

TECHNICAL SPECIFICATIONS

CITY OF GUADALUPE

SLURRY SEAL PROJECT

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TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS.....	66
TS-1 GENERAL REQUIREMENTS.....	69
TS-1.01 General.....	69
TS-1.02 Mobilization.....	69
TS-1.03 Roadway Preparation.....	69
TS-1.04 Project Site Maintenance.....	69
TS-1.05 Sanitary Facilities.....	70
TS-1.06 Protection and Restoration of Existing Improvements.....	70
TS-1.07 Notification of Residents, Businesses, and Agencies.....	70
TS-1.08 Measurement and Payment.....	71
TS-2 TRAFFIC CONTROL.....	71
TS-2.01 General.....	71
TS-2.02 Material and Equipment.....	72
TS-2.03 Construction.....	72
TS-2.04 Measurement and Payment.....	73
TS-3 STORM WATER POLLUTION PREVENTION PLAN.....	73
TS-3.01 General.....	73
TS-3.02 Submittals.....	74
TS-3.03 Construction.....	74
TS-3.04 Measurement and Payment.....	76
TS-4 HOT MIX ASPHALT (HMA).....	76
TS-4.01 General.....	76
TS-4.02 Materials.....	77
TS-4.03 Construction.....	78
TS-4.04 Measurement and Payment.....	80
TS-5 CRACK SEAL.....	81
TS-5.01 General.....	81
TS-5.02 Materials.....	81
TS-5.03 Construction.....	82
TS-5.04 Measurement and Payment.....	84
TS-6 SLURRY SEAL (Type II W/ BLACK ROCK).....	84
TS-6.01 General.....	84
TS-6.02 Materials.....	84
TS-6.03 Construction.....	84
TS-6.04 Measurement and Payment.....	88
TS-7 COLD PLANING.....	88
TS-7.01 General.....	88
TS-7.02 Equipment.....	89
TS-7.03 Construction.....	89
TS-7.04 Measurement and Payment.....	91

TS-8	DIGOUT OR REMOVE & REPLACE HMA.....	92
TS-8.01	General.....	92
TS-8.02	Materials.....	92
TS-8.03	Construction.....	92
TS-8.04	Measurement and Payment.....	94
TS-9	ASPHALT TACK COAT.....	94
TS-9.01	General.....	94
TS-9.02	Materials.....	94
TS-9.03	Application.....	94
TS-9.04	Measurement and Payment.....	95
TS-10	LOWERING AND ADJUSTING EXISTING UTILITY FACILITIES TO FINISH GRADE 95	
TS-10.01	General.....	95
TS-10.02	Construction.....	95
TS-10.03	Measurement and Payment.....	97
TS-11	TRAFFIC STRIPING, MARKINGS, AND RAISED PAVEMENT MARKERS....	97
TS-11.01	General.....	97
TS-11.02	Materials.....	97
TS-11.03	Construction.....	98
TS-11.04	Measurement and Payment.....	102

TS-1 GENERAL REQUIREMENTS

TS-1.01 General

All work shall conform to the applicable provisions of the State of California, Department of Transportation, 2010 Standard Specifications (Caltrans); these Special Provisions; and the plans and typical sections.

TS-1.02 Mobilization

Mobilization shall conform to Section 11, "Mobilization" of the 2010 Standard Specifications.

Mobilization shall include the furnishing and providing for regular maintenance of temporary sanitary facilities on the job for the duration of the project. Failure to comply with this requirement will result in withholding of mobilization payments in the amount deemed appropriate by the Director of Public Works.

TS-1.03 Roadway Preparation

The work under this section consists of preparing the roadway prior to resurfacing or reconstruction as specified in these Special Provisions and as required by the Engineer. Such work shall include controlling nuisance water; sweeping; watering; removal of all raised pavement markers; removal of all thermoplastic pavement markings; removal of loose and broken concrete, Hot Mix Asphalt pavement, and foreign material; and the spraying and removal of weed growth. Any roadway area that contains existing weed growth shall be treated with an E.P.A. approved herbicide composed of glyphosate and oryzalin, combined and applied according to label directions.

In addition, the Contractor shall implement their Storm Water Pollution Prevention Plan prior to the start of construction, as specified in these Special Provisions.

TS-1.04 Project Site Maintenance

Throughout all phases of construction until final acceptance, including any periods of work suspension, the site shall be kept clean and free from rubbish and debris. The Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles at least once each working day for the purpose of keeping paved areas acceptably clean wherever construction, including restoration, is incomplete.

The Contractor shall abate dust by sprinkling water or other means as necessary, but the use of water resulting in mud on public streets will not be permitted.

Excess excavated materials from any source shall be removed from the site immediately. Forms, nails and lumber shall be removed the day of form removal. Materials and equipment shall be removed from the site as soon as they are no longer necessary.

Before the final inspection, the site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All pavement areas shall be swept with a street sweeper immediately prior to the final inspection. All concrete areas shall be broom cleaned.

All topsoil areas shall be raked. All cleanup costs shall be included in the Contractor's bid. In the event that the Contractor fails to perform this final cleanup, the Agency may remove and/or dispose of the articles or materials at the Contractor's expense.

Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned.

TS-1.05 Sanitary Facilities

The Contractor shall provide and maintain enclosed, portable restrooms for the use of personnel engaged in the work. These accommodations shall be maintained in a neat and sanitary condition, and shall comply with all applicable laws, ordinances, and regulations pertaining to public health and sanitation.

TS-1.06 Protection and Restoration of Existing Improvements

The Contractor shall be responsible for the protection of public and private property adjacent to the work and shall exercise due caution to avoid damage to such property.

The Contractor shall repair or replace all existing improvements within the right-of-way which are not designated for removal, but that are damaged or removed as a result of its operations. Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimension.

TS-1.07 Notification of Residents, Businesses, and Agencies

The Contractor shall notify the affected residents and businesses four (4) calendar days in advance of the start of work. Notification shall be done by using "door knob" type notices which shall include a description of the impending work, the date and time when traffic will be restricted, a date and time when parking will not be allowed along the street scheduled for renovation and 48 hour window of "no landscape irrigation" prior to work. Contractor shall submit a sample notice for review and approval by the City five (5) calendar days prior to distribution.

Ten (10) calendar days prior to beginning construction, the Contractor shall assist in notifying local schools, hospitals, ambulance services, police and fire departments, transit agencies, refuse collectors and Underground Service Alert (USA) of its schedule of work.

