

**SECTION 02500 - PAVING AND SURFACING**

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## SECTION 02500 - PAVING AND SURFACING

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

- A. Work under this Section shall consist of furnishing all labor, material, equipment, tools, and services required for the placing and compacting of asphalt concrete pavement for roadways, berms, parking lots, and walkways to the lines, grades, and dimensions shown on the drawings and as specified herein.
- B. Also included shall be the repair and resurfacing of existing roadway and area paving damaged or removed during construction.
- C. Also included shall be application of prime coat over aggregate base surfaces and tack coat over existing asphalt concrete and concrete surfaces adjacent to the new paving.
- D. Seal coats as specified.

#### 1.02 RELATED REQUIREMENTS

- A. Section 01340, "*Submittals*"
- B. Section 01410, "*Testing Laboratory Services*"
- C. Section 02453, "*Traffic Signals*"
- D. Section 02510, "*Crack Sealing*"
- E. Section 02520, "*Slurry Seal*"
- F. Section 02580, "*Traffic Striping and Signing*"
- G. Section 03300, "*Minor Concrete*"

#### 1.03 REFERENCE STANDARDS

- A. State Specifications
- B. The Contractor shall comply with the requirements of the Bay Area Air Quality Management District concerning cutback asphalt paving materials and application.

#### 1.04 QUALITY ASSURANCE

The contractor's attention is directed to Article 8 of the City's General Conditions (Section 00700). To validate that specified final elevations have been provided, the contractor shall provide to the City applicable grade certificates as required by Article 8. No separate payment will be made for providing such certification. All cost therefore shall be included in the various work item(s) requiring certification.

## 1.05 MEASUREMENT AND PAYMENT

- A. Unless otherwise specified in the Special Provisions, measurement and payment for paving and surfacing items of work will be as specified herein.
- B. Aggregate Base
  - 1. Measurement and payment will be on a ton basis with the truck load slip for each delivery presented to the inspector before unloading.
    - a. All slips shall show the supplier, net weight, identification mark of carrying vehicle and time of loading.
    - b. The contract price per ton of aggregate base shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all work involved in the delivery spreading, and compaction of the base aggregate, complete in place, as shown on the plans and specified in these specifications and directed by the Engineer.
- C. Planing Asphalt Concrete Pavement
  - 1. Planed asphalt concrete pavement will be measured by the square foot or square yard per specified width. The quantity to be paid for will be the actual required area of surface planed irrespective of the number of passes required.
  - 2. The contract price paid per square foot or square yard for planing asphalt concrete pavement shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in planing asphalt concrete surfacing and immediately disposing of material removed, as specified in these specifications and as directed by the Engineer.
- D. Heating and Scarifying
  - 1. Payment for this work will be included in the cost for asphalt concrete unless separately itemized in the bid schedule.
  - 2. If separately itemized in the bid schedule, the quantity to be paid for will be the actual surface area to be heated and scarified. Payment then will be made by the square foot or square yard and shall include full compensation for furnishing all labor, equipment, tools, material, traffic control, and cleanup, for heating and scarifying as shown on the plans and as specified in these specifications and the Special Provisions.
- E. Prime Coat
  - 1. Payment for this work shall be included in the cost of asphalt concrete unless specifically itemized in the bid schedule.

2. If specifically itemized in the bid schedule, measurement will be by the square foot or square yard. The quantity to be paid for will be the actual area applied. The contract price paid per ton for Prime Coat, if itemized, will include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for performing all work involved in the application of the prime coat.

F. Tack Coat

1. Payment for this work shall be included in the cost for asphalt concrete unless specifically itemized in the bid schedule. If specifically itemized in the bid schedule, measurement shall be by the ton. The quantity to be paid for will be the actual number of tons applied.
2. The Contract price paid per ton for Tack Coat, if itemized, will include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all work involved in the application of the tack coat.

