordinate milling operations and asphaltic paving operations so that any milled surface is covered by the upper layer of HMA pavement within five calendar days of milling. During mainline HMA paving, the contractor shall match up the adjacent lanes each day and use a vertical paving joint.

Keep all private entrances and field entrances accessible at all times, unless written permission is obtained from the property owner 48 hours in advance of closing the access.

Do not park equipment or material within 18 feet of the edge of the shoulder unless approved by the engineer. Do not park or store equipment or material not being used during actual performance of work within 30 feet of the edge of the traveled way.

Maintain access to residents and businesses at all times throughout the project. Construction will be staged to minimize impact to local businesses. Accommodations shall be made for pedestrian traffic during the duration of construction. The WisDOT construction supervisor will assure fulfillment

1. LCS Lane Closure Notification.

Provide the project engineer with a schedule of lane closures for the following week by noon on Thursday of the previous week. In addition, provide the following minimum advance notification to the project engineer for incorporation into the Wisconsin Lane Closure System:

3 days - Lane and service ramp closure

7 days - System ramp closure

14 days - Project start, full roadway closure, or restriction of width, height, or weight (OSOW permits have 14 day lead time)

Notify the project engineer if there are any changes in the schedule, early completions, or cancellations of scheduled work

1. Holiday Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying STH 40 traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

From noon Friday, May 21 to 6:00 AM Tuesday, May 25;

From noon Friday, July 2 to 6:00 AM Tuesday, July 6

From noon Friday, September 3 to 6:00 AM Tuesday, September 7.

107-005 (20050502)

1. Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.

The department has obtained a U.S. Army Corps of Engineers Section 404 permit. Comply with the requirements of the permit in addition to requirements of the special provisions. A copy of the permit is available from the regional office by contacting Dan Munson at (651) 290-5191.

107-054 (20080901)

1. Environmental Protection, Aquatic Exotic Species Control.

Exotic invasive organisms such as VHS, zebra mussels, purple loosestrife, and Eurasian water milfoil are becoming more prolific in Wisconsin and pose adverse effects to waters of the state. Wisconsin State Statutes 30.07, “Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters”, details the state law that requires the removal of aquatic plants and zebra mussels each time equipment is put into state waters.

At construction sites that involve navigable water or wetlands, use the follow cleaning procedures to minimize the chance of exotic invasive species infestation. Use these procedures for all equipment that comes in contact with waters of the state and/or infested water or potentially infested water in other states.

Ensure that all equipment that has been in contact with waters of the state, or with infested or potentially infested waters, has been decontaminated for aquatic plant materials and zebra mussels prior to being used in other waters of the state. Before using equipment on this project, thoroughly disinfect all equipment that has come into contact with potentially infested waters. Use the following inspection and removal procedures (guidelines from the Wisconsin Department of Natural Resources <http://dnr.wi.gov/topic/fishing/documents/vhs/disinfection_protocols.pdf> for disinfection:

1. Prior to leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;
2. Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;
3. Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can prior to leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
   1. Washing with ~212º F water (steam clean), or
   2. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
   3. Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104º F) application.

Complete the inspection and removal procedure before equipment is brought to the project site and before the equipment leaves the project site.

107-055 (20130615)

1. Environmental Protection.

The contractor shall facilitate the accommodation of the following items in their work.

1. **Erosion Control**

Take appropriate measures to prevent all milled materials, fine particles, or soil/water from excavations from entering adjacent wetlands and waterways. If erosion mat is used along stream banks, biodegradable and non-netted mat (e.g. Class I Type A Urban, Class I Type B Urban, or Class II Type C) shall be used.

1. **Rivers, Streams& Floodplains**

All instream work shall be undertaken between June 1 and August 30 to protect developing fish eggs and substrate for aquatic organisms.

Culverts shall be set in a manner that does not cause stream fragmentation and allows fish and other aquatic organisms to migrate during low-flow conditions. Invert elevations shall be set an adequate distance below the final streambed elevation to allow a natural and continuous streambed condition to occur, and gravel may be installed. The addition of end sections to existing culverts shall also be accomplished in this manner. All disturbed bank areas shall be protected and restored as soon as feasible. The WisDOT construction supervisor will assure fulfillment.

1. **Endangered Resources**

Endangered and threatened species may occur in the project limits. No machine work shall be performed between STA 356 and STA 364 until after August 1. Verification with the WDNR transportation liaison regarding the location of threatened or endangered species shall be performed the season prior to construction. The DOT project engineer will assure fulfillment of these tasks.

1. **Burning Debris**

It is illegal to burn materials other than clean wood. The use of oil based accelerants is prohibited. A permit may be required to burn any material during the wildland fire season. For information regarding current fire danger and burning permit restrictions, see the DNR Forestry website at <http://dnr.wi.gov/topic/ForestFire/restrictions.asp>.

1. Sensitive Work Zones

Areas of potential environmental, archeological, or historic significance have been identified along the project corridor outside of the roadway shoulder points.

Off-roadway locations utilized by the contractor and subcontractors for construction staging, material storage, equipment storage, and parking will be approved by the engineer at the pre-construction meeting or 10 days before the start of construction.

If items of environmental, archeological, or historic significance are encountered the contractor will stop work immediately. The project engineer will be notified, Amy Adrihan at 715-392-7972 will be contacted, and requirements will be followed according to standard specifications 107.

1. Utilities.

This contract comes under the provision of Administrative Rule Trans 220.

107-065 (20080501)

The following utilities have facilities within the project area:

**CenturyLink** has fiber optic in the Village of Radisson along the Tuscobia Trail. No conflicts are anticipated.

**North Central Power Company** has four underground wire and distribution crossings and 2 overhead crossings which will not be in conflict with the project.

**Indianhead Telephone Company** has fiber optic and wire west and east of STH 40 with 11 overhead telephone crossings. No conflicts are anticipated.

**S&K TV Systems** has underground cable and above ground cable located on power poles. Aerial cable runs at or about STA 145 to STA 205, underground cable at STH 48 from STA 205 to STA 245, and aerial cable at or about STA 245 to STA 285. No conflicts are anticipated.

**The Village of Radisson** has water main crossings under STH 40 located 6-10 feet underground. No conflicts are anticipated. Sewer main and laterals also run under STH 40 and will not be in conflict.

1. QMP Base Aggregate.

**A Description**

**A.1 General**

(1) This special provision describes contractor quality control (QC) sampling and testing for base aggregates, documenting those test results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

(2) Conform to standard spec 301, standard spec 305, and standard spec 310 as modified here in this special provision. Apply this special provision to material placed under all of the Base Aggregate Dense and Base Aggregate Open Graded bid items, except do not apply this special provision to material classified as reclaimed asphaltic pavement placed under the Base Aggregate Dense bid items.

(3) Do not apply this special provision to material placed under the Aggregate Detours, Salvaged Asphaltic Pavement Base, Breaker Run, Select Crushed, Pit Run, Subbase, or Riprap bid items.

