

**SECTION 02574
ASPHALT CONCRETE PAVING**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work to be performed under this Section shall consist of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel, and power, unless specifically excepted, necessary or required for the installation of aggregate base and paving, and the construction and adjustments of appurtenant facilities as shown on the plans and described in these specifications.

1.02 REFERENCED STANDARDS

- A. Published specifications, standards, tests, or recommended methods of trade, industry or governmental organizations apply to work of this Section where cited by abbreviations noted below.
 - 1. The American Society for Testing and Materials (ASTM).
 - 2. State of California, Department of Transportation "Standard Specifications" (Caltrans).
 - 3. Federal Specifications (Fed. Spec.).
 - 4. Occupational Safety and Health Administration (OSHA).

1.03 SUBMITTALS

- A. Materials: Furnish signed certificates from the suppliers of materials and manufactured items showing conformance with standards specified in this Section.
- B. Mix Designs: Furnish copies of the mix design data for each type of asphalt concrete to be used on the work in accordance with Division 1, Section 1300, "Submittals", for review prior of beginning of work.

1.04 QUALITY ASSURANCE

- A. Materials and equipment specified by reference to standard specifications, trade association publications, and manufacturer's catalogs and installation recommendations, shall refer to the latest issue in effect at the date of the contract, except where building codes refer on specific items to an earlier issue. All referenced standard specifications shall be considered an integral part of this specification as if repeated in full herein.

1.05 PERFORMANCE REQUIREMENTS

- A. Paving: Designed for movement of vehicle units up to 80,000 lb.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt when the ambient air or base surface temperature is less than 50 degrees F and rising, or surface is wet or frozen.
- B. Do not place bitumen mixture when the mixture' temperature is less than 250 degrees F and not more than the maximum specified temperature.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate base shall conform to the requirements of Contract Specifications, Section 02505B for Class 2; 3/4 inch maximum combined grading.
- B. Asphalt concrete shall conform to the requirements of Caltrans Section 39 "Asphalt Concrete". Asphalt concrete shall be Type B and shall conform to the grading specified for 1/2-inch maximum aggregate.
- C. Asphalt Binder shall conform in accordance to requirements of Caltrans Section 92, "Asphalts", Grade PG 64-10
- D. Prime Coat shall conform to the requirements of Caltrans Section 93, "Liquid Asphalts".
- E. Asphaltic Emulsion for Fog Seal shall conform to the requirements of Caltrans Section 94, "Asphalt Emulsions", SS1h or CSS1h as set forth.
- F. Tack Coat shall conform to the requirements of Caltrans Section 94.
- G. Pavement Reinforcing Fabric shall conform to the requirements of Caltrans Section 88, "Engineering Fabrics", weight and thickness.
- H. Asphalt concrete for surface patching and patching at installation of appurtenances shall be open graded 3/8" maximum aggregate conforming to Caltrans Section 39, "Asphalt Concrete".
- I. Paint for stripes and pavement markings shall conform to Caltrans Section 84, "Traffic Stripes and Pavement Markings".
- J. Monument boxes shall be domestically manufactured from tough gray iron, free from cracks, blow holes, porosity, hard spots, shrinkage cracks, swells, and cold sheets, and be of workmanlike finish. The cast iron shall meet the requirements of ASTM A48, Class 30.
 - 1. All castings shall be manufactured true to pattern and all round frames and covers shall be machined and dressed to assure a tight fit and to prevent rocking or rattling under traffic. All frames and covers, which do not fit neatly and bear firmly in the ring, will be rejected.
 - 2. Monument Box & Cover: Monument box covers shall be turned in a lathe and the outer 1½-inches dressed down to assure a tight fit and to prevent rocking. The seat for the box cover shall also be turned in a lathe to provide a true and smooth surface. Covers shall be marked with the inscription "MONUMENT BOX" on the Cover.