The Contractor shall furnish and place “No Parking” signs, 12 inches by 18 inches minimum size and approved by the Engineer, throughout the area of work at fifty foot intervals two (2) working days (four calendar days prior to work beginning on a Monday or Tuesday) prior to the start of construction. In rural areas, the signs shall be placed at intervals not to exceed 400 feet. The signs shall include the date and time during which parking is prohibited. The Contractor shall remove these signs immediately when they are no longer needed.

If for any reason the work is delayed or rescheduled after the required notifications have been issued, the Contractor shall re-date the signs affected, notify residents and businesses of the change via a new “door knob” notice, and re-contact the local services and agencies. If the work is delayed more than five (5) calendar days, the Contractor shall remove the signs and place re-dated signs two working days (four calendar days prior to work beginning on a Monday or Tuesday) in advance of the work.

TS-1.08 Measurement and Payment

The contract lump sum price paid for “**Mobilization, Bonds and Insurance**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in mobilization, bonds and insurance, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

The contract lump sum price paid for “**Notification of Residents, Businesses and Agencies**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in notification of residents, businesses and agencies, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

Full compensation for “**Roadway Preparation**”, “**Project Site Maintenance**”, “**Sanitary Facilities**” and “**Protection and Restoration of Existing Improvements**” shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefore.

TS-2 TRAFFIC CONTROL

TS-2.01 General

The work shall consist of maintaining and controlling all vehicular and pedestrian traffic through the construction zone and/or detour routes and shall conform to the “Manual of Traffic Control for Construction and Maintenance Work Zone” (Traffic Manual) published by the State of California, Department of Transportation. The manual prescribes minimum standards for the application of uniform traffic control

devices such as traffic cones, barricades, regulatory signs, warning signs, and guide signs. The Contractor shall have a copy of the manual at the work site and shall adhere to its provisions.

TS-2.02 Material and Equipment

All traffic control supplies and materials including signs, posts, temporary mounting stands, cones, delineators, and barricades shall adhere to NCHRP No. 350. Each traffic control plan shall include a compliance letter indicating each type of material or equipment to be used on the project, date of purchase, manufacturer contact information, and a compliance letter or reference.

The Contractor shall place adequate signage to alert pedestrians that the bridge is closed during construction.

TS-2.03 Construction

Traffic control shall include the installation, maintenance, and removal of all necessary traffic control equipment. Damaged or missing equipment shall be replaced upon discovery. Equipment left in place over weekends or during other periods of non-work shall be checked and maintained on a daily basis until the work is complete and all traffic control devices are removed from the project.

TS-2.03A Traffic Control Plan

Two weeks (ten working days) prior to starting any construction work, the Contractor shall submit to the Engineer for his review a detailed traffic maintenance and control plan for the various affected project sites or streets. No work may begin in any area until the Traffic Control Plan has been reviewed and approved by the City Traffic Engineer.

TS-2.03B Construction Signing

Construction signing shall consist of furnishing, installing, maintaining, and removing construction signs, cones, delineators, and barricades.

TS-2.03C Flagmen

If required in the traffic control plan, and always during one-way traffic control, flagmen will be required to direct traffic during construction. The number and location of flagmen shall be sufficient to allow safe control and passage of traffic through the work zone. During the paving of intersections, two flagmen shall be posted at each intersection for the entire time between tack coat and finish rolling.

TS-2.03D Portable Delineators

Portable delineators shall be either cones or tubular markers. Delineators to be used at night or in low light conditions shall be reflectorized. The minimum height of either style of delineator shall be thirty-seven inches above the road surface.

All portable delineators shall follow the current version of the Traffic Manual.

The portable delineators shall be spaced as necessary for proper traffic control. However, in no case shall the spacing between the portable delineators exceed fifty (50) feet on tangents or twenty-five (25) feet on curves.

TS-2.03E Restrictions on Closure of Traffic Lanes

The Contractor shall submit to the City a traffic plan showing the detouring of traffic during construction. The traffic plan must be approved by the Engineer prior to any road closures.

TS-2.04 Measurement and Payment

The contract lump sum price paid for “**Traffic Control**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in Traffic Control, complete in place, including but not limited to furnishing, installing, maintaining, relocating and removing all traffic control and construction signing components, preparation and implementation of Traffic Control Plan, traffic control supervision, flagmen, portable delineators, pilot cars, and the convenience and safety of the public, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

TS-3 STORM WATER POLLUTION PREVENTION PLAN

TS-3.01 General

The Contractor shall provide a Qualified SWPPP Developer (QSD) created Storm Water Pollution Prevention Plan (SWPPP) which describes in specific detail the Contractor’s responsibilities to prevent contamination of the storm water collection system. The plan shall address both common construction activities and extraordinary events and meets the requirements of the “National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges associated with construction activity. The plan shall address the prevention of particulates or pollutants from entering the storm water system from the job site, whether due to routine operations or spills. Work also includes but is not limited to, filing of a Notice of Intent with the State Water Resources Control Board, processing the NOI through the State SMARTS system, and assessing the project Risk Level.

Water pollution control work includes implementation, inspection maintenance and removal of all Best Management Practices (BMP) devices as outlined in the SWPPP and as directed by the Engineer.

Construction Storm water Monitoring work includes, but is not limited to, providing a Qualified SWPPP Practitioner (QSP) for implementation, and following the

aspects of Order No. 2009-009-DWQ, 2010-0014-DWQ and any applicable amendments, under direction of the City.

TS-3.02 Submittals

- A. One (1) final hard copy of the approved SWPPP bound in a hard binder
- B. One (1) final electronic copy of the approved SWPPP on a CD or DVD
- C. Daily and weekly inspection logs of SWPPP adherence and BMPs
- D. A Letter of Certification certifying all contaminated materials were removed from the site and disposed of properly according to CA state laws and regulations

TS-3.03 Construction

The Contractor shall continuously provide at the job site all of the tools, equipment, and materials necessary to implement the SWPPP. This requirement shall be enforced at all times from project initiation through completion, including any punch list or warranty work on the project.

TS-3.03A Protection of Existing Storm Water System

As the first order of work, the Contractor shall protect the existing storm water system from entrance of particulates and pollutants. Such protection shall include implementing the Best Management Practices (BMP) as outlined in the SWPPP.