(4) Provide and maintain a quality control program, defined as all activities related to and documentation of the following:

1. Production and placement control and inspection.

2. Material sampling and testing.

(5) Chapter 8 of the department’s construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department’s web site at:

<http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm>

**A.2 Contractor Testing for Small Quantities**

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a plan quantity of 9000 tons or less of material as shown in the schedule of items under that bid item.

(2) The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:

1. The contractor need not submit a full quality control plan but shall provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program for material under affected bid items.

2. Divide the aggregate into uniformly sized sublots for testing as follows:

|  |  |
| --- | --- |
| **Plan Quantity** | **Minimum Required Testing** |
| ≤ 1500 tons | One test from production, load-out, or placement at the contractor’s option[1] |
| > 1500 tons and ≤ 6000 tons | Two tests of the same type, either from production, load-out, or placement at the contractor’s option[1] |
| > 6000 tons and ≤ 9000 tons | Three placement tests[2] [3] |

[1] If using production tests for acceptance, submit test results to the engineer for review prior to incorporating the material into the work. Production test results are valid for a period of 3 years.

[2] For 3-inch material, obtain samples at load-out.

[3] If the actual quantity overruns 9000 tons, create overrun sublots to test at a rate of one additional placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

3. No control charts are required. Submit aggregate load-out and placement test results to the engineer within one business day of obtaining the sample. Assure that all properties are within the limits specified for each test.

4. Department verification testing is optional for quantities of 6000 tons or less.

(3) Material represented by a sublot with any property outside the specification limits is nonconforming. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**B Materials**

**B.1 Quality Control Plan**

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not place base before the engineer reviews and comments on the plan. Construct the project as that plan provides.

(2) Do not change the quality control plan without the engineer’s review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor’s laboratories as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.

2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.

3. A list of source and processing locations, section and quarter descriptions, for all aggregate materials requiring QC testing.

4. Test results for wear, sodium sulfate soundness, freeze/thaw soundness, and plasticity index of all aggregates requiring QC testing. Obtain this information from the region materials unit or from the engineer.

5. Descriptions of stockpiling and hauling methods.

6. Locations of the QC laboratory, retained sample storage, and where control charts and other documentation is posted.

7. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

**B.2 Personnel**

(1) Have personnel certified under the department’s highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

|  |  |
| --- | --- |
| **Required Certification Level:** | **Sampling or Testing Roles:** |
| Aggregate Technician IPP  Aggregate Sampling Technician  Aggregate Assistant Certified Technician (ACT-AGG) | Aggregate Sampling[1] |
| Aggregate Technician IPP  Aggregate Assistant Certified Technician (ACT-AGG) | Aggregate Gradation Testing, Aggregate Fractured Particle Testing, Aggregate Liquid Limit and Plasticity Index Testing |

[1] Plant personnel under the direct observation of an aggregate technician certified at level one or higher may operate equipment to obtain samples.

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**B.3 Laboratory**

(1) Perform QC testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section

3502 Kinsman Blvd.

Madison, WI 53704

Telephone: 608-246-5388

<http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm>

**B.4 Quality Control Documentation**

**B.4.1 General**

(1) Submit base aggregate placement documentation to the engineer within 10 business days after completing base placement. Ensure that the submittal is complete, neatly organized, and includes applicable project records and control charts.

**B.4.2 Records**

(1) Document all placement observations, inspection records, and control adjustments daily in a permanent field record. Also include all test results in the project records. Provide test results to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute tabulated results using a method mutually agreeable to the engineer and contractor.

**B.4.3 Control Charts**

(1) Plot gradation and fracture on the appropriate control chart as soon as test results are available. Format control charts according to CMM 8.30. Include the project number on base placement control charts. Maintain separate control charts for each base aggregate size, source or classification, and type.

(2) Provide control charts to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute charts using a method mutually agreeable to the engineer and contractor. Update control charts daily to include the following:

1. Contractor individual QC tests.

2. Department QV tests.

3. Department IA tests.

4. Four-point running average of the QC tests.

(3) Except as specified under B.8.2.1 for nonconforming QV tests, include only QC tests in the running average. The contractor may plot process control or informational tests on control charts, but do not include these tests, conforming QV tests, or IA tests in the running average.

**B.5 Contractor Testing**

(1) Test gradation, fracture, liquid limit and plasticity index during placement for each base aggregate size, source or classification, and type.

(2) Test gradation once per 3000 tons of material placed. Determine random sample locations and provide those sample locations to the engineer. Obtain samples after the material has been bladed, mixed, and shaped but before compacting; except collect 3-inch samples from the stockpile at load-out. Do not sample from material used to maintain local traffic or from areas of temporary base that will not have an overlying pavement. On days when placing only material used to maintain local traffic or only temporary base that will not have an overlying pavement, no placement testing is required.

(3) Split each contractor QC sample and identify it according to CMM 8.30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

(4) The engineer may require additional sampling and testing to evaluate suspect material or the technician’s sampling and testing procedures.

(5) Test fracture for each gradation test until the fracture running average is above the lower warning limit. Subsequently, the contractor may reduce the frequency to one test per 10 gradation tests if the fracture running average remains above the warning limit.

(6) Test the liquid limit and plasticity index for the first gradation test. Subsequently, test the liquid limit and plasticity index a minimum of once per 10 gradation tests.

**B.6 Test Methods**

**B.6.1 Gradation**

(1) Test gradation using a washed analysis conforming to the following as modified in CMM 8.60:

Gradation AASHTO T 27

Material finer than the No. 200 sieve AASHTO T 11

(2) For 3-inch base, if 3 consecutive running average points for the percent passing the No. 200 sieve are 8.5 percent or less, the contractor may use an unwashed analysis. Wash at least one sample out of 10. If a single running average for the percent passing the No. 200 sieve exceeds 8.5 percent, resume washed analyses until 3 consecutive running average points are again 8.5 percent passing or less.

(3) Maintain a separate control chart for each sieve size specified in standard spec 305 or standard spec 310 for each base aggregate size, source or classification, and type. Set control and warning limits based on the standard specification gradation limits as follows:

1. Control limits are at the upper and lower specification limits.

2. There are no upper warning limits for sieves allowing 100 percent passing and no lower control limits for sieves allowing 0 percent passing.

3. Dense graded warning limits, except for the No. 200 sieve, are 2 percent within the upper and lower control limits. Warning limits for the No. 200 sieve are set 0.5 percent within the upper and lower control limits.

4. Open graded warning limits for the 1-inch, 3/8-inch, and No. 4 sieves are 2 percent within the upper and lower control limits. Upper warning limits for the No. 10, No. 40, and No. 200 sieves are 1 percent inside the upper control limit.

**B.6.2 Fracture**

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec 301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

**B.6.3 Liquid Limit and Plasticity**

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

**B.7 Corrective Action**

**B.7.1 General**

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

**B.7.2 Placement Corrective Action**

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer’s recommended corrective action and increase the testing frequency as follows:

1. For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.

2. For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.

2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.

