Special Provisions

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 5290-02-70, Mazomanie – Sun Prairie, STH 113(s) Intersection, STH 19, Dane 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, 2018 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 (20161130)

2. Scope of Work.

The work under this contract shall consist of grading, base aggregate dense, concrete pavement, HMA pavement, storm sewer, concrete curb and gutter, permanent signing, pavement marking, temporary traffic signals, street lighting, and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.
104-005 (20090901)

3. 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 2018 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.

Provide the Erosion Control Implementation Plan (ECIP) 14 days prior to the Preconstruction Conference.

Do not begin or continue any work that closes traffic lanes outside the allowable time periods specified in the Traffic article in these special provisions. If the contractor fails to open all lanes of traffic by the specified times, then a reduction of $1500 per hour per traffic lane for each hour of lane closure violations will be made from monies due the contractor. This reduction shall be a quarterly fraction of the $1500 hourly reduction for each 15-minute increment during which the lane closure violation occurs. The total reduction from monies due to the contractor shall be the summation of the separate reductions for each lane closure violation.

Construction Operations

Do not park or store any equipment or materials within the clear zone unless approved by the engineer.

During the various construction stages as specified in the following paragraphs, install underground items (for example storm sewer, conduit, etc.) to the staging limits. Adequately extend the underground items to a location past the new pavement so they are accessible from the following stage. Accept responsibility for damage to the pavement, locating installed underground items, and maintaining traffic flow for two lanes of traffic.

Eliminate or protect drop-offs of 2-inches or more within 10 feet or less from the edge of the traveled way before the end of the work day. Compacted material placed to a temporary 3:1 or flatter cross slope from the surface of the pavement edge is acceptable. If temporary precast barrier is used to protect the drop-off, it will be considered incidental to the work.

Uneven pavement lanes will not be allowed over the weekend. Construct HMA pavement layers to eliminate all uneven lanes before 5:00 PM Friday.

The schedule of operations shall conform to the construction staging as shown in the construction staging plans, unless the engineer approves modifications to the schedule in writing. Staged construction is necessary for construction of STH 19, STH 113, and CTH I while maintaining traffic flow. The schedule of operations shall conform to the following construction staging described herein:

Stage 1:

Construct temporary shoulder widening on north side of STH 19; south side of STH 19/113; and on the outside of southbound (SB) STH 113.

Stage 2a and 2b:

In stage 2a, construct temporary intersection at STH 19/113 to extent possible and install temporary traffic signals. Stage 2b shall be completed in one night during the hours of 8:00pm - 6:00am, between Sunday PM – Friday AM. This stage will consist of closing NB STH 113 to allow for final construction of the temporary intersection. The traffic signals shall be operational by 6:00am that following morning.

Stage 3:
Construct roundabout. Install temporary culvert pipe on CTH I at beginning of this stage. Construct eastbound (EB) STH 19 east of the roundabout to project limits and westbound (WB) to location as shown on the plan. Construct STH 19/113 west of roundabout to location as shown on the plan. Construct northbound (NB) STH 113 from roundabout to project limits. Construct SB STH 113 from roundabout to location as shown on the plan. Construct CTH I to location as shown on the plan. Construct temporary connection to existing pavement during nighttime hours, 8:00pm - 6:00am, between Sunday PM – Friday AM.

Stage 4a and 4b:
Construct the remaining of legs of the roundabout as shown in the traffic control plan.

Stage 5:
Construct the median area used for traffic switching for WB STH 19 traffic in previous stage.

HMA Paving Operations
The contractor shall complete the paving operations of the upper layer of HMA Pavement 4 MT 58-28 H for the roundabout and roundabout legs in a single day's operation during stage 3. No cold joints will be allowed within the following stationing:

STA. 114+00 "EB" – STA. 122+00 "EB"
STA. 114+00 "WB"– STA. 119+75 "WB"
STA. 212+00 "NB" – STA. 214+00 "NB"
STA. 212+00 "SB" – STA. 214+00 "SB"
STA. 20+00 "C" – STA. 23+91.48 "C"
STA. 5+00 "SWFB" – STA. 8+00 "SWFB"
STA. 3+50 "SEFB" – STA. 6+50 "SEFB"

At other locations, a minimum of two lifts of permanent HMA pavement is required prior to traffic.

Prior to allowing motorists into the roundabout, the contractor shall have all lighting constructed in stage 3 operational.

4. Traffic

A General
Keep STH 19, STH 113, STH 19/113 & CTH I open to traffic at all times except as outlined below during shoulder and single lane closures.

Keep all private entrances and field entrances accessible at all times, unless permission to temporarily close the entrance is obtained from the property owner. Notify the property owner a minimum of 3 days in advance of work that will affect their access.

Employ such flag person, signs, barricades, and drums as may be necessary to safeguard or protect hazards in the work zone, such as exposed manholes or drop-offs for vehicles and direct traffic at locations where construction operations may interfere or restrict the smooth flow of traffic.

Maintain emergency vehicle access to all properties at all times.

B Traffic Control Devices

Place roadway signing as detailed on the plans and in conformance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition. Place traffic control completely by the end of the working day of a traffic staging switch.

Prior to any traffic control being placed, provide the engineer and the Dane County Sheriff's Department, Village of Waunakee Fire Department, and Village of Waunakee Police Department, with the name and telephone number of a local person responsible for the emergency maintenance of traffic control.