In addition to the Best Management Practices outlined in the local governing jurisdiction's plans the protection system shall have a minimum of 3 features:

1. A particulate filter of geosynthetic material securely fastened in place such that it cannot be bypassed without significant physical damage,
2. A pre-filter for the particulate filter, and
3. On-hand materials to close off an inlet or opening in the case of a significant pollution spill.

TS-3.03B Materials Storage Areas

All material and/or equipment storage areas where liquid construction materials are kept, including but not limited to asphalt emulsions, paving oils, and seal coat materials, shall be protected by a physical barrier capable of containing the entire volume of stored liquid materials. During active construction activities, portions of the barrier may be removed for access. However, the barrier materials must be readily accessible for replacement by on-site construction personnel. The barrier must be in place at all times when construction personnel are absent from the storage site.

TS-3.03C System Inspection and Maintenance

The Contractor shall inspect and repair or replace any damaged or clogged element on a daily basis. During periods of precipitation where runoff occurs, the system shall be checked twice daily, seven days a week, whether or not any work has been performed. The daily checks shall be between 6 a.m. and 9 a.m., and 4 p.m. and 8 p.m.

The Contractor shall provide a monitoring log of each inspection.

The Contractor shall allow authorized agents of the California Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency and the City of Guadalupe to:

1. Enter upon the construction site(s) and the Contractor's facilities pertinent to the work.
2. Have access to and copy records that must be kept as specified in the Permit.
3. Inspect the construction site and related soil stabilization practices and sediment control measures
4. Sample or monitor for the purpose of ensuring compliance with the Permit.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records.

The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the provisions set forth in this section, "Erosion, Sediment and Water Pollution Control," including but not limited to compliance with the applicable provisions of the Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties and damages, whether assessed against the City or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

TS-3.03D Non-Storm Spills or Pollution

The SWPPP shall address practices for the cleanup of spilled or leaked pollutants such as hydraulic oil from damaged or leaking equipment. The plan shall include readily available equipment and materials to contain and absorb the pollutants, collection of these materials, and disposal of the materials to an approved disposal facility. The plan shall include ultimate disposal from the Contractor's yard.

The Contractor shall keep a record of any spills on the daily inspection logs. In addition, at the end of the project, the Contractor must certify that all contaminated materials have been properly disposed of in accordance with the SWPPP.

TS-3.04 Measurement and Payment

The Contractor shall be paid for the work of preparing, implementing, inspecting, maintaining, and removing the SWPPP on a lump sum basis as indicated in the Bid Schedule.

In addition, failure to perform and document the required daily inspections shall result in a daily penalty of \$250.00 per calendar day. The imposition of the penalty shall not relieve the Contractor of any obligations of these project requirements.

Payment for the work involved under the bid item for the SWPPP may be made on a partial payment system based on the completion of the following stages of the work:

<u>Work Description</u>	<u>Payment Percentage</u>
Develop plan	10% of bid price
Initial plan implementation	10% of bid price
Removal of BMP's at completion	10% of bid price
Inspection and Maintenance of SWPPP	70% of bid price/contract time in calendar days

TS-4 HOT MIX ASPHALT (HMA)

TS-4.01 General

TS-4.01A Summary

Adhere to Section 39, "Hot Mix Asphalt," of the 2010 Caltrans Standard Specifications (unrevised) except as modified in these special provisions.

This work includes producing and placing hot mix asphalt (HMA) surface course using modified Standard Process, and placing Minor Hot Mix Asphalt using the Method Process as indicated herein.

TS-4.01B Submittals

Submit JMF information on Form CEM-3511 and Form CEM-3512. Submit Form CEM-3513 for mixes that have been verified within last 12 months. Provide most recent CEM-3513 if mix has not been verified within the last 12 months. For

unverified mixes or out of date mix tests, final acceptance will be based on production startup testing and Contractor will be paving at their own risk. Submit production QC test results within 3 days.

Submit Quality Control Plan that conforms to the current Caltrans Quality Control Plan Review Checklist for Hot Mix Asphalt. Allow 10 calendar days for review.

TS-4.02 Materials

TS-4.02A Asphalt Binder

The grade of asphalt binder mixed with aggregate for all HMA Type A except for HMA for speed humps and HMA dike must be PG 64-10. The grade of asphalt binder mixed with aggregate for all HMA for speed humps and HMA dike must be PG 70-10.

TS-4.02B Mix Types

Generally, the hot mix asphalt to be used will be as follows unless modified by the Engineer:

Base Courses: 3/4 inch Type A, hot mix asphalt for base courses greater than 2-1/2 inches (0.20 feet or 65 mm).

1/2 inch Type A, hot mix asphalt for base courses of 2-1/2 inches (0.20 feet or 65 mm) or less.

Leveling Courses: 3/8 inch Type A hot mix asphalt for leveling courses of 1 inch (0.06 feet or 19 mm) or less. 1/2 inch Maximum, Type A, hot mix asphalt for leveling courses greater than 1 inch (0.08 feet or 25 mm).

Surface Courses: 1/2 inch Type A, hot mix asphalt for surface courses of 2-1/2 inches (0.20 feet or 65 mm) or less on residential minor collectors; surface courses less than 2-1/2 inches (0.20 feet or 65 mm) on collectors and arterials; and on all alleyways and parking lots.

3/4 inch Type A, hot mix asphalt for surface courses greater than 2-1/2 inches (0.20 feet or 65 mm) on collectors and arterials.

TSR to be minimum 70 in accordance with CTM 371.

All mixes shall conform to the requirements of Section 39-1.02E "Aggregate" of the revised Standard Specifications.

TS-4.02C Aggregate

The aggregate for the surface course and digouts shall be HMA Type A and must adhere to the 1/2" grading.

The aggregate for the leveling course shall be HMA Type A and must comply with the 3/8" grading.

The aggregate for speed humps shall be HMA Type A and must comply with the 3/8" grading.

TS-4.03 Construction

TS-4.03A Surface Preparation

The work shall consist of preparing the existing street surfaces prior to the commencement of paving. Such work shall include removing raised pavement markers, removing thermoplastic traffic markings and legends, controlling nuisance water, sweeping, watering, and removing loose and broken asphalt pavement and foreign material as specified in the Standard Specifications and these Technical Provisions, and as directed by the Engineer.