3. The fracture control limit is exceeded by more than 10.0 percent.

**B.8 Department Testing**

**B.8.1 General**

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

**B.8.2 Verification Testing**

**B.8.2.1 General**

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:

1. One non-random test on the first day of placement.

2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor’s QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting; except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor’s QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

**B.8.3 Independent Assurance**

(1) Independence assurance is unbiased testing the department performs to evaluate the department’s QV and the contractor’s QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department’s independent assurance program. That review may include one or more of the following:

1. Split sample testing.

2. Proficiency sample testing.

3. Witnessing sampling and testing.

4. Test equipment calibration checks.

5. Reviewing required worksheets and control charts.

6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.9.

**B.9 Dispute Resolution**

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor’s and the engineer’s testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department’s central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

**C (Vacant)**

**D (Vacant)**

**E Payment**

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to this work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor’s pay. The department will administer pay reduction under the non-performance of QMP administrative item.

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

301-010 (20100709)

1. QMP Ride; Incentive IRI Ride, Item 440.4410.S.

**A Description**

(1) This special provision describes profiling pavements with a non-contact profiler, locating areas of localized roughness, and determining the International Roughness Index (IRI) for each wheel path segment.

(2) Profile the final riding surface of all mainline pavements**.** Include auxiliary lanes in Category I and II segments; crossroads with county, state or U.S. highway designations greater than 1500 feet in continuous length; bridges, bridge approaches; and railroad crossings. Exclude roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections.

(3) The engineer may direct straightedging under standard spec 415.3.10 for pavement excluded from localized roughness under C.5.2 (1); for bridges; and for roundabouts and pavements within 150 feet of the points of curvature of roundabout intersections.Other surfaces being tested under this provision are exempt from straightedging requirements.

**B (Vacant)**

**C Construction**

**C.1 Quality Control Plan**

(1) Submit a written quality control plan to the engineer at or before the pre-pave meeting. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of all quality control personnel.

2. The process by which quality control information and corrective action efforts will be disseminated to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.

3. The methods and timing used for monitoring and/or testing ride quality throughout the paving process. Also indicate the approximate timing of acceptance testing in relation to the paving operations.

4. The segment locations of each profile run used for acceptance testing.

5. Traffic Control Plan

**C.2 Personnel**

(1) Have a profiler operator, certified under the department’s highway technician certification program (HTCP), operate the equipment, collect the required data, and analyze the results using the methods taught in the HTCP profiling course. Ensure that an HTCP-certified profiler operator supervises data entry into the material records system (MRS).

**C.3 Equipment**

(1) Furnish a profile-measuring device capable of measuring IRI from the list of department-approved devices published on the department’s web site:

<http://roadwaystandards.dot.wi.gov/standards/qmp/index.htm>

(2) Unless the engineer and contractor mutually agree otherwise, arrange to have a calibrated profiler available when paving the final riding surface.

(3) Perform daily calibration verification of the profiler using test methods according to the manufacturer’s recommendations. Notify the engineer before performing the calibration verification. If the engineer requests, arrange to have the engineer observe the calibration verification and operation. Maintain records of the calibration verification activities, and provide the records to the engineer upon request.

**C.4 Testing**

**C.4.1 Run and Reduction Parameters**

(1) Enter the equipment-specific department-approved filter settings and parameters given in the approved profilers list on the department’s QMP ride web site.

<http://roadwaystandards.dot.wi.gov/standards/qmp/profilers.pdf>

**C.4.2 Contractor Testing**

(1) Operate profilers within the manufacturer’s recommended speed tolerances. Perform all profile runs in the direction of travel. Measure the longitudinal profile of each wheel track of each lane. The wheel tracks are 6.0 feet apart and centered in the traveled way of the lane.

(2) Coordinate with the engineer to schedule profile runs for acceptance. The department may require testing to accommodate staged construction or if corrective action may be required.

(3) Measure the profiles of each standard or partial segment. Define primary segments starting at a project terminus and running contiguously along the mainline to the other project terminus. Field-locate the beginning and ending points for each profile run. When applicable, align segment limits with the sublot limits used for testing under the QMP Concrete Pavement specification. Define segments one wheel path wide and distinguished by length as follows:

1. Standard segments are 500 feet long.

2. Partial segments are less than 500 feet long.

(4) Treat partial segments as independent segments.

The department will categorize each standard or partial segment as follows:

|  |  |
| --- | --- |
| **Segments with a Posted Speed Limit of 55 MPH or Greater** | |
| **Category** | **Description** |
| HMA I | Asphalt pavement with multiple opportunities to achieve a smooth ride. The following operations performed under this contract are considered as opportunities: a layer of HMA, a leveling or wedging layer of HMA, and diamond grinding or partial depth milling of the underlying pavement surface. |
| HMA II | Asphalt pavement with a single opportunity to achieve a smooth ride. |
| HMA III | Asphalt pavement segments containing any portion of a bridge, bridge approach, railroad crossing, or intersection. An intersection is defined as the area within the points of curvature of the intersection radii. |
| PCC II | Concrete pavement. |
| PCC III | Concrete pavement segments containing any portion of a bridge, bridge approach, railroad crossing, intersection or gap. An intersection is defined as the area within the points of curvature of the intersection radii. |

|  |  |
| --- | --- |
| **Segments with Any Portion Having a Posted Speed Limit Less Than 55 MPH** | |
| **Category** | **Description** |
| HMA IV | Asphalt pavement including intersections, bridges, approaches, and railroad crossings. |
| PCC IV | Concrete pavement including gaps, intersections, bridges, approaches, and railroad crossings. |

**C.4.3 Verification Testing**

(1) The department may conduct verification testing (QV) to validate the quality of the product. A HTCP certified profiler operator will perform the QV testing. The department will provide the contractor with a listing of the names and telephone numbers of all verification personnel for the project.

(2) The department will notify the contractor before testing so the contractor can observe the QV testing. Verification testing will be performed independent of the contractor’s QC work using separate equipment from the contractor’s QC tests. The department will provide test results to the contractor within 1 business day after the department completes the testing.

(3) The engineer and contractor will jointly investigate any testing discrepancies. The investigation may include additional testing as well as review and observation of both the department’s and contractor’s testing procedures and equipment. Both parties will document all investigative work.

(4) If the contractor does not respond to an engineer request to resolve a testing discrepancy, the engineer may suspend production until action is taken. Resolve disputes as specified in C.6.

**C.4.4 Documenting Profile Runs**

(1) Compute the IRI for each segment and analyze areas of localized roughness using the ProVAL software. Also, the contractor shall prepare the ProVAL Ride Quality Module Reports, showing the IRI for each segment and the areas of localized roughness exceeding an IRI of 200 in/mile. Use ride quality module report as follows:

Fixed Interval Continuous (Localized Roughness)

Base-length 500’ 25’

Threshold 140”/Mile 200”/Mile

The ProVAL software is available for download at:

<http://www.roadprofile.com>.