G. Seal Coats (Other Than Slurry Seal)

1. Measurement for payment will be by the ton, square foot or square yard, whichever unit is designated in the bid schedule. Provision of asphalt emulsion and water for mixing with asphaltic emulsion is included in the above prices and payments.
2. Payment will include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all work involved in the application of the seal coat, complete in place.
3. Measurement and payment for Slurry Seal will be as specified under Section 02520.

H. Fog Seal Coat (When Specified)

1. Measurement for payment will be by the ton or by the square foot or square yard, as specified. The quantity to be paid for will be the actual area applied.
2. Payment will include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all work involved in the application of the fog seal coat.

I. Asphalt Concrete

1. Measurement and payment will be on a ton basis with the truck load slip for each delivery presented to the inspector before unloading. All slips shall show the supplier, net weight, identification mark of carrying vehicle and time of loading.

2. The contract price per ton shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all work involved in constructing asphalt concrete, complete in place, as shown on the plans and as specified in these specifications, and as directed by the Engineer.
3. Contractor shall control the asphalt concrete quantity so that it is to the thickness as specified on the plan. Any extra asphalt concrete placed that exceeds ten percent (10%) of the calculated quantity shall be borne by the contractor.

J. Asphalt Berm

1. Measurement and payment will be by the linear foot of the size and type of berm constructed, and shall include full compensation for furnishing all labor, materials, tools, equipment and other incidentals, for constructing the berm, complete in place, as called for on the plans and specified in these specifications, and as directed by the Engineer.

K. Street Cleaning

1. Payment for this item will be included in the various bid items for asphalt paving.

1.06 SUBMITTALS

A. Submit the following under the Product (Information) category.

1. Furnish samples of construction materials, without additional cost to the City, in quantities specified in Section 01340, "*Submittals*," and Section 01410, "*Testing Laboratory Services*." The Contractor shall cooperate with the Engineer and furnish necessary facilities for sampling and testing of all materials and workmanship. All materials furnished and all work performed shall be subject to the City's inspection, and no materials shall be used in the construction work until it has been approved by the Engineer.
2. The Contractor shall submit a signed verification from each source of supply for each construction material employed on the project, indicating that the materials meet the Specification requirements.
3. Mix design for asphalt concrete.

PART 2 - PRODUCTS

2.01 AGGREGATE BASE

- A. Aggregate bases shall consist entirely of Class 2 material, as set forth in Section 26-1.02B, "*Class 2 Aggregate Base*," of the *State Specifications*.

- B. Maximum aggregate size shall be one and one-half inches (1-1/2") except that when lifts are less than six inches (6"), maximum aggregate size shall be three-fourths inches (3/4").
- C. Contractor shall provide supplier certifications concerning the gradation and durability of the aggregate base. Compaction and other tests will be done by others.

## 2.02 PRIME COAT

- A. Material for prime coat shall consist of MC-70 conforming to the requirements of Section 93, "*Liquid Asphalts*," of the *State Specifications*.

## 2.03 TACK COAT

- A. Material for tack coat shall consist of SS1h or SS1, conforming to the requirements of Section 94, "*Asphaltic Emulsions*," of the *State Specifications*, or AR-1000, conforming to the requirements of Section 92, "*Asphalts*," of the *State Specifications*.

## 2.04 SEAL COATS (OTHER THAN SLURRY SEAL)

- A. Material for seal coat shall consist of CSS1h, or SS1h conforming to the requirements of Section 94, "*Asphaltic Emulsions*," of the *State Specifications*. Aggregate cover shall consist of one of the screening gradations specified in Section 37-1.02, "*Materials*," of the *State Specifications*. Seal coat type shall be as specified in the Special Provisions.

## 2.05 FOG SEAL COAT

- A. Material for fog seal coat shall consist of SS-1h or SS-1, conforming to the requirements of Section 94, "*Asphaltic Emulsions*," of the *State Specifications*.