TS-4.03B Quality Control

The Contractor is not required to submit quality control test results. However, if quality control test results are not submitted to the Engineer within 3 days of paving, the Contractor waives the right to dispute the Engineer's results.

TS-4.03C Sampling

The Engineer may sample the Hot Mix Asphalt from truck beds at the plant, from the hopper of the spreading machine, or from the completed mat at the discretion of the Engineer. The Contractor shall facilitate the sampling process

TS-4.03D Engineer's Acceptance

Modify 39-2.03A Testing as follows:

Change footnote e(1) to read as follows: 1. Use one location per pavement repair if the repair area is less than 200 square feet. Use three locations for areas between 200 and 1,200 sf. Use three tests per 1,200 sf thereafter.

Compaction shall be between 92.0% and 97.0%.

Add the following footnotes:

k. Engineer shall perform testing in accordance with CT 375 for acceptance, except maximum specific gravity (CT 309) shall replace TMD testing. Contractor

shall perform independent quality control testing continuously during paving using nuclear or non-nuclear methods.

I. Failing tests shall be verified by coring if requested by the Contractor. The Contractor will take cores at locations randomly determined by the Engineer and give them to the engineer for testing. A minimum of 1 core per 250 tons or 3 cores per street, whichever is greater, shall be taken. Results shall be reported as the average of 3 cores.

Passing cores shall be paid for by the owner. Failing cores shall be paid for by the Contractor. If the core density testing produces both passing and failing cores, the cost will be prorated between the owner and Contractor.

The table for deductions indicated in the referenced revised Caltrans Section 39 shall apply to individual cores. The following table shall apply to deductions for average compaction of a lot:

Reduced Payment Factors for Percent of Maximum Theoretical Density			
HMA Type A and B Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A and B Percent of Maximum Theoretical Density	Reduced Payment Factor
92.0	0.0000	97.0	0.0000
91.9	0.0125	97.1	0.0125
91.8	0.0250	97.2	0.0250
91.7	0.0375	97.3	0.0375
91.6	0.0500	97.4	0.0500
91.5	0.0625	97.5	0.0625
91.4	0.0750	97.6	0.0750
91.3	0.0875	97.7	0.0875
91.2	0.1000	97.8	0.1000
91.1	0.1125	97.9	0.1125
91.0	0.1250	98.0	0.1250
90.9	0.1375	98.1	0.1375
90.8	0.1500	98.2	0.1500
90.7	0.1625	98.3	0.1625
90.6	0.1750	98.4	0.1750
90.5	0.1875	98.5	0.1875
90.4	0.2000	98.6	0.2000
90.3	0.2125	98.7	0.2125
90.2	0.2250	98.8	0.2250
90.1	0.2375	98.9	0.2375
90.0	0.2500	99.0	0.2500
< 90.0	Remove and Replace	> 99.0	Remove and Replace

For leveling courses under 1 inch using a 3/8" HMA, breakdown rolling shall consist of three coverages with an 8 to 12 ton pneumatic roller followed by a finishing

coverage with a steel wheel roller. The rolling may begin with a single pass of a steel wheel roller until the pneumatic has sufficient opportunity to warm up to avoid tracking and picking up material from the mat. The pneumatic roller tires shall be treated with a non-petroleum based product to prevent pickup. Failure to successfully provide for breakdown rolling with the pneumatic roller after a reasonable warm up time will be cause for termination of paving activities until the Contractor can provide equipment which will perform without pickup.

The Contractor shall have hand-compaction equipment immediately available for compacting all areas inaccessible to rollers. Hand-compaction shall be performed concurrently with breakdown rolling. If for any reason hand-compaction falls behind breakdown rolling, further placement of hot mix asphalt shall be suspended until hand-compaction is caught up. Hand-compaction includes vibraplates and hand tampers. Hand torches shall be available for rework of areas which have cooled.

After compaction, the surface texture of all hand work areas shall match the surface texture of the machine placed mat. Any coarse or segregated areas shall be corrected immediately upon discovery. Failure to immediately address these areas shall cause suspension of hot mix asphalt placement until the areas are satisfactorily addressed, unless otherwise allowed by the Engineer.

TS-4.03E Temporary Transitions

The Contractor shall construct temporary pavement transitions at all paving joints greater than 1 inch prior to allowing traffic onto the paved surface. This includes both longitudinal and transverse paving joints for both leveling and surface courses. Temporary pavement transitions shall have a maximum slope of 20:1 or as approved by the engineer and be constructed on Kraft paper or other suitable bond breaker such that upon removal of the temporary pavement transition, a clean notch remains. The temporary transitions may be constructed of either cold mix or hot mix.

The Contractor shall continuously maintain the temporary pavement until final paving. Each temporary transition shall be inspected by the Contractor and repaired as necessary to comply with these provisions at the end of each day including weekends and holidays.

Failure to comply with these provisions will result in a liquidated damage of \$250 per day per transition and/or the cost of City crews making the repairs if necessary to correct for public safety.

TS-4.04 Measurement and Payment

Section 39-6, "Payment," of the Standard Specifications shall not apply.

Full compensation for Hot Mix Asphalt (HMA) shall be considered as included in the contract price paid per square foot for **”Digout or Remove and Replace 4” HMA”** and no separate payment will be made therefor.

TS-5 CRACK SEAL

TS-5.01 General

Pavement cracks greater than 1/4-inch and less than 1-inch shall be mechanically routed and cleaned to a depth of at least 1/2-inch, treated with a pre-emergent herbicide, and filled with sealant material until the sealant material is even with the pavement surface.

TS-5.02 Materials

Crack sealant shall be a mixture of paving asphalt and ground rubber and shall conform to ASTM D 6690, Type II. The crack seal product shall conform to the following requirements:

<u>Test</u>	<u>Specification Limit</u>
Cone Penetration 77°F(25°C)(ASTM D5329)	35-55
Resilience (ASTM D5329)	40% min.
Softening Point (ASTM D36)	200°F(93°C) min.
Ductility 77°F(25°C)(ASTM D5113)	30 cm min.
Flexibility (ASTM D3111 Modified)	Pass at 20°F(-7°C)
Flow 140°F(60°C)(ASTM D5329)	3 mm max.
Brookfield Viscosity 400°F(204°C)(ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min.
Tensile Adhesion (ASTM D5329)	500% min.
Safe Heating Temperature	400°F(204°C)
Recommended Pour Temperature	380°F(193°C)

The sealant material shall cure immediately upon cooling to a sufficient viscosity to prevent tracking by traffic.