(2) As part of the profiler software outputs and ProVAL reports, document the areas of localized roughness. Field-locate the areas of localized roughness prior to the engineer’s assessment for corrective actions. Document the reasons for areas excluded and submit to the engineer.

(3) Within 5 business days after completing profiling of the pavement covered under this special provision, unless the engineer and contractor mutually agree to a different timeline, submit the electronic ProVAL project file containing the .ppf files for each profiler acceptance run data and Ride Quality Module Reports, in .pdf format using the department’s Materials Reporting System (MRS) software available on the department’s web site:

<http://www.atwoodsystems.com/mrs>

Notify the engineer when the Profiler Acceptance Run data and the Ride Quality Report have been submitted to the MRS system.

**C.5 Corrective Actions**

**C.5.1 General**

(1) Analyze the data from the PROVAL reports and make corrective action recommendations to the department. The department will independently assess whether a repair will help or hurt the long-term pavement performance before deciding on corrective action. Correct the ride as the engineer directs in writing.

**C.5.2 Corrective Actions for Localized Roughness**

(1) Apply localized roughness requirements to all pavements, including HMA III, PCC III, HMA IV, and PCC IV; except localized roughness requirements will not be applied to pavements within 25 feet of the following surfaces if they are not constructed under this contract: bridges, bridge approaches, or railroad crossings. The department may direct the contractor to make corrections to the pavement within the 25-foot exclusionary zones.

(2) The engineer will review each individual wheel track for areas of localized roughness. The engineer will assess areas of localized roughness within 5 business days of receiving notification that the reports were uploaded. The engineer will analyze the report documenting areas that exceed an IRI of 200 in/mile and do one of the following for each location:

1. Direct the contractor to correct the area to minimize the effect on the ride.

2. Leave the area of localized roughness in place with no pay reduction.

3. Except for HMA IV and PCC IV segments, assess a pay reduction as follows for each location in each wheel path:

|  |  |
| --- | --- |
| **Localized Roughness IRI**  **(in/mile)** | **Pay Reduction[1]**  **(dollars)** |
| > 200 | (Length in Feet) x (IRI –200) |

[1] A maximum $250 pay reduction may be assessed for locations of localized roughness that are less than or equal to 25 feet long. Locations longer than 25 feet may be assessed a maximum pay reduction of $10 per foot.

(3) The engineer will not direct corrective action or assess a pay reduction for an area of localized roughness without independent identification of that area as determined by physically riding the pavement. For corrections, use only techniques the engineer approves.

(4) Re-profile corrected areas to verify that the IRI is less than 140 in/mile after correction. Submit a revised ProVAL ride quality module report to the reference documents section of the MRSfor the corrected areas to validate the results.

**C.5.3 Corrective Actions for Excessive IRI**

(1) If an individual segment IRI exceeds 140 in/mile for HMA I, HMA II, and PCC II pavements after correction for localized roughness, the engineer may require the contractor to correct that segment. Correct the segment final surface as follows:

|  |  |
| --- | --- |
| HMA I: | Correct to an IRI of 60 in/mile using whichever of the following methods as approved bythe engineer: |
|  | Mill and replace the full lane width of the riding surface excluding the paved shoulder.  Continuous diamond grinding or fine-tooth milling the full lane width, if required, of the riding surface including adjustment of the paved shoulders. |
| HMA II: | Correct to an IRI of 85 in/mile using whichever of the following methods as approved bythe engineer: |
|  | Mill and replace the full lane width of the riding surface excluding the paved shoulder.  Continuous diamond grinding or fine-tooth milling of the full lane width, if required, of the riding surface including adjustment of the paved shoulders |
| PCC II: | Correct to an IRI of 85 in/mile using whichever of the following methods as approved by the engineer: |
|  | Continuous diamond grinding of the full lane width, if required, of the riding surface including adjustment of the paved shoulders. Conform to sections C.1 throughC.4 of Concrete Pavement Continuous Diamond Grinding Special provision contained elsewhere in the contract.  Remove and replace the full lane width of the riding surface. |

(2) Re-profile corrected segments to verify that the final IRI meets the above correction limits and there are no areas of localized roughness. Enter a revised ProVAL ride quality module report for the corrected areas to the reference documents section of the MRS. Segments failing these criteria after correction are subject to the engineer’s right to adjust pay for non-conforming work under standard spec 105.3.

**C.6 Dispute Resolution**

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor’s and the engineer’s testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate testing procedures, and perform additional testing.

(2) If the project personnel cannot resolve a dispute and the dispute affects payment or could result in incorporating nonconforming pavement, the department will use third party testing to resolve the dispute. The department’s Quality Assurance Unit, or a mutually agreed on independent testing company, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent tester. The department may use third party tests to evaluate the quality of questionable pavement and determine the appropriate payment.

**D Measurement**

(1) The department will measure Incentive IRI Ride by the dollar, adjusted as specified in E.2.

**E Payment**

**E.1 Payment for Profiling**

(1) Costs for furnishing and operating the profiler, documenting profile results, and correcting the final pavement surface are incidental to the contract. The department will pay separately for engineer-directed corrective action performed within the 25-foot exclusionary zones under C.5.2 as extra work.

**E.2 Pay Adjustment**

(1) The department will pay incentive for ride under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| 440.4410.S | Incentive IRI Ride | DOL |

(2) Incentive payment is not limited, either up or down, to the amount the schedule of items shows.

(3) The department will administer disincentives for ride under the Disincentive IRI Ride administrative item.

(4) The department will not assess disincentive on HMA III or PCC III segments. Incentive pay for HMA III and PCC III segments will be according to the requirements for the category of the adjoining segments.

(5) The department will adjust pay for each segment based on the initial IRI for that segment. If corrective action is required, the department will base disincentives on the IRI after correction for pavement meeting the following conditions:

|  |  |
| --- | --- |
| All Pavement: | The corrective work is performed in a contiguous, full lane width section 500 feet long, or a length as agreed with the engineer. |
| HMA Pavements: | The corrective work is a mill and inlay or full depth replacement and the inlay or replacement layer thickness conforms to standard spec 460.3.2. |
| Concrete Pavements: | The corrective work is a full depth replacement and conforms to standard spec 415. |

(6) The department will adjust pay for 500-foot long standard segments nominally one wheel path wide using equation “QMP 1.04” as follows:

|  |  |
| --- | --- |
| **HMA I** | |
| **Initial IRI**  **(inches/mile)** | **Pay Adjustment[1]**  **(dollars per standard segment)** |
| < 30 | 250 |
| ≥ 30 to <35 | 1750 – (50 x IRI) |
| ≥ 35 to < 60 | 0 |
| ≥ 60 to < 75 | 1000 – (50/3 x IRI) |
| ≥ 75 | -250 |

|  |  |
| --- | --- |
| **HMA II and PCC II** | |
| **Initial IRI**  **(inches/mile)** | **Pay Adjustment[1] [2]**  **(dollars per standard segment)** |
| < 50 | 250 |
| ≥ 50 to < 55 | 2750 – (50 x IRI) |
| ≥ 55 to < 85 | 0 |
| ≥ 85 to < 100 | (4250/3) – (50/3 x IRI) |
| ≥ 100 | -250 |

|  |  |
| --- | --- |
| **HMA IV and PCC IV** | |
| **Initial IRI**  **(inches/mile)** | **Pay Adjustment[1] [2]**  **(dollars per standard segment)** |
| < 35 | 250 |
| ≥ 35 to < 45 | 1125-(25xIRI) |
| ≥ 45 | 0 |

[1] If the engineer directs placing upper layer asphaltic mixtures between October 15 and May 1 for department convenience as specified in standard spec 450.3.2.1(5), the department will not adjust pay for ride on pavement the department orders the contractor to place when the temperature, as defined in standard spec 450.3.2.1(2), is less than 36 F.

