



City of Oakdale  
1584 Hadley Avenue North  
Oakdale, MN 55128

**ENGINEERING SPECIFICATIONS  
CITY OF OAKDALE NO.2360**

**PLANT-MIXED ASPHALT PAVEMENT**

**PART 1 GENERAL**

**1.01 SUMMARY**

A. Section Includes:

1. Construction of pavement courses from hot plant-mixed bituminous – aggregate mixture.
2. Demonstration of quality control through quality control testing.

B. Method of Measurement:

1. Bituminous Mixture:
  - a. Measure each mixture type by weight in tons acceptably placed.
  - b. No deductions for bituminous materials in the mixture.
2. Bituminous Material: Incidental to the bituminous mixture.
3. Contractor Testing and Quality Control: Incidental to bituminous mixture.

C. Basis of Payment:

1. Mixture cost includes additives as required.
2. Payment for acceptable quantities of bituminous pavement shall be at the Contract Unit Price as listed on the Bid Form. All associated Work items shall be considered incidental.
3. Only Table 2360.6.B4A payment factors shall apply to the Contract price adjustments for incentives and decentives for all mixtures. All other payment factors specified under Mn/DOT 2360 shall be void.

**1.02 REFERENCES**

**1.03 Mn/DOT 2360 – Plant Mixed Asphalt Pavement.**

- A. Product Data/Job Mix Formula: Submit to Engineer 3 copies of job mix formula and data for each mixture designation listed under Mixture Proportions.
- B. Test Reports: Submit to Engineer 3 copies of all test results required under Source Quality Control and Field Quality Control.



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## 1.04 PROJECT CONDITIONS

- A. Do not place mixtures when weather or roadbed conditions are determined to be unfavorable.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Aggregate: Mn/DOT 2360.2.A. Class B Aggregate is excluded and shall not be allowed.
- B. Additives: Mn/DOT 2360-2.F: Add antifoaming agent at the manufacturer's recommended dosage rate.
- C. Asphalt Binder Material: Mn/DOT 2360.2.G.
- D. Bituminous Mixture: Mn/DOT 2360.3

### 2.02 EQUIPMENT

- A. All equipment used in production and placement shall be in accordance with Mn/DOT 2360.5.C.
- B. Produce all bituminous mixtures at a Contractor-certified HMA plant in accordance with Mn/DOT 2360.4.A1.

### 2.03 MIXTURE PROPORTIONS

- A. Submit a trial mix design for each mixture in accordance with Mn/DOT 2360.3.
- B. All mixtures shall be in accordance with Mn/DOT 2360.3.
- C. Mixture Designation (Mn/DOT 2360.1.A):
  - 1. Mix or Design Type, Lift, Aggregate Size, Traffic Level, Voids, Binder.
  - 2. Examples: SPLVWE9.5330C, SPLVNW12.5330C
    - a. Mixture Design Type:
      - 1) SP=Gyratory Mixture Design.
      - 2) LV=Marshall Mixture Design-Low Volume, 50 blow.



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- 3) MV=Marshall Mixture Design-Medium Volume, 50 blow.
  - 4) SM=Gyratory Mixture Design for Stone Matrix Asphalt (SMA).
- b. Course:
- 1) WE=Wearing and Shoulder Wearing Course
  - 2) NW = Non-Wearing Course.
- c. Maximum Aggregate Size (Letter is used in gyratory designation; number is used in Marshall designation):
- 1) A or 4=12.5 mm (1/2 inch), 9.5 mm (3/8 inch) nominal size.
  - 2) B or 3= 19.0 mm (3/4 inch), 12.5 mm (1/2 inch) nominal size.
  - 3) C or 2=25.0 mm (1 inch), 19.0 mm (3/4 inch) nominal size.
  - 4) E=See provision for SMA design
- d. Marshall Design
- 1) 50 blow design
- e. Air Void:
- 1) 40=4.0 percent for SP and SM Wear mixtures.
  - 1) 35=3.5 percent for MV Wear and Non-Wear.
  - 2) 30=3.0 percent for LV Wear and Non-Wear and SP Non-Wear and Shoulder.
- f. Asphalt Binder Grade:
1. A=PG 52-34.
  2. B=PG 58-28.
  3. C=PG 58-34.
  4. D=PG 58-40.
  5. E=PG 64-28.
  6. F=PG 64-34.
  7. G=PG 64-40.
  8. H=PG 70-28.
  9. I=PG 70-34.
  10. L=PG 64-22.

## 2.04 SOURCE OF QUALITY CONTROL

- A. Contractor is responsible for all source quality control.
- B. All bituminous plant testing personnel, facilities, and quality control requirements shall be in accordance with MN/DOT 2360.4.



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## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Treatment of the Surface: Apply bituminous tack coat to existing bituminous or concrete surfaces and to surface of each course except final surface.

### **3.02 PLACEMENT**

- A. Spreading Operations:
  - 1. Spread each mixture to the required cross section with an approved paver.
  - 2. Spread by hand or motor grader only in areas not accessible to a paver.
  - 3. Coordinate paver speed with rate of delivery of mix to provide a uniform rate of placement.
  - 4. Complete placement of each course over full width of the section each day.
- B. Compacting Operations:
  - 1. Conduct initial and final rolling with a steel-wheeled roller.
  - 2. Conduct secondary rolling with a pneumatic-tired roller.
  - 3. Commence compaction as soon as possible after mixture has been spread, without causing undue displacement of mixture.
  - 4. Operate rollers continuously until all areas are compacted to required density and all roller marks are eliminated.
  - 5. Compact each course uniformly by Modified Specified Density Method.
  - 6. Perform pavement density acceptance testing in accordance with MN/DOT 2360.
- C. Thickness and Surface Requirements:
  - 1. After compaction, each course shall be within  $\frac{1}{4}$  of the required thickness.
  - 2. Remove and replace any areas that are not within tolerance.
  - 3. After rolling, each surface shall be free of open and torn sections.
  - 4. Each course shall be smooth and true to the planned grade and cross-section within the following tolerances:



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- a. Wearing course surfaces shall not vary more than 1/8 inch from the edge of a 10-foot straightedge placed parallel or perpendicular to the centerline.
  - b. Transverse slopes of each surface shall not vary from the proposed slope by more than 1/2 inch in 12 feet.
  - c. The distance from centerline to edge of each course shall be not less than the proposed distance nor greater than 3 inches more than the proposed distance.
5. Remove and reconstruct all portions of any course not in compliance with the above tolerances.
  6. Perform acceptance in accordance with MN/DOT 2360.

D. Construction Joints:

1. Compact to produce a tightly bonded joint meeting surface tolerances.
2. Transverse Joints:
  - a. Place at right angles to centerline whenever placement operations are suspended. Suspension of Work will be allowed only at specified transverse joint locations as shown on Drawings.
  - b. Upon resumption of work, cut vertically for full depth of the course.
3. Longitudinal Joints:
  - a. Place parallel to centerline.
  - b. Place joints between strips not less than 6 inches measured transversely from like joints placed in underlying course.
  - c. Place all surface courses to not greater than 1/4 inch above adjacent gutters, manhole frames, valve boxes, or other fixed structures.

### 3.03 FIELD QUALITY CONTROL

- A. Contractor is responsible for all field quality control.
- B. All field quality control testing personnel, facilities, and requirements shall be in accordance with MN/DOT 2360.
- C. Perform compaction testing of bituminous mixtures in accordance with MN/DOT 2360.