The pre-emergent herbicide shall be '**Arsenal**' or equivalent, as approved by the Engineer. The Contractor shall submit a product information sheet on the sterilent to be used.

TS-5.03 Construction

TS-5.03A Cleaning of Cracks

ALL cracks shall be blown clean and free from dirt, debris, and vegetation with compressed air that is not less than 85 CRM at 100 psi. Leaf type blowers are not allowed.

All cracks indicating weed growth are to be sprayed and cleaned as follows:

The Contractor shall apply herbicide to all existing weed growth within the roadway area from curb to curb including the joint between the gutter lip and asphalt pavement. A minimum of two applications shall be made with a minimum period of 7 calendar days between applications. The second application shall be applied to treated areas and any additional new weed growth between applications. Any new weed growth shall be treated a third time after a minimum of 7 days from the second application. The herbicide shall be an organic or Non-Proposition 65, E.P.A. approved herbicide. The herbicide shall be applied by a licensed applicator and shall comply with the manufacturers' recommendations.

Seven (7) days after the last application of herbicide (either the second or third), all remaining vegetation in the cracks shall be mechanically removed.

All existing vegetation, outside the areas to be cleared and grubbed, shall be protected from the Contractor's operations unless specifically shown on the plans to be removed.

Immediately prior to applying the sealant, the cracks shall be cleaned with high pressure air jets to remove all residue and foreign material. Any weed growth shall be physically removed. Water jets will not be allowed. Crack surfaces shall be surface dry at the time the sealant is applied.

During all construction operations, the Contractor shall protect cracks cleaned for sealing from intrusions of solid foreign materials into the groove or into the sealant.

TS-5.03B Sealing

All properly prepared cracks shall be sealed by inserting a nozzle into the crack and filling it from the bottom up with the approved sealant material. The application of sealant shall comply with the manufacturer's application guidelines.

Crack seal materials shall not be placed when the surface temperature is below 50 degrees Fahrenheit. Crack surfaces shall be surface dry at the time the sealant is applied.

The finished crack seal shall be bonded to the crack such that there is no separation or opening between the sealant and the crack edge and there shall be no cracks, separation or other opening in the sealant.

The Contractor shall remove crack seal material that is not placed within the conformance of these provisions, clean cracks as specified herein and reseal the cracks at his or her expense.

TS-5.03C Squeegeeing

After filling the cracks with the sealant, they are to be squeegeed with a "U" shaped squeegee so as to strike off excess material and to provide a band aid effect with the sealant. After the sealant has cooled, there may be a slight depression of not more than 1/8th-inch below the adjacent pavement.

TS-5.03D Sweeping

All streets will be swept on a daily basis after the material has set up adequately so that the sweeper will not do any damage to the sealant.

TS-5.03E Equipment

Router: Shall be a two-wheeled, impact router, such as the Crafcro 200 router or equal, capable of following random cracks.

Sealant Machine: Shall be a double boiler heat system, such as the Crafcro EZ Pour 200 Sealant Machine or equal, capable of heating the sealant to the manufacturer's recommendations without placing direct heat onto the sealant.

Compressor: The compressor shall be capable of providing a minimum of 100 psi at the nozzle for removal of any debris, dirt, or vegetation that may be in the cracks after the routing.

Squeegee: Shall be a "U" shaped, rubber-footed tool capable of leveling off the sealant without leaving an excess of material on the cracks after filling.

TS-5.04 Measurement and Payment

Full compensation for Crack Seal including all labor, equipment and weed killing shall be considered as included in the contract price paid per ton for **“Crack Seal & Slurry Seal (Type II w/ Black Rock)”** and no separate payment will be made therefor.

TS-6 SLURRY SEAL (Type II W/ BLACK ROCK)

TS-6.01 General

The work shall comply with Section 37-3 SLURRY SEAL AND MICRO-SURFACING of the Caltrans 2010 Standard Specifications and these special conditions.

TS-6.02 Materials

General: At least ten working days prior to starting work on placing the slurry seal, the Contractor shall submit a mix design for Type II slurry seal. The design shall be prepared in accordance with the International Slurry Seal Association Design Technical Bulletin No. 111, dated January 1998. A change in either the aggregate or emulsion during the course of work will require the preparation of a new mix design. In addition to the requirements of Bulletin No. 111, the slurry seal mix design shall also contain 2.5 percent latex.

The materials used in Type II slurry seal shall conform to Section 37-3, “Slurry Seal”, of the Standard Specifications.

Add to section 37-3.02B (2) Aggregate of the Standard Specifications:

Aggregate shall be 100% crushed with no rounded particles, volcanic in origin and black in color, as supplied by George Reed, Table Mountain, Sonora, CA or Equal.

TS-6.03 Construction

Add to section 37-3.01D(2) of the Standard Specifications:

DAILY CONTRACTOR RECORDS

Aggregate and Emulsion Delivery Tickets

The Engineer shall be notified in 24 hours in advance of scheduled delivery of aggregate and emulsion. The Contractor shall provide delivery tickets to the Engineer on the same day as delivery. A certificate of compliance for the emulsion shall accompany each delivery of emulsion. Excess aggregate or emulsion returned to the source or to other projects shall be scaled at a commercial scale within 25 miles of Guadalupe on the same day as the material is removed from the jobsite. The scale tickets shall be provided to the Engineer at the end of the day that the return material was removed from the site.

Aggregate Sampling

The Contractor shall facilitate sampling of aggregates and emulsion. The sampling shall occur as soon after delivery as practical. The Contractor shall sample the aggregate at the rate of one per 100 tons. The Engineer will provide random sampling milestones to the Contractor. The Contractor shall sample and split the sample in the presence of the Engineer. The Engineer will provide a splitter, sample bags and sample identification tags.

Emulsion Sampling

Each truck of emulsion delivered to the project shall be sampled by the Contractor. The Contractor shall provide the Engineer with a 2 quart sample in a plastic container. The Contractor shall provide the containers. The samples shall be labeled with a label provided by the Engineer. All required information shall be provided. Samples shall be provided to the Engineer on a daily basis including a copy of the delivery ticket with weight and Certificates of Compliance for the load delivered.