[2] If the engineer directs placing concrete pavement for department convenience, the department will not adjust pay for ride on pavement the department orders the contractor to place when the air temperature falls below 35 F.

(7) The department will prorate the pay adjustment for partial segments based on their length.

440-010 (20130615)

1. Reheating HMA Pavement Longitudinal Joints, Item 460.4110.S.

**A Description**

This special provision describes reheating the abutting edge of the previously compacted layer in the adjacent lane while paving mainline asphalt pavements.

**B (Vacant)**

**C Construction**

**C.1 Equipment**

Provide a self-contained heating unit that heats by convection only. Do not use forced air to enhance the flame. Provide a fireproof barrier between the flame and the heater’s fuel source. The heater must produce a uniform distribution of heat within the heat box. Provide automatic controls to regulate the heater output and shutoff the heater when the paver stops or the heater control system loses power.

Mount the heater on the paver inside the paver’s automatic leveling device.

**C.2 Reheating Joints**

Evenly reheat at least an 8 inch (200 mm) wide strip of the previously compacted layer in the adjacent lane as follows:

* Reheat the joint to within 60 degrees F (15 degrees C) of the mix temperature at the paver auger. Measure joint temperature immediately behind the heater.

The engineer may allow the required joint reheat temperatures to be cooler than specified to adjust for weather, wind, and other field conditions. Coordinate the heater output and paver speed to achieve the required joint reheat temperature without visible smoke emission.

**D Measurement**

The department will measure Reheating HMA Pavement Longitudinal Joints by the linear foot acceptably completed as measured along each joint for each layer of asphalt placed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| 460.4110.S | Reheating HMA Pavement Longitudinal Joints | LF |

Payment is full compensation for all the work required under this bid item.

460-015 (20140630)

1. QMP HMA Pavement Nuclear Density.

**A Description**

Replace standard spec 460.3.3.2 (1) and standard spec 460.3.3.2 (4) with the following:

(1) This special provision describes density testing of in-place HMA pavement with the use of nuclear density gauges. Conform to standard spec 460 as modified in this special provision.

(2) Provide and maintain a quality control program defined as all activities and documentation of the following:

1. Selection of test sites.

2. Testing.

3. Necessary adjustments in the process.

4. Process control inspection.

(3) Chapter 8 of the department’s construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required procedures. Obtain the CMM from the department’s web site at:

<http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm>

(4) The department’s Materials Reporting System (MRS) software allows contractors to submit data to the department electronically, estimate pay adjustments, and print selected reports. Qualified personnel may obtain MRS software from the department’s web site at:

<http://www.atwoodsystems.com/mrs>

**B Materials**

**B.1 Personnel**

(1) Perform HMA pavement density (QC, QV) testing using a HTCP certified nuclear technician I, or a nuclear assistant certified technician (ACT-NUC) working under a certified technician.

(2) If an ACT is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

**B.2 Testing**

(1) Conform to ASTM D2950 and CMM 8.15 for density testing and gauge monitoring methods. Perform nuclear gauge measurements using gamma radiation in the backscatter position. Perform each test for 4 minutes of nuclear gauge count time.

**B.3 Equipment**

**B.3.1 General**

(1) Furnish nuclear gauges from the department’s approved product list at

<http://www.dot.wisconsin.gov/business/engrserv/approvedprod.htm>.

(2) Have the gauge calibrated by the manufacturer or an approved calibration service within 12 months of its use on the project. Retain a copy of the manufacturer’s calibration certificate with the gauge.

(3) Prior to each construction season, and following any calibration of the gauge, the contractor must perform calibration verification for each gauge using the reference blocks located in the department’s central office materials laboratory. To obtain information or schedule a time to perform calibration verification, contact the department’s Radiation Safety Officer at:

Materials Management Section

3502 Kinsman Blvd.

Madison, Wisconsin 53704

Telephone: 608-243-5998

**B.3.2 Correlation of Nuclear Gauges**

**B.3.2.1 Correlation of QC and QV Nuclear Gauges**

(1) Select a representative section of the compacted pavement prior to or on the first day of paving for the correlation process. The section does not have to be the same mix design.

(2) Correlate the 2 or more gauges used for density measurement (QC, QV). The QC and QV gauge operators will perform the correlation on 5 test sites jointly located. Record each density measurement of each test site for the QC, QV and back up gauges.

(3) Calculate the average of the difference in density of the 5 test sites between the QC and QV gauges. Locate an additional 5 test sites if the average difference exceeds 1.0 lb/ft3. Measure and record the density on the 5 additional test sites for each gauge.

(4) Calculate the average of the difference in density of the 10 test sites between the QC and QV gauges. Replace one or both gauges if the average difference of the 10 tests exceeds 1.0 lb/ft3 and repeat correlation process from B.3.2.1 (2).

(5) Furnish one of the QC gauges passing the allowable correlation tolerances to perform density testing on the project.

**B.3.2.2 Correlation Monitoring**

(1) After performing the gauge correlation specified in B.3.2.1, establish a project reference site approved by the department. Clearly mark a flat surface of concrete or asphalt or other material that will not be disturbed during the duration of the project. Perform correlation monitoring of the QC, QV, and all back-up gauges at the project reference site.

(2) Conduct an initial 10 density tests with each gauge on the project reference site and calculate the average value for each gauge to establish the gauge’s reference value. Use the gauge’s reference value as a control to monitor the calibration of the gauge for the duration of the project.

(3) Check each gauge on the project reference site a minimum of one test per day if paving on the project. Calculate the difference between the gauge’s daily test result and its reference value. Investigate if a daily test result is not within 1.5 lb/ft3 of its reference value. Conduct 5 additional tests at the reference site once the cause of deviation is corrected. Calculate and record the average of the 5 additional tests. Remove the gauge from the project if the 5-test average is not within 1.5 lb/ft3 of its reference value established in B.3.2.2(2).

(4) Maintain the reference site test data for each gauge at an agreed location.

**B.4 Quality Control Testing and Documentation**

**B.4.1 Lot and Sublot Requirements**

**B.4.1.1 Mainline Traffic Lanes, Shoulders, and Appurtenances**

(1) A lot consists of the tonnage placed each day for each layer and target density specified in standard spec 460.3.3.1. A lot may include partial sublots.