## 2.06 ASPHALT CONCRETE

- A. Material for asphalt concrete or plant mix shall be furnished and placed in strict conformance with Section 39, "*Asphalt Concrete*," of the *State Specifications*. Asphalt binder shall conform to the requirements of Section 92, "*Asphalts*," of the *State Specifications*. Aggregate shall be either Type A or Type B. However, maximum aggregate size shall be one-half inch (1/2"), unless otherwise specified. For lifts of one inch (1") or less compacted thickness, and when material is placed by extrusion, maximum aggregate size shall be three-eighths of an inch (3/8").

## 2.07 PORTLAND CEMENT CONCRETE

- A. Concrete shall conform to Section 03300, "*Minor Concrete*," of these Specifications.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. These specifications shall cover newly paved areas, as well as existing pavement restoration.
- B. Where trenching or other construction activity has resulted in damage to a localized area of pavement, the damaged pavement surface shall be cut back six inches (6") beyond the damaged area.
- C. Where the damaged area extends over more than fifty percent (50%) of the road width or paved area, as determined by the Engineer, the full pavement width or area shall be saw cut, excavated, removed and repaired.
- D. All city owned structures such as valve boxes, manhole frames and covers and monuments within the resurfaced areas shall be adjusted to the new grade, as necessary.

Spraying of liquid asphalts and coatings will not be permitted on windy days (in excess of fifteen miles per hour (15 mph)).

### 3.02 MAINTAINING TRAFFIC AND PUBLIC SAFETY

- A. During the paving operations, the Contractor shall furnish and place sufficient barricades at all cross streets to protect new surfacing from traffic until sufficiently cooled, as well as "DETOUR" signs one (1) block away from all impassable intersections. At least one (1) lane of through traffic shall remain open, and sufficient traffic cones placed between the through lane and the freshly surfaced lane to prevent traffic from using the freshly surfaced lane until sufficiently compacted and cooled.
- B. Spreader and other equipment shall be moved only on truck or trailer with pneumatic tires.
- C. In all cases, the Contractor shall be responsible for the complete protection of new surfacing from traffic until sufficiently compacted and cooled.

### 3.03 PAVEMENT CUTTING

- A. After backfilling and prior to paving, proper tools and equipment shall be used in marking and breaking so that the pavement shall be cut on neat straight lines parallel to the trench or roadway centerline. The asphalt pavement shall be saw cut using a concrete saw to a minimum depth of two inches (2") or one-half (1/2) the thickness thereof, whichever is greater. The pavement shall be cut back twelve

inches (12") on each side of the trench or excavation wall. Any pavement damaged outside these lines shall be recut and restored at the expense of the Contractor. Should voids develop under existing pavements during construction, the affected pavement shall be neatly saw cut in straight lines and replaced after the voids have been filled.

- B. All water generated from pavement cutting shall be contained and treated for sediment removal (through filtration or sedimentation) prior to discharge to the City storm drain.

### 3.04 PLACEMENT OF AGGREGATE BASE

- A. Aggregate bases shall be placed and compacted in accordance with Section 26, "*Aggregate Bases*," of the *State Specifications*.

### 3.05 STREET CLEANING

- A. Contractor shall clean the streets to be resurfaced prior to planing of six-foot (6') wide strips adjacent to gutters and twenty-foot (20') wide transverse conform strips. Extensive cracking, potholes, and local depressions not indicated in the drawing to be repaired by Contractor will be repaired by City forces prior to resurfacing.
- B. The Contractor shall inspect the streets prior to his work and shall not proceed until they are cleaned to the City's satisfaction.