Place roadway signing as detailed on the plans and in conformance to the Manual of Uniform Traffic Control Devices (MUTCD). Stationary Road Work 500 FT, Road Work 1000 FT and Road Work Ahead signs shall be equipped with a flashing beacon.

Equip all contractor-owned construction vehicles and equipment, including workers' vehicles working for the contractor, with at least one flashing amber light. The flashing amber light shall be activated when vehicles or equipment are operated in, parked in close proximity to, or when entering and exiting live lanes of traffic. The flashing amber light shall be placed at a location that provides visibility from all directions. The light shall be of the flashing strobe or revolving type meeting the following requirements:

Flashing Strobe Type Light	Revolving Type Light
360-degree lens	360-degree lens
60 to 90 flashes/min	45 to 90 flashes/min
5-inch minimum height	4-5/8 inch minimum height
3-3/4 inch minimum diameter	3-3/4 inch minimum diameter

The light shall be equipped with bulbs of 50 candlepower minimum. Mount the flashing amber light approximately midway between the transverse extremities of the vehicle or machinery and at the highest practicable point. Mounting shall be either magnetic or permanent. No compensation for furnishing and installing the flashing amber light to the contractor owned equipment, vehicles, or worker vehicles, will be provided for in the contract.

Provide a flaggers station at each end of a lane closure and at each intersection within a lane closure. Light each flaggers station with a non-glare 4000 Watt balloon-type or other light tower system as approved by the engineer. Payment for flaggers and for lighting flaggers stations is incidental to the item of Traffic Control, Project 5290-02-70.

Provide PCMS message boards as shown on the plan. Messages for each stage are shown below.

PCMS Messages			
	STH 19 WB	STH 113 NB	STH 19/113 EB
7 Days Prior to Stage 1	Roadwork Begins Date XX; Expect Delays	Roadwork Begins Date XX; Expect Delays	Roadwork Begins Date XX; Expect Delays
During Stage 1	Shoulder Closures; Expect Delays	Shoulder Closures; Expect Delays	STH 19 Left Lane; STH 113 Right Lane
During Stage 2	--	Single Lane Ahead	STH 19 Left Lane; STH 113 Right Lane
7 Days Prior to Stage 3	New Traffic Pattern; Date XX	New Traffic Pattern; Date XX	New Traffic Pattern; Date XX
7 Days During Stage 3	Signal Ahead; Follow Signs	Signal Ahead; Follow Signs	Signal Ahead; Follow Signs
7 Days Prior to Stage 4A	New Traffic Pattern; Date XX	New Traffic Pattern; Date XX	New Traffic Pattern; Date XX
7 Days During Stage 4A	Round-about Ahead; Follow Signs	Round-about Ahead; Follow Signs	Round-about Ahead; Follow Signs
7 Days Prior to Stage 5	New Traffic Pattern; Date XX	--	--
7 Days During Stage 5	Round-about Ahead; Follow Signs	--	--

	CTH I
7 Days Prior to Stage 3	CTH I Closed; Date XX

C Shoulder and Lane Closures

All lane closures are subject to the approval of the region traffic engineer. Times listed for lane closure restrictions include setup and breakdown of any equipment and traffic control devices.

LANE/SHOULDER CLOSURES

STH 19 Two-Lane Section Closures Stages 1-5

Single lane closure allowed: 8:00pm – 6:00am; Sunday PM – Friday AM
Shoulder closure allowed: 9:00am – 3:00pm, Monday AM – Thursday PM
Shoulder closure allowed: 8:00pm – 6:00am; Sunday PM – Friday AM

STH 19/113 & STH 113 Four-Lane Section Closures Stages 1-5

Single lane closure allowed: No restrictions
Shoulder closure allowed: No restrictions

CTH I Closures Stages 1-2

Single lane closure allowed: Not allowed

Shoulder closure allowed: Not allowed

CTH I Closures Stages 3-5
Traffic detoured: No restrictions

STH 113, STH 19/113 Temporary Intersection Nighttime Closure Stage 3
Single lane closure allowed: 8:00pm – 6:00am; Sunday PM – Friday AM
Shoulder closure allowed: 8:00pm – 6:00am; Sunday PM – Friday AM

All lane and shoulder closures shall be removed when work is not in progress. Failure to reopen closed lanes and shoulders shall be subject to the reductions specified under the article Prosecution and Progress.

Removals and material delivery shall not impede with traffic flow as determined by the engineer. Removals and material delivery may need to occur during off-peak hours in order to complete the work.

D Detours
Detour traffic for the closure of County I for stages 3, 4a, 4b, and 5 as shown in the plans. Install required traffic control and detour signs as shown on the plans prior to the closure and remove after completion of the work. Do not reveal advance warning signs and detour signs until the detour is in effect.

Provide the name and phone number of a 24 hour contact person if problems occur with the detour signing and barricades.

E Traffic Staging
Maintain traffic as shown on the plans and as briefly described below.

Stage 1:
STH 19: Maintain traffic at existing location and utilize shoulder closure. Utilize a nighttime flagging operation to mill and pave centerline rumble strips.
STH 113: Maintain traffic at existing location and utilize shoulder closure.
STH 19/113: Maintain traffic at existing location and utilize shoulder closure.
CTH I: Maintain traffic at existing locations.