(2) Divide the roadway into sublots. A sublot is 1500 lane feet for each layer and target density.

(3) A sublot may include HMA placed on more than one day of paving. Test sublots at the pre-determined random locations regardless of when the HMA is placed. No additional testing is required for partial sublots at the beginning or end of a day’s paving.

(4) If a resulting partial quantity at the end of the project is less than 750 lane feet, include that partial quantity with the last full sublot of the lane. If a resulting partial quantity at the end of the project is 750 lane feet or more, create a separate sublot for that partial quantity.

(5) Randomly select test locations for each sublot as specified in CMM 8.15 prior to paving and provide a copy to the engineer. Locate and mark QC density test sites when performing the tests. Perform density tests prior to opening the roadway to traffic.

(6) Use Table 1 to determine the number of tests required at each station, depending on the width of the lane being tested. When more than one test is required at a station, offset the tests 10 feet longitudinally from one another to form a diagonal testing row across the lane.

|  |  |  |
| --- | --- | --- |
| **Lane Width** | **No. of Tests** | **Transverse Location** |
| 5 ft or less | 1 | Random |
| Greater than 5 ft to 9 ft | 2 | Random within 2 equal widths |
| Greater than 9 ft | 3 | Random within 3 equal widths |

**Table 1**

**B.4.1.2 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts**

(1) A lot represents a combination of the total daily tonnage for each layer and target density.

(2) Each side road, crossover, turn lane, ramp, and roundabout must contain at least one sublot for each layer.

(3) If a side road, crossover, turn lane, or ramp is 1500 feet or longer, determine sublots and random test locations as specified in B.4.1.1.

(4) If a side road, crossover, turn lane, or ramp is less than 1500 feet long, determine sublots using a maximum of 750 tons per sublot and perform the number of random tests as specified in Table 2.

|  |  |
| --- | --- |
| **Side Roads, Turn Lanes, Crossovers, Ramps, Roundabouts: Sublot/Layer tonnage** | **Minimum Number of Tests Required** |
| 25 to 100 tons | 1 |
| 101 to 250 tons | 3 |
| 251 to 500 tons | 5 |
| 501 to 750 tons | 7 |

**Table 2**

**B.4.2 Pavement Density Determination**

**B.4.2.1 Mainline Traffic Lanes and Appurtenances**

(1) Calculate the average sublot densities using the individual test results in each sublot.

(2) If all sublot averages are no more than one percent below the target density, calculate the daily lot density by averaging the results of each random QC test taken on that day’s material.

(3) If any sublot average is more than one percent below the target density, do not include the individual test results from that sublot when computing the lot average density and remove that sublot’s tonnage from the daily quantity for incentive. The tonnage from any such sublot is subject to disincentive pay according to standard spec 460.5.2.2.

**B.4.2.2 Mainline Shoulders**

**B.4.2.2.1 Width Greater Than 5 Feet**

(1) Determine the pavement density as specified in B.4.2.1.

**B.4.2.2.2 Width of 5 Feet or Less**

(1) If all sublot test results are no more than 3.0 percent below the minimum target density, calculate the daily lot density by averaging all individual test results for the day.

(2) If a sublot test result is more than 3.0 percent below the target density, the engineer may require the unacceptable material to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine the limits of the unacceptable material according to B.4.3.

**B.4.2.3 Side Roads, Crossovers, Turn Lanes, Ramps, and Roundabouts**

(1) Determine the pavement density as specified in B.4.2.1.

**B.4.2.4 Documentation**

(1) Document QC density test data as specified in CMM 8.15. Provide the engineer with the data for each lot within 24 hours of completing the QC testing for the lot.

**B.4.3 Corrective Action**

(1) Notify the engineer immediately when an individual test is more than 3.0 percent below the specified minimum in standard spec 460.3.3.1. Investigate and determine the cause of the unacceptable test result.

(2) The engineer may require unacceptable material specified in B.4.3(1) to be removed and replaced with acceptable material or allow the nonconforming material to remain in place with a 50 percent pay reduction. Determine limits of the unacceptable area by measuring density of the layer at 50-foot increments both ahead and behind the point of unacceptable density and at the same offset as the original test site. Continue testing at 50-foot increments until a point of acceptable density is found as specified in standard spec 460.5.2.2(1). Removal and replacement of material may be required if extended testing is in a previously accepted sublot. Testing in a previously accepted sublot will not be used to recalculate a new lot density.

(3) Compute unacceptable pavement area using the product of the longitudinal limits of the unacceptable density and the full sublot width within the traffic lanes or shoulders.

(4) Retesting and acceptance of replaced pavement will be according to standard spec 105.3.

(5) Tests indicating density more than 3.0 percent below the specified minimum, and further tests taken to determine the limits of unacceptable area, are excluded from the computations of the sublot and lot densities.

(6) If 2 consecutive sublot averages within the same paving pass and same target density are more than one percent below the specified target density, notify the engineer and take necessary corrective action. Document the locations of such sublots and the corrective action that was taken.

**B.5 Department Testing**

**B.5.1 Verification Testing**

(1) The department will have a HTCP certified technician, or ACT working under a certified technician, perform verification testing. The department will test randomly at locations independent of the contractor’s QC work. The department will perform verification testing at a minimum frequency of 10 percent of the sublots and a minimum of one sublot per mix design. The sublots selected will be within the active work zone. The contractor will supply the necessary traffic control for the department’s testing activities.

(2) The QV tester will test each selected sublot using the same testing requirements and frequencies as the QC tester.

(3) If the verification sublot average is not more than one percent below the specified minimum target density, use the QC tests for acceptance.

(4) If the verification sublot average is more than one percent below the specified target density, compare the QC and QV sublot averages. If the QV sublot average is within 1.0 lb/ft3 of the QC sublot average, use the QC tests for acceptance.

(5) If the first QV/QC sublot average comparison shows a difference of more than 1.0 lb/ft3 each tester will perform an additional set of tests within that sublot. Combine the additional tests with the original set of tests to compute a new sublot average for each tester. If the new QV and QC sublot averages compare to within 1.0 lb/ft3, use the original QC tests for acceptance.

(6) If the QV and QC sublot averages differ by more than 1.0 lb/ft3 after a second set of tests, resolve the difference with dispute resolution specified in B.6. The engineer will notify the contractor immediately when density deficiencies or testing precision exceeding the allowable differences are observed.

**B.5.2 Independent Assurance Testing**

(1) Independent assurance is unbiased testing the department performs to evaluate the department’s verification and the contractor’s QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform the independent assurance review according to the department’s independent assurance program.

**B.6 Dispute Resolution**

(1) The testers may perform investigation in the work zone by analyzing the testing, calculation, and documentation procedures. The testers may perform gauge correlation according to B.3.2.1.

(2) The testers may use correlation monitoring according to B.3.2.2 to determine if one of the gauges is out of tolerance. If a gauge is found to be out of tolerance with its reference value, remove the gauge from the project and use the other gauge’s test results for acceptance.