2.02 PAVING EQUIPMENT

- A. Asphalt paving spreading equipment used to place asphalt concrete shall conform to the requirements of Caltrans Section 39-5.01, "Spreading Equipment".
- B. Compacting equipment shall conform to the requirements of Caltrans Section 39-5.02, "Compacting Equipment".

PART 3 - EXECUTION

3.01 PREPARATION AND LAYOUT

- A. The Contractor shall employ, at his own expense, layout lay out of the work of the project; to establish all reference points set for construction and the certification of finish grades with drawings and/or to match existing surfaces or improve them to promote drainage where applicable.
- B. Preserve reference points, such as survey monuments, benchmarks, and survey stakes. If disturbed or destroyed by the Contractor, replace as directed by the Engineer, at no extra cost to the Owner.
- C. Verify gradients and elevations of base are correct; designate and identify datum elevation.
- D. Set required lines, grades and levels.
- E. Verify that the compacted subgrade, granular base is dry and ready to support paving and imposed loads.
- F. Install signs, lights and barricades where necessary to guard against accident. Comply with County, Caltrans, OSHA and any other applicable safety standards.
- G. Protect existing structures and facilities to remain from damage.
- H. Perform work within the confines of the project limits; do not trespass other property without specific permission from adjacent Property Owner's.

3.02 CONSTRUCTION

- A. Grade Tolerance: Whenever reference to finished grade is made, it shall be considered to be the finished surface of the completed facility.
 - 1. Flatness: Maximum variation of ¼-inch measured with a 12 foot straight edge.
 - 2. Scheduled Compaction Thickness: With ¼-inch.
 - 3. Variation from True Elevation: With ¼-inch.
- B. Verify that the subbase form the base construction for work and in conformance to Contract Specifications, Section 02505B, "¾-inch Class 2 AB".
- C. Installation of Aggregate Base: After the subgrade has been properly prepared and compacted, aggregate base shall be deposited, spread and compacted to the required thickness as indicated on the plans. Aggregate base shall be placed in layers not exceeding 6" inches in thickness and compacted to not less than 95%. Immediately prior to placing additional layers thereon, the aggregate base shall not vary more than 0.05 foot above or below the grades indicated on the plans.
- D. Prime Coat: Prime coat shall be applied in accordance with the provisions in Caltrans Section 39-4.02, to the aggregate base and to other surfaces as necessary. The prime coat shall be spread at the approximate total rate of 0.25 gallons per square yard of surface covered.
- E. Tack Coat: Tack coat shall be applied in accordance with the provisions in Caltrans Section 94-4.02, to all vertical surfaces of existing pavement, curbs, gutter, construction joints in the surfacing against which additional material is to be placed, and to other surfaces as

necessary. The tack coat shall be spread at the approximate total rate of 0.10 gallons per square yard of surface covered.

- F. Installation of Asphalt Concrete: Asphalt concrete shall be installed, spread and compacted in accordance with Caltrans Section 39-6 sufficient thickness of asphalt concrete shall be placed so that the final compacted thickness shall be as indicated on the plans. The completed surfacing shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete shall be eliminated by rolling or other means. Asphalt shall be placed within two hours of applying primer or tack coat.
- G. The placing of material in a windrow shall be in accordance with Caltrans Section 39-6.01, unless otherwise permitted by the Engineer.
- H. During compaction and rolling operations, and when required, the asphalt concrete shall be cooled by application of water. Application of water shall conform to Caltrans Section 17-1.02 and 17-1.025.
- I. Transverse joints in paving, whether hot or cold, shall be made at an angle to the path of the traveled way. The angle shall be greater than 15 degrees and less than 30 degrees from a line perpendicular to the centerline of the road or parking area.
- J. Adjustment of Appurtenances: After paving operations are completed, all cleanouts, manholes, monument boxes, valve boxes, or other appurtenances shall be adjusted to finished grade. Valve and monument boxes, cleanouts, and other small appurtenances shall be adjusted using cast iron locking grade rings or completely resetting the box. Manhole frames and covers shall be adjusted using cast iron locking rings, conforming to Fed. Spec. QQ-11-652, or completely resetting the frame and cover using concrete grade rings.
- K. All patching and repairs of paving shall include pre-heating the area to be patched, the application of tack coat, and patching with 3/8" asphalt concrete. The surface of patches shall be uniform in slope and conform to the slope of adjacent paving. Humps or depressions in patches will be cause for rejection.