Stage 2a and 2b:
STH 19: Maintain traffic at existing locations.
STH 113 SB: Traffic restricted from two lanes to a single lane and shifted to widening.
STH 113 NB: Traffic restricted to a single lane and shifted to the outside lane for stage 2a. Stage 2b is limited to one night duration. During nighttime hours, 8:00pm - 6:00am, between Sunday PM – Friday AM, close NB STH 113 and shift traffic to CTH I and STH 19 intersection.
STH 19/113: During stage 2a, utilize a nighttime flagging operation to construct temporary intersection and install temporary signals.
CTH I: Maintain traffic at existing locations.

Stage 3:
STH 19: Shift traffic onto widening and utilize temporary signal.
STH 113: Shift NB traffic onto SB STH 113 inside lane and utilize temporary signal. SB traffic to utilize outside lane.
STH 19/113: EB traffic restricted to a single lane and utilize temporary signal. WB traffic utilize temporary signal.
CTH I: Closed to thru traffic.

Stage 4a and 4b:
STH 19: Shift traffic to utilize roundabout; WB traffic shifted to EB lane and utilize temporary median crossover. EB traffic utilize southeast full bypass lane and widening constructed in stage 3.
STH 113: Shift traffic to utilize roundabout. NB traffic shifted to inside lane and utilize single lane of roundabout. SB traffic kept on inside lane for Stage 4a and then outside lane for stage 4b.
STH 19/113: Shift traffic to utilize roundabout. During Stage 4a, EB and WB traffic utilize inside lanes and then outside lanes for stage 4b.
CTH I: Closed to thru traffic.

Stage 5:
STH 19: WB traffic shifted to WB lane and utilize roundabout. EB utilize same traffic pattern as previous stage.
STH 113: NB utilize same traffic pattern as previous stage. SB open to final pavement.
STH 19/113: EB utilize same traffic pattern as previous stage. WB open to final pavement.
CTH I: Closed to thru traffic.

Wisconsin Lane Closure System Advance Notification
Provide the following advance notification to the engineer for incorporation into the Wisconsin Lane Closure System (LCS).

TABLE 108-1 CLOSURE TYPE AND REQUIRED MINIMUM ADVANCE NOTIFICATION

Closure type with height, weight, or width restrictions (available width, all lanes in one direction < 16')	MINIMUM NOTIFICATION
Lane and shoulder closures	7 calendar days
Full roadway closures	7 calendar days
Ramp closures	7 calendar days
Detours	7 calendar days
Closure type without height, weight, or width restrictions (available width, all lanes in one direction ≥16')	MINIMUM NOTIFICATION
Lane and shoulder closures	3 business days
Ramp closures	3 business days

Modifying all closure types	3 business days

Discuss LCS completion dates and provide changes in the schedule to the engineer at weekly project meetings in order to manage closures nearing their completion date.
stp-108-057 (20161130)

5. Holiday Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying STH 19, STH 113, STH 19/113 County I 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:

Memorial Day Weekend

- From noon Friday, May 25, 2018 to 6:00 AM Tuesday, May 29, 2018.

July 4th Weekend

- From noon Friday, June 29, 2018 to 6:00 AM Monday, July 2, 2018.
- From 2:30pm Tuesday, July 3, 2018 to 6:00 AM Thursday, July 5, 2018.
- From noon Friday, July 6, 2018 to 6:00 AM Monday, July 9, 2018.

Labor Day Weekend

- From noon Friday, August 31, 2018 to 6:00 AM Tuesday, September 4, 2018.

stp-107-005 (20050502)

6. Utilities

7. Nighttime Work Lighting-Stationary.

A Description
Provide portable lighting as necessary to complete nighttime work. Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise.

B (Vacant)

C Construction
C.1 General
This provision shall apply when providing, maintaining, moving, and removing portable light towers and equipment-mounted lighting fixtures for nighttime stationary work operations, for the duration of nighttime work on the contract.

At least 14 days prior to the nighttime work, furnish a lighting plan to the engineer for review and acceptance. Address the following in the plan:

1. Layout, including location of portable lighting – lateral placement, height, and spacing. Clearly show on the layout the location of all lights necessary for every aspect of work to be done at night.

2. Specifications, brochures, and technical data of all lighting equipment to be used.

3. The details on how the luminaires will be attached.

4. Electrical power source information.

5. Details on the louvers, shields, or methods to be employed to reduce glare.

6. Lighting calculations. Provide illumination with average to minimum uniformity ratio of 5:1 or less throughout the work area.

7. Detail information on any other auxiliary equipment.

C.2 Portable Lighting

Provide portable lighting that is sturdy and free standing and does not require any guy wires, braces, or any other attachments. Furnish portable lighting capable of being moved as necessary to keep up with the construction project. Position the portable lighting and trailers to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment. Provide lightning protection for the portable lighting. Portable lighting shall withstand up to 60 mph wind velocity.

If portable generators are used as a power source, furnish adequate power to operate all required lighting equipment without any interruption during the nighttime work. Provide wiring that is weatherproof and installed according to local, state, federal (NECA and OSHA) requirements. Equip all power sources with a ground-fault circuit interrupter to prevent electrical shock.

C.3 Light Level and Uniformity

Position (spacing and mounting height) the luminaires to provide illumination with an average to minimum uniformity ratio of 5:1 or less throughout the work area.

Illuminate the area as necessary to incorporate construction vehicles, equipment, and personnel activities.

C.4 Glare Control

Design, install, and operate all lighting supplied under these specifications to minimize or avoid glare that interferes with all traffic on the roadway or that causes annoyance or discomfort for properties adjoining the roadway. Locate, aim, and adjust the luminaires to provide the adequate level of illumination and the specified uniformity in the work area without the creation of objectionable glare.