(3) If the testing discrepancy cannot be identified, the contractor may elect to accept the QV sublot density test results or retesting of the sublot in dispute within 48 hours of paving. Traffic control costs will be split between the department and the contractor.

(4) If investigation finds that both gauges are in error, the contractor and engineer will reach a decision on resolution through mutual agreement.

**B.7 Acceptance**

(1) The department will not accept QMP HMA Pavement Nuclear Density if a non-correlated gauge is used for contractor QC tests.

**C (Vacant)**

**D (Vacant)**

**E Payment**

**E.1 QMP Testing**

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to the work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor’s pay. The department will administer pay reduction under the Non-performance of QMP administrative item.

**E.2 Disincentive for HMA Pavement Density**

(1) The department will administer density disincentives according to standard spec 460.5.2.2.

**E.3 Incentive for HMA Pavement Density**

(1) Delete standard spec 460.5.2.3.

(2) If the lot density is greater than the minimum specified in standard spec table 460-3 and all individual air voids test results for that mixture are within +1.0 percent or -0.5 percent of the design target in standard spec table 460-2, the department will adjust pay for that lot as follows:

|  |  |
| --- | --- |
| **Percent Lot Density Above Minimum** | **Pay Adjustment Per Ton** |
| From -0.4 to 1.0 inclusive | $0 |
| From 1.1 to 1.8 inclusive | $0.40 |
| More than 1.8 | $0.80 |

(3) The department will adjust pay under the Incentive Density HMA Pavement bid item. Adjustment under this item is not limited, either up or down, to the bid amount shown on the schedule of items.

(4) If a traffic lane meets the requirements for disincentive, the department will not pay incentive on the integrally paved shoulder.

(5) Submit density results to the department electronically using the MRS software. The department will validate all contractor data before determining pay adjustments.

460-020 (20100709)

1. Adjusting Manhole Covers.

This work shall be according to the pertinent provisions of standard spec 611, as shown on the plans, and as hereinafter provided.

Adjust manhole covers located in pavement areas in two separate operations. Initially, remove designated manhole covers along with sufficient pavement to permit installation of temporary cover plate over the opening. Fill the excavated area with asphaltic pavement mixture, which shall remain in place until contract milling and paving operations permit setting the manhole frames to grade. During the second phase, remove the asphaltic pavement mixture surrounding the manhole plus the temporary cover plate, and set the manhole cover to final grade. The department will measure and pay for the items of asphaltic pavement mixture, temporary cover plate, milling, and paving separately.

Revise standard spec 611.3.7 by deleting the last paragraph.

Set the manhole frames so that they comply with the surface requirements of standard spec 450.3.2.9. At the completion of the paving, a 6-foot straightedge shall be placed over the centerline of each manhole frame parallel to the direction of traffic. A measurement shall be made at each side of the frame. The two measurements shall be averaged. If this average is greater than 5/8 inches, reset the manhole frame to the correct plane and elevation. If this average is 5/8 inches or less but greater than 3/8 inches, the manhole frame shall be allowed to remain in place but shall be paid for at 50 percent of the contract unit price.

If the manhole frame is higher than the adjacent pavement, the two measurements shall be made at each end of the straightedge. These two measurements shall be averaged. The same criteria for acceptance and payment as above, shall apply.

611-005 (20030820)

1. Cover Plates Temporary, Item 611.8120.S.

**A Description**

This special provision describes furnishing, installing and removing a steel plate to cover and support asphaltic pavement and traffic loading at manholes, inlets and similar structures during milling and paving operations.

**B Materials**

Provide a 0.25-inch minimum thickness steel plate that extends to the outside edge of the existing masonry.

**C (Vacant)**

**D Measurement**

The department will measure Cover Plates Temporary, acceptably completed in place, as units.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| 611.8120.S | Cover Plates Temporary | Each |

Payment is full compensation for furnishing, installing, and removing the cover plates.

The steel plates shall become the property of the contractor when no longer needed in the contract work.

611-006 (20030820)

1. Removing Signs Type II.

This work shall be in accordance with the pertinent requirements of section 638 of the standard specifications and as provided here.

Type II aluminum signs are the department’s property. Return aluminum signs to the Northwest Region sign shop palletized for handling with a forklift. Northwest Eau Claire Sign Shop Coordinators Steve Allard (715) 855-7671 shall be notified at least 3 business days prior to delivery to coordinate shipment to be delivered to the Northwest Region Spooner Sign Shop at:

Junction 253 & 63

Greenvalley Rd.

Spooner WI, 54801

1. Traffic Control (8590-22-60), Item 643.0100.

This work shall be in accordance with the pertinent requirements of section 632 of the Standard Specifications and as follows:

Mobilizations necessary to add, subtract, or modify, as required and approved by the engineer, traffic control and traffic control detour devices during construction are incidental to the item of Traffic Control Project. Requested changes shall be completed within 48 hours of request, or as agreed to by the engineer.

1. Pavement Marking Same Day Epoxy 4-Inch and Pavement Marking Epoxy 4-Inch.

This work shall be in accordance with the pertinent requirements of section 646 of the standard specifications and as provided here.

Placement of Pavement Marking Same Day Epoxy to be completed prior to placement of rumble strips shall be completed at the following application rate of 16.5 gallons per mile (15 mil thickness).

After completion of Asphaltic Centerline Rumble Strips 2-Lane Rural contractor will place Pavement Marking Epoxy 4-Inch at the application rate of 22 gallons per mile (20 mil thickness) in accordance with 646.3.1.2 and within the timeline to be determined by the project engineer

1. Locating No-Passing Zones, Item 648.0100.

For this project, the spotting sight distance in areas with a 55 mph posted speed limit is Choose an item..

648-005 (20060512)

1. Concrete Curb & Gutter Cure and Seal Treatment, Item SPV.0090.01.

**A Description**

This work includes treating all newly constructed concrete sidewalk with a surface cure and seal treatment as shown on plans, and as hereinafter provided.

**B Materials**

The treating material shall conform to ASTM C1315, ASTM C309, and AASHTO M148 specifications and be produced by a manufacturer on the approved list.

**C Construction**

Application rates for the treating material shall be in accordance to the manufacturer’s specifications.

**D Measurement**

The department will measure Concrete Curb & Gutter Cure and Seal Treatment by the square foot, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0090.01 | Concrete Curb & Gutter and Seal Treatment | LF |

Payment is full compensation for Concrete Curb & Gutter Cure and Seal Treatment.

1. Prepare Foundation for Asphaltic Paving Special, Item SPV.0105.01.

**A Description**

This special provision describes preparation of foundation for asphaltic paving, in accordance to standard spec 211 and as herein provided.

After milling operations, as directed by the engineer, clean and patch cracks and joints, and remove and patch weak and deteriorated areas in the remaining milled asphalt pavement layer and leveling layer within the project limits in accordance to the standard specifications, and as hereinafter provided.