Mixed Slurry Sampling

A minimum of twice daily, the Engineer will request the Contractor to sample mixed slurry from the pug mill discharge. The Engineer will provide a plastic container for the samples. The Contractor shall clean the outside of the container immediately after sampling and prior to delivering to the Engineer. Such mix samples may be requested at any time.

Daily Production Records

The Contractor shall maintain all aggregate belt counters in operation order at all times. If the counter should become inoperable, it shall be taken immediately out of service.

Add to section 37-3.01D(4)(b) of the Standard Specifications:

Modify Slurry Seal Mix Design Requirements as follows: Wet Track abrasion, g/m², (TB100): 538 maximum.

Add to section 37-3.02A of the Standard Specifications:

Aggregate for the slurry seal must be Type II as shown on the plans.

Add to section 37-3.02B(2) Aggregate of the Standard Specifications:

Aggregate shall consist of rock dust and other rock of similar nature, except that any aggregate or combination of aggregates used in the mixture shall contain not less than 50 percent of the product obtained by crushing rock. The material shall be free from vegetative matter and other deleterious substances.

Add to section 37-3.02B(3) of the Standard Specifications:

Asphaltic emulsion for slurry seal must be polymer modified asphaltic emulsion (PMCQS1h).

Add to section 37-3.03A of the Standard Specifications:

No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers are to be uncovered and cleaned of slurry material by the end of the same work day.

The Contractor shall inspect the roadways to be sealed and determine if overhanging branches will be disturbed by the slurry seal trucks. Any such branches shall be pruned by the Contractor at his expense prior to initiation of slurry seal placement. Prior to pruning any branches over 2 inches in diameter, the Contractor shall obtain approval from the Engineer. Forty-eight (48) hours' notice shall be provide for Engineer review and comment.

Add to section 37-3.03D(2)(a) of the Standard Specifications:

Raised pavement markers, thermoplastic striping and thermoplastic legends shall be removed prior to application and replaced with new once the application is completed.

The Contractor shall maintain equipment to clean the pavement of debris immediately prior to application of slurry. Such equipment shall as a minimum consist of a backpack type blower, brooms and shovels. At any time up to immediately prior to placement of the slurry, the Contractor shall stop application of the slurry seal and remove any debris which has fallen on the roadway to be sealed. Such items may include, but not be limited to paper, plastic, leaves, twigs, branches, etc. Failure to properly clean the pavement of debris as required will

immediately terminate further slurry seal placement that day. Continuing work the next day is dependent on the Contractor demonstrating the availability of the equipment and manpower to keep the pavement clean.

Modify section 37-3.03D(2)(b) of the Standard Specifications:

See Section 10-1.13 Traffic Control System.

Modify section 37-3.03D(4)(a)(ii) Weather Conditions of the Standard Specifications to read as follows:

Only place slurry seal or micro-surfacing if both the pavement and air temperatures are at least 60 degrees F and rising. Do not place slurry seal or micro-surfacing if either the pavement or air temperature is below 60 degrees F and falling. The expected high temperature must be at least 65 degrees F within 24 hours after placement.

Add to section 37-3.03D(4)(b) of the Standard Specifications:

The Contractor shall apply the slurry using a minimum of three continuous mixers of 12 cubic yard or greater capacity, one mixer to be applying slurry, while the other two machines are in transit to and from the batch site. The Contractor shall provide a coordinator, at least one competent quickset mixing man, one driver for the mixer applying the slurry, and two shuttle drivers for the machine en route to reload. The Contractor shall also provide sufficient laborers for any handwork and cleanup required to ensure proper progress of work.

The slurry seal retention time in the pug mill shall be less than three seconds. No retention of mixed slurry seal shall be allowed within the pug mill by gate shut-off or other mechanical means. Transit mix trucks shall not be used.

The applied slurry seal shall be rolled with a minimum of three passes with a pneumatic roller prior to opening to traffic. The Contractor shall provide a minimum of 2 pneumatic rollers with separate operators. Pneumatic rollers with shall be a minimum of 6 tons and a maximum of 12 tons. The roller must be onsite prior to beginning work. Pneumatic rolling shall occur within 1 hour after placement and prior to opening to traffic.

Protection and maintenance of the street surface to the condition required for proper slurry application shall be the sole responsibility of the Contractor and no additional expense will be allowed. The Contractor shall, at the direction of the City Inspector and Street Maintenance Superintendent, repair and reseal all areas of the streets which have not been sealed properly and completely or have been damaged by traffic.

A minimum of two post slurry seal street sweepings shall be made at 7 calendar days and 30 calendar days after placement of the slurry seal using power vacuum-type sweeping equipment. Areas where the slurry seal fails to adhere or experiences excessive aggregate loss shall be resealed at the Contractor's expense.

Modify section 37-3.03D(4)(a)(ii) Weather Conditions of the Standard Specifications to read as follows:

Only place slurry seal if both the pavement and air temperatures are at least 60 degrees F and rising. Do not place slurry seal if either the pavement or air temperature is below 60 degrees F and falling. The expected high temperature must be at least 65 degrees F within 24 hours after placement.

TS-6.04 Measurement and Payment

Type II Slurry Seal” shall be measured by the ton and shall be paid as “Crack Seal and Slurry Seal (Type II). The contract unit price paid per ton for **“Crack Seal and Slurry Seal (Type II w/ Black Rock)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing and placing of the Type II Slurry Seal complete in place, including crack sealing, covering street facilities, cleaning the surface and protecting the slurry seal until it has set, rolling and sweeping, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contractor shall provide material tags for tonnage of the aggregate and emulsion used to show that the application rate of aggregate and emulsion was within the range required by the specifications. If the application rate of aggregate or emulsion falls outside the minimum amount required, the Contractor shall reapply the slurry seal on those streets that are determined to have not met the contract requirements.

Failure to place the slurry seal within the indicated time constraints shall subject the Contractor to liquidated damages of \$500 per day, per street. The assessment of these liquidated damages shall not relieve the Contractor of any obligations to maintain the street and to provide interim sweepings as required herein.

TS-7 COLD PLANING

TS-7.01 General

Cold planing shall include all work necessary to remove existing asphalt and/or concrete pavement to a predetermined depth as indicated on the drawings. The work includes, but is not limited to, removal of the existing pavement adjacent to gutters, cross gutters, ends of overlays, equipment crossings, railroad crossings,

and bridge approaches. Existing pavement surface on roadways to be milled prior to pavement inlay shall be cold planed as specified herein.