Provide louvers, shields, or visors, as needed, to reduce any objectionable levels of glare. As a minimum, ensure the following requirements are met to avoid objectionable glare on the roadways open to traffic in either direction or for adjoining properties:

1. Aim tower-mounted luminaires, either parallel or perpendicular to the roadway, so as to minimize light aimed toward approaching traffic.

2. Aim all luminaires such that the center of beam axis is no greater than 60 degrees above vertical (straight down).

If lighting does not meet above-mentioned criteria, adjust the lighting within 24 hours.

C.5 Continuous Operation
Provide and have available sufficient fuel, spare lamps, generators, and qualified personnel to ensure that the lights will operate continuously during nighttime operation. In the event of any failure of the lighting system, discontinue the operation until the adequate level of illumination is restored. Move and remove lighting as necessary.

D (Vacant)

E Payment
Costs for furnishing a lighting plan, and for providing, maintaining, moving, and removing portable lighting, tower mounted lighting, and equipment-mounted lighting required under this special provision are incidental to the contract.
stp-643-010 (20100709)

8. 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 and paid for under the Aggregate Detours, 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://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/default.aspx

A.2 Small Quantities

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a contract 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:

A.2.1 Quality Control Plan

(1) Submit an abbreviated quality control plan consisting of the following:

1. Organizational chart including names, telephone numbers, current certification(s) with HTCP number(s) and expiration date(s), and roles and responsibilities of all persons involved in the quality control program for material under affected bid items.

A.2.2 Contractor Testing

1.

Contract Quantity	Minimum Required Testing per source
≤ 6000 tons	One stockpile test prior to placement, and two production or one loadout test.
> 6000 tons and ≤ 9000 tons	One stockpile and Three placement tests[3] [4] [5]

[1] Submit production 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] If the actual quantity overruns 6,000 tons, on the next day of placement perform one randomly selected placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

[3] If the actual quantity overruns 9000 tons, on the next day of placement perform one randomly selected placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

[4] For 3-inch material or lift thickness of 3-inch or less, obtain samples at load-out.

[5] Divide the aggregate into uniformly sized sublots for testing

2. Stockpile testing for concrete pavement recycled in place will be sampled on the first day of production.

3. Until a four point running average is established, individual placement tests will be used for acceptance. 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. 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.

A.2.3 Department Testing

(1) The department will perform testing as specified in B.8 except as follows:

- Department stockpile verification testing prior to placement is optional for contract quantities of 500 tons or less.

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:
Transportation Materials Sampling Technician (TMS) Aggregate Technician I (AGGTEC-I) Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Sampling[1]

Aggregate Technician I (AGGTEC-I) 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://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/qual-labs.aspx

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 one business day after obtaining a sample. 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 one business day after obtaining a sample. 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 placement tests, include only QC placement 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) Perform one stockpile test from each source prior to placement.

(3) Test gradation once per 3000 tons of material placed or fraction thereof. 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 or lift thickness of 3-inch or less 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.

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

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

(6) 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.

(7) 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 two 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 four 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 four 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 two 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. Perform one stockpile test from each source prior to 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 or for a lift thickness of 3-inch or less, the department will collect samples 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 according to CMM 8-10.6.2 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.

stp-301-010 (20161130)

9. 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 Comparison of Nuclear Gauges

B.3.2.1 Comparison 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 comparison process. The section does not have to be the same mix design.

(2) Compare the 2 or more gauges used for density measurement (QC, QV). The QC and QV gauge operators will perform the comparison 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/ft^3. 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/ft^3 and repeat comparison process from B.3.2.1 (2).

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

B.3.2.2 Comparison Monitoring

(1) After performing the gauge comparison 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 comparison 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/ft^3 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/ft^3 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/ft^3 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/ft^3 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/ft^3, use the original QC tests for acceptance.

(6) If the QV and QC sublot averages differ by more than 1.0 lb/ft^3 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 comparison according to B.3.2.1.

(2) The testers may use comparison 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-compared 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) The department will administer density incentives according to standard spec 460.5.2.3.

stp-460-020 (20161130)

10. Removing Small Pipe Culverts, Item 203.0100.

Revise standard spec 203.5.1 to include:

Remove small pipe culverts as specified in the plan for project staging. This may require the pipe to be saw cut. Saw cutting small pipe culverts is considered incidental to the Removing Small Pipe Culvert Item.

11. Removing Steel Apron Endwall, Item 204.9060.S.

A Description

This special provision describes removing steel apron endwall according to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C (Vacant)

D Measurement

The department will measure Removing Steel Apron Endwall as each individual removing steel apron endwall, acceptably completed.

E Payment

Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
204.9060.S	Removing Steel Apron Endwall	Each

204-025 (20150630)

12. Base Aggregate Dense ¾-Inch, Item 305.0110.

Revise standard spec 301.2.4.3 as follows:

Furnish aggregate classified as crushed stone, from a department-approved quarry, for ¾-Inch base when used in the top 3 inches of the unpaved portion of the shoulder or for unpaved driveways and field entrances.
(SWR 305.01-09212015)

13. Base Aggregate Dense 1 ¼-Inch, Item 305.0120.

Revise standard spec 305.2.2.1 when base is ≥ 50% crushed gravel as follows:

Use 1 ¼-Inch base aggregate that conforms to the following gradation requirements.