**B (Vacant)**

**C Construction**

*Supplement standard spec 211.3.5 as follows:*

Remove all surplus crack and joint sealing material from the surface of the pavement and all joint material, including fillers and sealers, from joints and cracks to a minimum depth of 2 inches below the surface of the milled asphalt pavement. Clean and/or blow out all cracks and joints prior to refilling.

Prior to the placement of the surface layer, completely remove any unstable areas, as directed by the engineer. Refill these areas to the surface of the milled layer, as appropriate. Prepare the foundation for asphaltic paving by excavating and shaping any soft yielding areas and preparing the milled asphaltic surface prior to the start of paving operations.  This work is paid for under Preparation of Foundation for Asphaltic Paving Special.  Excavated material will be typically replaced with the following; 12” Base Aggregate Dense 1 1/4-Inch and 4” Asphaltic Surface.  The Excavation Common, Base Aggregate Dense 1 1/4-Inch and Asphaltic Surface required to prepare the foundation will be paid for at the contract price. The excavated material shall be used to shape the remaining aggregate shoulders or widen the roadbed where possible. Any material not incorporated into the roadbed or shoulders as stated above shall be removed and disposed of by the contractor.

**D Measurement**

The department will measure Prepare Foundation for Asphaltic Paving Special as a single complete lump sum unit of work, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0105.01 | Prepare Foundation for Asphaltic Paving Special | LS |

Payment is full compensation for furnishing all work under this item including any sawcuts, any additional milling to remove pavement and any test rolling.

1. Material Transfer Vehicle, Item SPV.0105.02.

**A Description**

This special provision describes furnishing Material Transfer Vehicle (MTV) and an operator for use on this project during HMA upper layer paving operations, as shown in the plans or as directed by the engineer, and as hereinafter provided.

**B Materials**

The MTV shall be self propelled, remix and maintain constant temperature, and continually feed the paver hopper. The storage capacity shall be adequate to provide continuous forward movement of the paver. The paver speed shall be coordinated to match the delivery of material and capacity of the MTV to limit stopping of the paver.

**C Construction**

An operator shall remain with the vehicle at all times during moving operations and the paver's hopper shall remain full at all times to avoid segregation of coarse aggregates. No placement of HMA upper layer pavement shall be allowed without the use of the MTV.

**D Measurement**

The department will measure Material Transfer Vehicle by the lump sum for each material transfer vehicle, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0105.02 | Material Transfer Vehicle | LS |

Payment is full compensation for deploying the equipment and its operator; and for furnishing all labor, tools, materials, equipment and incidentals necessary to complete the contract work.

1. Concrete Sidewalk Cure and Seal Treatment, Item SPV.0165.01.

**A Description**

This work includes treating all newly constructed concrete sidewalk with a surface cure and seal treatment as shown on plans, and as hereinafter provided.

**B Materials**

The treating material shall conform to ASTM C1315, ASTM C309, and AASHTO M148 specifications and be produced by a manufacturer on the approved list.

**C Construction**

Application rates for the treating material shall be in accordance to the manufacturer’s specifications.

**D Measurement**

The department will measure Concrete Sidewalk Cure and Seal Treatment by the square foot, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0165.01 | Concrete Sidewalk Cure and Seal Treatment | SF |

Payment is full compensation for Concrete Sidewalk Cure and Seal Treatment.

1. Concrete Driveway Cure and Seal Treatment, Item SPV.0180.01.

**A Description**

This work includes treating all newly constructed concrete driveway with a surface cure and seal treatment as shown on plans, and as hereinafter provided.

**B Materials**

The treating material shall conform to ASTM C1315, ASTM C309, and AASHTO M148 specifications and be produced by a manufacturer on the approved list.

**C Construction**

Application rates for the treating material shall be in accordance to the manufacturer’s specifications.

**D Measurement**

The department will measure Concrete Driveway Cure and Seal Treatment by the square foot, acceptably completed.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0180.01 | Concrete Driveway Cure and Seal Treatment | SY |

Payment is full compensation for Concrete Driveway Cure and Seal Treatment.

1. Asphaltic Surface Special, Item SPV.0195.01.

**A Description**

This special provision describes placing special asphaltic surface as shown on the plans or designated by the engineer in the field and as hereinafter provided

**B Materials**

*Supplement standard spec 465.2 (1) and standard spec 465.2 (2) as follows:*

Under the Asphaltic Surface Special bit item, furnish asphaltic mixture meeting requirements specified for HMA Pavement Type E-3 Special with asphaltic material AC PG 58-34P

**C Construction**

Construct asphaltic surface in accordance to subsection 465.3 of the standard specifications.

**D Measurement**

The department will measure the Asphaltic Surface Special by the ton acceptably completed.

The department will not measure asphaltic materials separately.

**E Payment**

The department will pay for measured quantities at the contract unit price under the following bid item:

|  |  |  |
| --- | --- | --- |
| ITEM NUMBER | DESCRIPTION | UNIT |
| SPV.0195.01 | Asphaltic Surface Special | TON |

Payment is full compensation for providing mixture designs; for providing the asphaltic mixture including asphaltic material; for preparing foundation; for furnishing, hauling, placing, and compacting the mixture; and for furnishing all labor, tools, equipment, materials and incidentals necessary to complete the contact work.

1. HMA Pavement Type E-3 Special, Item SPV.0195.02.

**A.** **Description**

Perform this work in accordance to section 460 of the standard specifications and as hereinafter provided.

**B.** **Materials**

Supplement subsection 460.2 as follows: Under the HMA Pavement Type E-3 Special bid item, furnish asphaltic mixture meeting requirements specified for HMA Pavement type E-3 as specified in Table 460-2 with an AC PG 58-34P for the 12.5 mm mix used in the leveling layer and upper layer. The minimum effective AC (Pbe) for the asphaltic mixture design submitted under subsection 460.2.7 of the standard specifications shall be equal to or greater than 4.7% for the 12.5 mm mixture. The voids filled with binder (VFB or VFA) mixture requirements shall be 65-78%. The % minimum VMA as specified in Table 460-1 shall be increased to 15.0% for a 12.5 mm mixture.

**C. Construction (Vacant)**

Supplement subsection 460.2.8.2.1.4.2 as follows: Plot and maintain the additional control charts daily as follows:

* Pbe as calculated for mix design
* Dust/Pbe
* VFA

**D. Measurement**

The department will measure the HMA Pavement Type E-3 Special by the ton acceptably completed.

1. **Payment**

Delete subsection 460.5.2.1 subparagraphs (2) and (5) of the standard specifications:

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER DESCRIPTION UNIT

SPV.0195.02 HMA Pavement Type E-3 Special Ton

Payment is full compensation for providing HMA mixture designs; for providing the asphaltic mixture including asphaltic material; for preparing foundation; for furnishing, hauling, placing, and compacting the mixture; for all QMP testing and aggregate source testing; and for all materials; and for furnishing all labor, tools, equipment, materials and incidentals necessary to complete the contact work.