TS-7.02 Equipment

The machine used for planing shall have performed satisfactorily on similar work and shall meet the following requirements:

The planing machine shall be specifically designed and built for the planing of bituminous pavements without the addition of heat. It shall have the ability to plane portland cement concrete patches in the bituminous pavement, or portland cement concrete pavements. The cutting drum shall be a minimum of sixty inches wide and shall be equipped with carbide tipped cutting teeth placed in a variable-lacing pattern to produce the desired finish.

The machine shall be capable of being operated at speeds of zero to forty feet per minute, it shall be self-propelled, and have the capability of spraying water at the cutting drum to minimize dust. The machine shall be operated in such a way so that no fumes or smoke will be produced. The machine shall be capable of removing the paving material next to curbs or gutters and be designed such that the operator thereof can at all times observe the planing operation without leaving the controls. The machine shall be adjustable for slope and depth and shall be equipped with sonic sensing devices for controlling depth.

TS-7.03 Construction

Limits of cold planing will be determined by the Engineer prior to construction. The depths and dimensions of the cold planing and keycuts are designated on the plans. Cold planing may be used for removal of existing pavement under bid items for "remove and replace" and may be used for "digouts".

Cold planing may require removal of existing Hot Mix Asphalt above gutter lips, in addition to the required depth below the gutter lip, due to prior overlays.

Pavement to be cold planed may contain pavement fabric.

On areas where the underlying material appears to be wet or soft, or where it deflects under wheel loads, the Contractor shall employ excavation and grading techniques which do not worsen the subgrade condition.

Prior to placing Hot Mix Asphalt, the area shall be proof-rolled with a loaded construction vehicle, preferably a ten cubic yard dump truck or equivalent. The compacted surface shall not visibly yield or deflect. Soft, yielding, unstable, or unsuitable areas shall be removed and replaced with base rock or Hot Mix Asphalt. If the areas were caused or significantly worsened by the Contractor's operations, these areas shall be replaced at the Contractor's expense.

In the event that the underlying material is soft, yielding, unstable, or unsuitable, it shall be excavated to the depth of 0.5 feet below the depth required above and disposed of in accordance with these Special Provisions. The limits of removal shall be designated by the Engineer. The resulting space shall be filled with a single lift of Hot Mix Asphalt.

Unsuitable material is defined as material the Engineer determines to be:

Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content, or

Too wet to be properly compacted and circumstances prevent in-place drying prior to incorporation into the work, or

Otherwise unsuitable for the planned use.

TS-7.03A Pavement Removal

Prior to cold planing, on streets to have a uniform depth of the existing surface removed, all utility covers within the cold planing limits shall be lowered such that the cutting teeth of the planing machine passes over the adjusted lid without causing damage to the lid or frame. Contractor will be responsible for maintaining any temporary asphalt fill material over these facilities until the final paving surface is installed. The Contractor shall clearly mark or reference lowered sanitary sewer and water valves in case emergency access is required by the agency responsible for operation of the sewer and water system.

All pavement areas called out for removal and replacement shall be cold planed to the full width of the roadway. Pavement against curb faces shall be removed to the full depth designated for that particular section of roadway. If pavement against curb faces cannot be removed by the planing machine, the Contractor shall use other means to remove this material.

TS-7.03B Tolerances

The pavement surface after cold planing shall be uniformly rough. The grade shall not deviate from a suitable straight edge more than 1/4 inch at any point. When multiple passes are required to create the cold planed surface, the maximum variation from a stringline or straight edge shall be 1/4 inch high to 1/2 inch low. High points out of tolerance shall be replaned to fall within tolerance. Low areas shall be filled with Hot Mix Asphalt as specified herein to meet tolerances. The cost of such correction of low areas shall be entirely the Contractor's.

TS-7.03C Removal and Disposal of Material

During the cold planing operation, the Contractor shall sweep the roadway with mechanical equipment and remove all loosened material from the project site until completion of the removal work.

All material removed shall be considered the property of the Contractor and shall be removed and disposed of at the Contractor's expense.

In addition to removing the cold planed Hot Mix Asphalt, the Contractor shall remove any slurry seal or Hot Mix Asphalt which is adhered to the top of the adjacent gutter, cross gutter, or spandrel.

TS-7.03D Air Pollution Control

The Contractor shall take all necessary measures to avoid the dispersion of dust. Attention is directed to Subsection 18-1.03C of the Standard Specifications.

TS-7.03E Temporary Transitions

The Contractor shall construct temporary pavement transitions prior to allowing traffic onto cold planed pavement areas. Such transitions shall have a maximum slope of 20:1 and be constructed on kraft paper or other suitable bond breaker such that upon removal of the transition a clean notch remains. Temporary transitions are not necessary in traffic areas if the drop off is less than 0.10 feet. Temporary transitions are required at all conforms, handicap ramps, cross gutters, and driveways.

TS-7.03F Correction of Tear Out Areas

If tear-out to the underlying layers occurs during the cold planing operation, the Contractor shall adjust his operation to minimize tear-out. Corrections shall include changing operation speed and replacing cutting teeth. Changes in cold planing depth shall only be made with approval of the Engineer.

Areas torn out by lack of diligence on the Contractor's part shall be corrected by placement of Hot Mix Asphalt conforming to the requirements of these special conditions. Areas torn out due to pre-existing adhesion problems in the existing Hot Mix Asphalt shall be corrected at the City's expense as directed by the Engineer.

TS-7.04 Measurement and Payment

Full compensation for Cold Plane shall be considered as included in the contract price paid per square foot for **"Digout or Remove and Replace 4" HMA"** and no separate payment will be made therefor.

TS-8 DIGOUT OR REMOVE & REPLACE HMA

TS-8.01 General

The work shall consist of removing and replacing existing Hot Mix Asphalt, and base if necessary, to the specified depth by cold planing or other methods.

TS-8.02 Materials

Hot Mix Asphalt used as the base course for pavement replacement and digouts shall be either 3/4 inch or 1/2 inch Type A Max. Medium with PG 64-10. Hot Mix Asphalt used as the surface course shall be 1/2 inch Type A Max. Medium with PG 64-10. Hot Mix Asphalt used for digouts under overlays shall be either 3/4 inch or 1/2 inch Type A Max. Medium with PG 64-10 and may be placed and compacted in one lift. In all of the above instances, the Hot Mix Asphalt shall conform to Section 39 of the Standard Specifications, and these Special Provisions.