SIEVE	PERCENT PASSING BY WEIGHT
1 1/4 inch	95 - 100
1 inch	---
3/4 inch	70 - 90
3/8 inch	45 - 75
No. 4	30 - 60
No. 10	20 - 40
No. 40	7 - 25
No. 200	3 - 10 [1],

[1] Limited to a maximum of 8.0 percent for base placed between old and new pavement.

(SWR 305.02-08032016)

14. 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.
stp-460-015 (20140630)

15. Stone or Rock Ditch Checks, Item 628.7515.S.

A Description
This special provision describes furnishing and installing stone or rock ditch checks as shown on the plans or as directed by the engineer, or both, and as hereinafter provided.

B Materials
Provide materials conforming to size requirements for select crushed material or riprap in accordance to the standard spec 312.2 (4) or 606.2.1 (2) respectively. Breaker run stone conforming to the following applicable gradations may also be used:

Breaker Run Stone

Sieve Size	Percent by Weight Passing
5 Inch	100
1½ Inch	0 – 50
3/8 Inch	0 - 5

Incorporate stone or rock in the ditch checks that is hard, sound, and durable, and meets the approval of the engineer.

C Construction

Place stone or rock ditch checks immediately after shaping of the ditches or slopes are completed or at the direction of the engineer. Place stone or rock ditch checks at right angles to the direction of flow and construct to the dimensions and in accordance to the details shown in the plans.

Remove sediment from behind the stone or rock ditch checks when it has accumulated to one half of the original height of the Stone or Rock Ditch Check.

D Measurement

The department will measure Stone or Rock Ditch Checks in volume by the cubic yard of material incorporated in the work.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
628.7515.S	Stone or Rock Ditch Checks	CY

Payment is full compensation for furnishing, producing, crushing, loading, hauling, placing, shaping, maintaining, removal and disposal of Stone or Rock Ditch Check.

The department will pay for removal and disposal of accumulated sediment and maintaining the basin under the bid item 628.1920 Cleaning Sediment Basins.

16. Temporary Portable Rumble Strips, Item 643.0310.S.

A Description

This special provision describes providing, relocating, maintaining, and removing temporary portable rumble strips.

B Materials

Furnish RoadQuake2 or Roadquake2F temporary portable rumble strips, by Plastic Safety Systems. Do not use alternate products or methods without preapproval by the Bureau of Traffic Operations.

C Construction

C.1 Placement

Provide rumble strips where the plans show or the engineer directs as follows:

1. Before placing rumble strips, clean the roadway of sand and other materials that may cause slippage.
2. Place one end of the rumble strips 6 inches from the roadway centerline. Extend the strips perpendicular to the direction of travel. Ensure strips lay flat on the roadway surface.
3. Only one series of rumble strips, placed before the first work zone, is required per direction of travel for multiple work zones spaced 1 mile or less apart. Work zones spaced greater than 1 mile apart require a separate series of rumble strips.

C.2 Maintenance
Maintain rumble strips as follows:

1. If rumble strips slide, become out of alignment, or are no longer in the wheel path of approaching vehicles during the work period, thoroughly clean both sides of the rumble strips and reset on a clean roadway.
2. Repair or replace damaged rumble strips immediately.

D Measurement
The department will measure temporary portable rumble strips as a single 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
643.0310.S	Temporary Portable Rumble Strips	LS

Payment is full compensation for providing, relocating, maintaining or replacing, and removing temporary portable rumble strips.
stp-643-020 (20161130)

17. Traffic Control Signs, Item 643.0900.

Revise standard spec 643.3.8.1 as follows:

For signs mounted on portable sign supports, use supports that provide a minimum of 5 feet from the bottom of the sign to the adjacent pavement.

18. Removing Pavement Markings Water Blasting, Item 646.0690.S

A Description
This special provision describes removing pavement markings by water blasting. Conform to standard spec 646 and 647 as modified in this special provision.

B (Vacant)

C Construction
Use water blasting to remove the following, as shown on the plan and directed by the engineer:

- Markings in areas of temporary traffic shifts
- Markings on bridge decks
- Temporary markings on the final pavement surface

Completely remove pavement marking using a truck mounted ultra high pressure pump and water tank capable of delivering a minimum of 30,000 psi and up to 40,000 psi to waterjet nozzles.. Use equipment with a vacuum recovery system that contains wastewater and debris to provide a clean, damp-dry surface, without a secondary cleanup operation. Do not scar or damage the pavement during the removal process. Limit water blasting to when the ambient temperature is at least 36 F and rising.

Properly dispose of the accumulated material off site.

D Measurement
The department will measure Removing Pavement Markings Water Blasting by the linear foot, up to a single 8-inch wide line, acceptably completed.

The department will measure Removing Special Pavement Markings Water Blasting as each individual arrow, symbol, or word acceptably removed. The department will count removing an RXR symbol as 3 individual symbol removals.

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

ITEM NUMBER	DESCRIPTION	UNIT
646.0690.S	Removing Pavement Markings Water Blasting	LF

Payment is full compensation for removal and disposal of all materials.
646-075 (20151210)

19. Pavement Marking Grooved Contrast Wet Reflective Epoxy 4-Inch, Item 646.0842.S; 8-Inch 646.0844.S.

A Description
This special provision describes furnishing, grooving, and installing wet reflective epoxy pavement marking as shown on the plans, in accordance with standard spec 646, and as hereinafter provided.