### 3.06 PREPARATION OF EXISTING ASPHALT CONCRETE

- A. Planing Asphalt Concrete Pavement
  1. Existing asphalt concrete shall be planed at the locations and to the dimensions shown on the plans or field marked by the engineer and in accordance with these Specifications.
  2. Planing asphalt concrete pavement shall be performed by cold planing. The cold planing machine shall have a cutter head at least thirty inches (30") wide and shall be operated so as not to produce fumes or smoke.
  3. Care shall be exercised to protect wiring of existing traffic detector loops from damage. The Contractor shall request City staff to identify existing traffic detection loops in the field. Loops damaged by the Contractor, even if not located by the City, shall be replaced per Section 02453, "*Traffic Signals*," of these Specifications.
  4. The depth, width, and shape of the cut shall be as indicated on the typical cross sections or as directed by the Engineer. The final cut shall result in a uniform surface conforming to the typical cross sections. The outside lines of the planed area shall be neat and uniform. The road surfacing to remain in place shall not be damaged in any way.

5. Planed widths of pavement shall be continuous except for intersections at cross streets where the planing shall be carried around the corners and through the conform lines or as shown on the plans.
6. Planing adjacent to existing manhole or other street boxes shall be within 6" minimum of the structure. Structures that are damaged as a result of Contractor activity shall be repaired or replaced to pre-construction condition at no cost to the City.
7. The material planed from the roadway surface, including material deposited in existing gutters or on the adjacent traveled way, shall be immediately removed from the site of the work, and hauled and stockpiled at the location designated by the Engineer. The removal crew shall follow within fifty feet (50') of the planer, unless otherwise directed by the Engineer.

E. Heating and Scarifying

1. The existing street surface indicated on the plans to be heated and scarified shall be heated by a mobile surface heater with lateral and vertical controls. These controls shall be used to control the application of heat to the desired location and prevent damage to adjacent concrete gutters. Additionally, the Contractor will protect trees and other planting from heat damage.
2. The asphalt binder shall not be charred in excess of one tenth of one percent (0.10%) and the scarified surface must show live asphalt cement as a result of the applied heat.
3. At least fifty percent (50%) of the existing top two inches (2") of aggregate of the pavement being remixed shall be moved by spinning or tumbling, thus providing for the filling of cracks and turning over the work or dried faces which have lain upward. The asphalt paving remixer shall be adjustable from three and a half feet (3-1/2') to twelve feet (12') in width, and passes shall be six inches (6") wider than the spreader following. The remixer shall also be of a type to remix depressions in the pavement to a depth of at least two inches (2"). The remixer shall be of the Therma-Bond type, Rola-Burner type, or approved equal. Immediately after the application of heat, the remixer shall pass over the heater surface and remix to a minimum depth of one half inch (1/2").
4. The pavement remixer shall be adjustable in width and depth of application, and the remixed surface shall be uniformly and evenly spread without scattering, ridging, or breaking of the mineral aggregate.

5. Following the remixing, a tack coat of SS-1h grade of emulsion (Asphalt Institute designation) shall be applied in accordance with Sections 39, "Asphalt Concrete," and 94, "Asphaltic Emulsion," of the State Specifications at the minimum rate of one-tenth (1/10) gallon per square yard by a distributor truck meeting the State Specifications. Immediately following the tack coat and while the remixed surface is in a softened state, asphalt concrete shall be placed. No surface shall be allowed to stand after heating, remixing, and application of tack coat, for such a period of time as to prevent proper compaction and bonding of the remixed material and the new course of plant-mixed surfacing.
6. No traffic shall be allowed to run on the scarified, remixed, tack-coated or overlaid surface, until pavement is final-rolled and cooled below 150<sup>0</sup>F.
7. Should work be stopped before placing of the plant-mixed surface due to inclement weather, unavailability of asphalt concrete material, work stoppage at the end of the working day, etc., the surface shall be reheated and remixed at the Contractor's expense.

### 3.07 PRIME COAT

- A. Prime Coat shall be applied to all aggregate base prior to laying asphaltic surfacing. It shall be applied in accordance with Sections 39-4.02, "Prime Coat and Paint Binder," and 93-1.03, "Mixing and Applying," of the State Specifications.