3.03 TESTING

A. General Requirements

- 1. Testing of all work shall be in accordance with Caltrans Standard Specifications. Testing will be performed so as to least encumber the performance of work as necessary.
- 2. The Owner will pay for one series of tests only, on the area being evaluated. Contractor shall pay costs of additional testing required due to improper performance of work.
- 3. When work of this Section or portions of work are completed, notify the Engineer to schedule the testing laboratory to perform the appropriate tests. All testing shall be done in the presence of the Engineer and the Contractor shall not proceed with additional portions of work until test results have been verified.
- 4. If, during progress of work, tests indicate that the work or materials do not meet specified requirements, the defective work shall be remedied, removed, replaced and re-tested at no cost to Owner.

B. Compaction Testing

1. The Owner's Soils Engineer in accordance with California Test Method No. 231, Nuclear Gage shall test relative compaction of the soils and aggregate base. Degree of Compaction: The degree of compaction shall be expressed as a % ratio of the in-place dry density of the compacted fill material to the maximum dry density of the same material as determined by ASTM D 1557-07.
2. Compacted fills shall be tested prior to proceeding with placement of surface materials.
3. If, during progress of work, tests indicate that compacted materials do not meet specified requirements, the defective work shall be removed and replaced, re-compact and re-tested at no cost to the Owner.
4. Upon completion of this portion of the work, deliver to the Engineer a written report from the Owner's Soils Engineer stating that the work performed hereunder complies with the requirements of the plans and specifications. The report shall be prepared in accordance with the requirements of Division 1.

C. Testing For Trueness Of Paving

1. The finished surfaces of asphalt paving shall be tested for trueness and uniformity of longitudinal and transverse slopes.
2. When a straight edge 12 feet long is laid on the finished surface and parallel with the centerline, the surface shall not vary more than 0.01 foot from the lower edge of the straight edge.
3. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02 foot are present when tested with a straight edge 12 feet long laid in a direction parallel to the center line and extending from edge to edge of a 12 foot traffic lane.
4. Patching shall conform to Item 2 of this Paragraph.

3.04 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury for two days or until surface temperature is less than 140 degrees F.
- B. Protect completed paving from damage until final acceptance by the Owner.
- C. Do not store materials, equipment, lumber, soil, humus, or similar on completed paved areas.
- D. Do not fuel or lubricate equipment over paved areas. Protect completed paving from fuel leaks or spills, hydraulic fluid spills, solvents, etc.
- E. Repair or replace damaged paving as directed by the Engineer.

3.05 PROJECT RECORD DOCUMENTS

- A. Upon completion of construction, an as-built field survey may be conducted by the Engineer to verify the location, by coordinates, and elevations of the following:
 1. Finished center line elevations of roads at 50 foot stations
 2. Edge of paving elevations, high points, low points, etc. in parking areas.

PART 4 - MEASUREMENT

4.01 The quantity of asphalt concrete paving to be paid will be on a lump sum basis.

PART 5 - PAYMENT

5.01 The contract price paid for the asphalt concrete paving shall include full compensation for all costs incurred and the work covered in this Section shall be included in the prices paid for the item as set forth in the Contractor's Bid, and no additional or separate compensation will be made therefor. The lump sum bid price to be paid shall be for all work specified and all appurtenant work, including furnishing, labor, equipment, tools, and incidentals.

END OF SECTION 02574