B Materials
Furnish a 20 mils application of modified epoxy binder pavement marking, from the Wisconsin's Approved Products List, in a grooved slot. Provide a double drop system of 5.3 pounds per gallon of wet reflective elements from Wisconsin's Approved Products List and Utah Performance beads mixture at a drop rate of 12-22 pounds per gallon.

Replace standard spec 646.2.3 (1) with the following:

Furnish Utah Performance beads with the following gradation:

Utah Bead Gradation

US Mesh	Percent Passing (ASTM D1214)
18	65-80
20	
25	
30	30-50
40	
50	0-5

Beads **shall** achieve a minimum of 275 mcd (dry reading), initial for white and 180 mcd (dry reading) for yellow.

C Construction

C.1 General

For quality assurance, provide the project engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of the grooved wet reflective epoxy.

Plane the grooved lines in accordance with details in the plan. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove. Remove lane line and center line pavement markings during the grooving process.

C.2 Groove Depth

Cut the groove to a depth of 80 mils ±10 mils from the pavement surface. The department may periodically check groove depths.

C.4 Groove Width – Longitudinal Markings

Cut the groove 1inch wider than the width of the pavement marking.

C.5 Groove Position

Position the groove edge in accordance with Standard Detail Drawing Pavement Marking (Mainline). If necessary, groove a minimum of 4 inches from both ends of the pavement marking segment. Achieve straight alignment with the grooving equipment.

C.6 Groove Cleaning

C.6.1 Concrete

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with high-pressure water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, and prior to pavement marking application. The groove surface shall be clean and dry before applying the marking. Use a high-pressure air blower with at least 185 ft^3/min air flow and 120 psi air pressure to clean the groove.

C. 6.2 Asphalt
Groove pavement five or more days after paving.

If opening to traffic an asphalt lane that is not grooved, place temporary pavement marking. For asphalt lanes not open to traffic, temporary pavement marking is not required.

Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

Use a high-pressure air blower with at least 185 ft^3/min air flow and 90 psi air pressure to clean the groove.

D Measurement
The department will measure Pavement Marking Grooved Wet Reflective Epoxy (width) bid items by the linear foot of line, acceptably completed.

The department will measure Pavement Marking Grooved Contrast Wet Reflective Epoxy (width) bid items by the linear foot of line, acceptably completed.

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

ITEM NUMBER	DESCRIPTION	UNIT
646.0842.S	Pavement Marking Grooved Contrast Wet Reflective Epoxy 4-Inch	LF
646.0844.S	Pavement Marking Grooved Contrast Wet Reflective Epoxy 8-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface; furnishing and installing the epoxy, 3M elements and beads; and for removing existing or temporary marking, if necessary.
stp-646-024 (20161130)

20. Temporary Sediment Basin, Item SPV.0035.01.

A Description
This special provision describes excavating and constructing temporary sediment basins as shown on the plans or as directed by the engineer, or both, and as hereinafter provided.

B Materials
Furnish backfill material with similar engineering properties to the existing native soils excavated for the sediment basins. Backfilling with the same excavated material will be allowed.

C Construction
Notify the engineer sufficiently before beginning excavation for the sediment basins so the engineer may take elevations and measurements of the existing ground before disturbance.

Excavate all materials to depth, width, and slopes as the plans show and as directed by the engineer. The engineer may change the depth and width of the basins to fit field conditions.

Construct the Stone and Rock Ditch Check adjacent to the sediment basin as shown in the plans or as directed by the engineer.

Remove sediment from the sediment basin when it has accumulated to one half of the basin depth.

When the temporary sediment basin is no longer needed, as decided by the engineer, backfill the excavated area to the original ground elevation or to the new ditch/channel elevation shown in the plans or as directed by the engineer.

D Measurement
The department will measure Temporary Sediment Basin as the material excavated by the cubic yard 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.0035.01	Temporary Sediment Basin	CY

Payment is full compensation for excavating and disposing of excavated material; for temporary storage of excavated material; for furnishing backfill; and for backfilling the excavated basin including backfilling with the excavated material.

The department will pay for removal and disposal of accumulated sediment and maintaining the basin under the bid item 628.1920 Cleaning Sediment Basins.

21. Construction Staking Curb Ramp, Item SPV.0060.01

A Description
Perform work in accordance to the applicable provisions of standard spec 650 to establish the horizontal and vertical position for the curb ramp.

B (Vacant)

C Construction
Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Set additional construction stakes as necessary to establish location and grade of the curb ramp including points of change in alignment and

grade in accordance to the plans, standard details for curb ramps, and for conformance with ADAAG. Locate stakes to within 0.02 feet horizontally and establish the grade elevation to within 0.01 feet vertically.

D Measurement
The department will measure Construction Staking Curb Ramp as each individual curb ramp, staked and 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.0060.01	Construction Staking Curb Ramp	Each

Payment is full compensation for locating and setting all construction stakes and for relocating and resetting damaged or missing construction stakes.
(SWR 650.01-20160601)

22. Construction Staking Bike Ramp, Item SPV.0060.02

A Description
Perform work in accordance to the applicable provisions of standard spec 650 to establish the horizontal and vertical position for the bike ramp.

B (Vacant)

C Construction
Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Set additional construction stakes as necessary to establish location and grade of the bike ramp including points of change in alignment and grade in accordance to the plans. Locate stakes to within 0.02 feet horizontally and establish the grade elevation to within 0.01 feet vertically.