### 3.08 TACK COAT

- A. A tack coat (binder coat) shall be applied to existing asphaltic or concrete surfaces that are to receive an asphaltic overlay. Asphaltic pavement which has been exposed to the weather less than thirty (30) days need not be tack-coated. Tack coat shall be applied at a rate of two hundredths (0.02) to one tenth (0.10) gallon per square yard, in accordance with Section 39-4.02, "Prime Coat and Paint Binder," of the State Specifications.

### 3.09 SEAL COAT (OTHER THAN SLURRY SEAL)

- A. Where called for in the plan or Special Provisions, or required by the Engineer, a seal coat shall be applied to new or older pavement. A seal coat shall be applied at the rate of fifteen-hundredths (0.15) to three-tenths (0.30) gallon per square yard immediately followed by aggregate cover. Aggregate cover shall be one-quarter inch (1/4") x No. 10 screening spread uniformly over the area. Screening shall be tightly rolled into binder with a five (5) ton steel-wheeled roller. After four (4) calendar days, excess screenings shall be removed by brooming, without disturbing screenings set in binder.

- B. Preparation and placement of seal shall be in accordance with Section 37-1, "Seal Coats" of the State Specifications.

### 3.10 FOG SEAL COAT

- A. A fog seal coat conforming to the requirements of Section 37, "Bituminous Seals" of the State Standard Specifications shall be applied to asphaltic concrete pavements when specified in project plans and specifications. A fog coat shall be applied at a rate between five-hundredths (0.05) to one-tenth (0.10) gallon per square yard.

### 3.11 PLACEMENT OF ASPHALT CONCRETE

- A. Spreading and compacting of asphalt concrete shall be in accordance with Section 39, "Asphalt Concrete," of the State Specifications.
- B. Pavement width and location for Collector Streets (42 feet curb to curb) and Arterial Streets (greater than 42 feet curb to curb). To assure that the pavement seam is not placed in the vehicle tire path, the pavement curb to curb shall be as follows:
  - 1. Collector Streets – Pavement seam shall be on centerline of street. Pavement width shall be a minimum of 12 feet wide either side of centerline, i.e., four (4) pavement widths are required to pave a collector street.
  - 2. Arterial Street – Pavement seam shall be on centerline of street. Pavement width shall be a minimum of 12 feet wide either side of centerline. For divided streets, pavement seams shall match the new lane markings.

### 3.12 ASPHALT BERM

- A. Asphalt berms shall be placed by using an extrusion machine. Berm dimensions shall be as indicated on the plans, and shall be laid true to line and grade, and of the required surface texture.

### 3.13 ADJUSTING MANHOLE, VALVE AND SURVEY MONUMENT COVERS TO GRADE

- A. The location of these structures, if shown on the plans, is approximate only. It shall be the Contractor's responsibility to suitably locate them prior to resurfacing.
- B. The Contractor shall identify all utilities covered during resurfacing by dimples and curb markings.

- C. All City manholes, valve covers, monument box covers, traffic signal covers, and other City service access covers shall be raised within ten (10) calendar days after resurfacing is completed. Water valves and specially designated items must be raised within five (5) working days after paving. The Contractor shall notify Pacific Gas and Electric Company, PacBell Company, cable television companies, and other utilities affected by the resurfacing in writing within twenty-four (24) hours after each street section (block) is paved and provide copies of the same to the Engineer.
- D. The monuments themselves shall not be disturbed.
- E. If the Contractor elects to raise the manhole cover castings by bricks and mortar, the casting shall be placed to new grade in compliance with these specifications, as outlined for a new casting. Special care shall be exercised not to spill mortar or grout. The inside surface of the raised manhole shall have a mortar finish.
- F. Manholes shall be adjusted to grade using three inch (3") thick and six inch (6") thick reinforced concrete grade rings or a combination thereof, from Hanson Concrete Products, Inc. or approved equivalent. If the required adjustment to grade is < three inches (3"), brick and mortar shall be used. If the required adjustment to grade is more than  $\geq$  three inches (3") but < six inches (6"), a three inch (3") thick reinforced concrete grade rings complemented by bricks and mortar shall be used.

End of Section