D Measurement
The department will measure Construction Staking Bike Ramp as each individual bike ramp, staked and 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.0060.02	Construction Staking Bike Ramp	Each

Payment is full compensation for locating and setting all construction stakes and for relocating and resetting damaged or missing construction stakes.

23. Pull Box Non-Conductive 24X42-Inch, Item SPV.0060.03.

A Description

This special provision describes furnishing and installing Pull Box Non-Conductive 24X42-Inch shown on the plans.

B Materials

Furnish pull boxes, frames, and lids made of non-conductive material. Pull boxes, frames, and lids shall be suitable for Tier 15 loading as specified in ANSI/SCTE 77.

C Construction

Provide pull boxes, frames, and lids made of non-conductive materials. The contractor may extend Pull Box Non-Conductive 24X42-Inch as the plan details show using the same material as the pull box. Saw extensions parallel to the extension ring. Secure extension to original box as shown in the plan details. Excavate, place coarse aggregate drain material, and backfill as the plan details show. Dispose of surplus or unsuitable materials as specified under standard spec 205.3.12. Use covers stamped with "Electric" for traffic signal and lighting pull boxes or "WISDOT COMMUNICATIONS" for communications pull boxes.

Provide one 24" length of #6 reinforcing steel to be driven vertically on the north side of the pull box.

D Measurement

The department will measure Pull Box Non-Conductive 24X42-Inch as each individual unit, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.03	Pull Box Non-Conductive 24X42-Inch	Each

Payment for Pull Bon Non-Conductive 24X42-Inch is full compensation for providing and installing pull boxes, frames, lids, aggregate, fasteners, reinforcing steel; conduit extensions less than 10 feet long including fittings; and for furnishing all excavating, backfilling and disposing of surplus material. The department will pay separately for engineer-directed pull box drain duct under the Conduit Rigid Nonmetallic bid items as specified in standard spec 652.5.

(SWR 653.02-20160601)

24. Research and Locate Existing Land Parcel Monuments, Item SPV.0060.04.

A Description
This special provision describes researching and locating existing land parcel or boundary monuments located in permanent easements, temporary easements or construction permit areas, which may be lost or disturbed by construction operations.

This provision does not relinquish the contractor's responsibility of standard spec 107.11.

B (Vacant)

C Construction
Perform work by, or under the direction of, a professional land surveyor licensed in the State of Wisconsin.

Prior to construction, research, locate and document monuments located in permanent easements, temporary easements and construction permit areas. Establish coordinate ties to the monuments accurate to current minimum state survey standards.

Prepare a monument location map showing the type of monuments found and their coordinates. The transportation project plat (TPP) is acceptable as a base map for the monument location map. Provide a copy of the monument location map to the engineer and region right-of-way plat coordinator.

Verify and reset monument locations after construction is complete under the item titled "Verify and Replace Existing Land Parcel Monuments."

D Measurement
The department will measure Research and Locate Existing Land Parcel Monuments as each individual monument 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.0060.04	Research and Locate Existing Land Parcel Monuments	EACH

Payment is full compensation for all research, field survey, locating, and data recording necessary to locate and establish coordinates for existing monuments within the construction limits prior to construction; furnishing a professional land surveyor; preparing, annotating and delivering the monument location map.

25. Verify and Replace Existing Land Parcel Monuments, Item SPV.0060.05.

A Description

This special provision describes verifying the final location of, and replacing existing land parcel or boundary monuments, previously located under the item "Research and Locate Existing Land Parcel Monuments", that are lost or disturbed by construction operations.

This provision does not relinquish the contractor's responsibility of standard spec 107.11.

B Materials

Provide replacement monuments as follows:

- Locations outside of pavement areas: a minimum of one-inch inside diameter by 24-inch long iron pipe or ¾-inch diameter iron rod or rebar 24 inches long
- Locations in asphalt pavement areas: a minimum of a railroad spike or mag nail
- Locations in concrete pavement areas: a minimum of a drilled hole or chiseled mark

C Construction

Perform work by, or under the direction of, a professional land surveyor licensed in the State of Wisconsin.

After construction is completed, verify the location of all monuments previously located with the item "Research and Locate Existing Land Parcel Monuments". Replace any monuments that were disturbed or destroyed to current minimum state survey standards.

Prepare a monument location map showing the type of monuments originally found, the type of replacement monuments used to replace the disturbed or destroyed monuments, and monument coordinates. The transportation project plat (TPP) is acceptable as a base map for the monument location map. Create the location map with a PDF editing tool such as Adobe or Bluebeam. The monument location map shall explicitly state that the replaced monuments are not being certified as actual land parcel or boundary monuments, only that evidence of monuments were found and replaced. Attach a cover letter to the location map that contains a brief synopsis of the work completed. The cover letter shall be signed, stamped, and dated by a professional land surveyor. Provide a copy of the monument location map and cover letter to the engineer and the county surveyor.

D Measurement

The department will measure Verify and Replace Existing Land Parcel Monuments as each individual monument 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.0060.05	Verify and Replace Existing Land Parcel Monuments	EACH

Payment is full compensation for all survey work necessary to verify the location of all monuments previously located under the item "Research and Locate Existing Land Parcel

Monuments"; replacing monuments that were disturbed or destroyed from their original location; furnishing monuments or other necessary tools; furnishing a professional land surveyor; preparing, annotating and delivering the monument location map and cover letter.

26. Verify Landmark Reference Monuments, Item SPV.0060.06.

A Description

This special provision describes verifying, restoring, and preserving reference (witness) monuments for existing U.S. public land survey corners.

B Materials

Provide reference monument materials that satisfy Wisconsin Administrative Code Chapter A-E 7.08. The Department will furnish aluminum monument caps if requested.

C Construction

Complete work under the direction of a Registered Land Surveyor in the state of Wisconsin, in accordance with the pertinent requirements of standard spec 621.3 and as follows.

Obtain existing tie sheets from the county surveyor. Locate and verify existing U.S. public land survey corner monuments and reference ties to at least 4 reference monuments. Restore or reestablish missing or damaged reference monuments.

If required, install temporary reference monuments for construction. Provide a temporary tie sheet to the Department and the county surveyor for use by the public during the construction phase of the project and before final monumentation is complete.

Prepare and file final U.S. public land survey monument records in accordance with the Wisconsin Administrative Code Chapter A-E 7.08. Provide a copy to the WisDOT SW Region Madison Survey Coordinator.

D Measurement

The department will measure Verify Landmark Reference Monuments by each U.S. public land survey corner acceptably verified, tied and preserved.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.06	Verify Landmark Reference Monuments	Each

Payment is full compensation for obtaining existing tie sheets; for locating and preserving corner monuments; for locating, verifying, restoring and preserving reference monuments; for providing reference monument materials; for temporary reference monuments; and for preparing and filing final monument records.

Restoring or reestablishing missing or damaged survey corners will be considered extra work. Replacing survey corners damaged due to construction operations is incidental to the contract.

27. Construction Staking Sidewalk, Item SPV.0090.01

A Description
Perform work in accordance to the applicable provisions of standard spec 650.

B (Vacant)

C Construction
Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Set additional construction stakes as necessary to establish location and grade of the sidewalk including points of change in alignment and grade in accordance to the plans and for conformance with ADAAG. Locate stakes to within 0.02 feet horizontally and establish the grade elevation to within 0.01 feet vertically.

D Measurement
The department will measure Construction Staking Sidewalk by the linear foot, acceptably completed, measured along the back edge of sidewalk.

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	Construction Staking Sidewalk	LF

Payment is full compensation for locating and setting all construction stakes and for relocating and resetting damaged or missing construction stakes.

28. Removing Retaining Wall, Item SPV.0090.02.

A Description
This special provision describes removing retaining wall according to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C Construction
Remove the existing retaining wall located on CTH I at STA. 219+76 “SB” 32’ RT to STA. 219+78 “SB” 66’ RT.

The existing wall is composed of railroad ties and is approximately 14 inches tall. Excavate as necessary to remove the existing wall. Provide backfill and compaction under and around the wall after removal to eliminate settling or movement. Restore the grade surface around

location by grading the surface back at a 2.5:1 slope. Salvage Topsoil, Fertilize, Temporary Seed, Seed, and E-mat slope for stability.

D Measurement
The department will measure Removing Retaining Wall by length in linear feet for treating wall acceptably removed.

E Payment
Removing Retaining Wall will be paid for at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.02	Removing Retaining Wall	LF

Payment for the Removing Retaining Wall bid item is full compensation for removing the retaining wall, disposing of materials, for providing the necessary fill and compaction; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work. The department will pay for Salvage Topsoil, Fertilizer, Temporary Seed, Seed, and E-mat as separate bid items.

29. Pipe Underdrain (6-Inch) with Geotextile Fabric and Aggregate, Item SPV.0090.03.

A Description
This special provision describes providing and placing pipe underdrain, geotextile fabric, and aggregate as shown on the plans and hereinafter provided. The work under this item shall be in accordance with the standard specifications for each component.

B Materials
B.1 Pipe
Provide Pipe Underdrain 6-Inch conforming to the pertinent requirements of section 612.2 of the standard specifications.

B.2 Geotextile Fabric
Provide Geotextile Fabric Type DF Schedule B conforming to the pertinent requirements of section 645.2.1 and 645.2.4 of the standard specifications.

B.3 Aggregate
Provide coarse aggregate size No. 1 conforming to the pertinent requirements of section 501.2.5.4 of the standard specifications.

C Construction
Construct the Pipe Underdrain (6-Inch) with Geotextile Fabric and Aggregate as shown on the plans and in accordance with sections 612.3.1, 612.3.3, 612.3.5 and 645.3.4 of the standard specifications.

D Measurement
The department will measure Pipe Underdrain (6-Inch) with Geotextile Fabric and Aggregate by the linear 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.0090.03	Pipe Underdrain (6-Inch) with Geotextile Fabric and Aggregate	LF

Payment is full compensation for providing and placing all materials, including pipe underdrain, geotextile fabric, aggregate, backfill, connections, fittings, and caps or plugs; for all excavating, recompacting, disposing of surplus material, and restoring the work site, and for all labor, tools, equipment, services, and incidentals necessary to complete the contract work.

30. Removing Rubblized Pavement, Item SPV.0180.01.

A Description
This special provision describes Removing Rubblized Pavement in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided.

B (Vacant)

C Construction
Soil borings indicate crushed concrete fill in locations shown on typical sections as rubblized concrete. Rubblized concrete dimensions will vary in size from approximately 2 inches to approximately 12 inches.

D Measurement
The department will measure Removing Rubblized Pavement in square yards of removing rubblized pavement, acceptably completed.

E Payment
Add the following to standard spec 204.5:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.01	Removing Rubblized Pavement	SY