TS-8.03 Construction

The pavement areas designated to be replaced shall be removed to a uniform depth as specified, and may be removed either by cold planing or by full depth sawcutting and mechanical removal. Sawcutting is not necessary if the pavement is removed by cold planing. Any broken or damaged pavement edges shall be re-cut prior to paving. All removed material shall be cleared from the site.

The excavated areas shall be graded as shown on the plans as necessary to provide a uniform pavement thickness. The base rock or native soil shall be compacted to 95% relative compaction. Compaction testing shall be performed in accordance with either CTM 216 and 231 or ASTM D-1557, D-2216, D-2922, and D-3017. All segregated or loose material shall be removed.

On areas where the underlying material appears to be wet or soft or where it deflects under wheel loads, the Contractor shall employ excavation and work techniques which do not worsen the sub-grade condition.

Prior to placing aggregate base or Hot Mix Asphalt, each pavement replacement area shall be proof-rolled with a loaded construction vehicle, preferably a ten cubic yard dump truck or equivalent. The compacted surface shall not visibly yield or deflect. Soft, yielding, unstable, or unsuitable areas shall be removed and replaced with base rock or Hot Mix Asphalt. If the areas were caused or significantly worsened by the Contractor's operations, these areas shall be replaced at the Contractor's expense.

In the event that the underlying material is soft, yielding, unstable, or unsuitable, it shall be excavated to a depth of 0.5 feet below the depth required above and disposed of in accordance with these Special Provisions. The limits of removal

shall be designated by the Engineer. The resulting space shall be filled with a single lift of Hot Mix Asphalt.

Unsuitable material is defined as material the Engineer determines to be:

1. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content, or
2. Too wet to be properly compacted and circumstances prevent in-place drying prior to incorporation into the work, or
3. Otherwise unsuitable for the planned use.

After compaction of the sub-grade, aggregate base shall be placed and compacted to 95% relative compaction. All vertical edges of existing pavement or concrete shall receive a tack coat immediately prior to paving. Additional tack may be necessary between Hot Mix Asphalt courses. No prime coat shall be required. A tack coat between layers of Hot Mix Asphalt shall be required if not paved on the same day or if the surface has been contaminated or soiled. Any contamination or soiling shall be thoroughly cleaned and a tack coat placed between layers immediately prior to paving.

Care shall be taken to assure compaction of the inside corners of the first lift. Ramping shall not be allowed on the course placed immediately prior to the surface course.

A minimum of two lifts shall be used for each replacement area or digout with a depth greater than three inches. The surface course shall be 1-1/2 inches minimum thickness. No single base or intermediate course may exceed three inches.

The repaired areas shall conform to the level of the surrounding pavement so that no elevation variation is evident. The surface shall have a maximum variation from high to low of 0.01 feet maximum when measured with a twelve-foot level. Variation at the edges shall not exceed 0.01 feet maximum. When matching existing pavement, the finished surface shall not inhibit drainage. The upslope edge of the digout or replacement shall be 0.00 feet high to 0.01 feet low. On the downslope edge of the digout or replacement, the finished surface shall be 0.01 feet high to 0.00 feet low. Any resulting variations shall be corrected to the satisfaction of the Engineer.

TS-8.03A Removal and Disposal of Material

Materials removed using a cold planing or other methods shall become the property of the Contractor, and shall be disposed of in accordance with local rules and regulations.

TS-8.04 Measurement and Payment

The contract price paid per square foot for **“Digout or Remove & Replace 4” HMA”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Digout or Remove & Replace 4" HMA, complete in place, including sawcutting, cold planning, removal, proof rolling, excavation, off-haul, proper disposal, aggregate base, compaction, HMA, and tack coat, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Contract shall include in the unit price all costs relating to submitting the JMF including all testing costs for JMF verification and quality control testing. The unit price includes the cost of providing the Contractor’s Quality Control Plan.

The Contractor shall pay all the cost of coring if requested to verify density by cores. Engineer will pay cost of testing cores.

Subsection 9-1.06B, “Increases of More Than 25 Percent” and subsection 9-1.06C, “Decreases of More than 25 Percent” shall not apply to the bid items related to removing and replacing pavement or digouts.

TS-9 ASPHALT TACK COAT

TS-9.01 General

The work to be performed shall consist of furnishing and applying tack coat in conjunction with Hot Mix Asphalt overlays and other Hot Mix Asphalt paving work.

TS-9.02 Materials

The tack coat shall be emulsified asphalt of grades RS1, RS2, SS1, or SS1h, conforming to Section 94, “Asphaltic Emulsions”, of the Standard Specifications.

TS-9.03 Application

The tack coat shall not be applied until the preparation of the existing surface has been completed, and then only so far in advance of placing the Hot Mix Asphalt as permitted by the Engineer. Preparation of the surface shall be performed as described in these Special Provisions. No tack coat shall be left exposed overnight. Immediately in advance of placing the Hot Mix Asphalt, additional tack coat shall be applied as directed by the Engineer to areas where previously applied tack coat has been destroyed or otherwise rendered ineffective, and no additional compensation will be allowed for such work.

Existing concrete curb faces shall be protected against discoloration from the asphalt. Residue of the material shall be removed from curb faces by sandblasting to the extent required by the Engineer.

Tack coat shall be applied as specified in Subsection 39-4.02 of the Standard Specifications and these Special Provisions. The Engineer will determine if the pavement is sufficiently dry for the application of the tack coat. Further, tack coat shall not be applied when the temperature of the surface to be tacked is below 40 degrees Fahrenheit in the shade.

Tack coat shall be applied to all vertical edges to be paved against including curb faces and gutter lips. The Contractor shall protect concrete surfaces that are not to be paved against from tack coat spray or splash. Any tack coat more than one inch above the paving surface shall be removed by power washing or other means.

TS-9.04 Measurement and Payment

Full compensation for “**Asphalt Tack Coat**” shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefor.

TS-10 LOWERING AND ADJUSTING EXISTING UTILITY FACILITIES TO FINISH GRADE

TS-10.01 General

This work shall consist of lowering or adjusting existing utility facilities such as manholes, valve boxes, sewer clean-outs, monument boxes, electrical boxes, water meter boxes, and monitoring well covers to the finish grade of the resurfaced asphalt pavement or finished sidewalk grade. On roadways to be milled, facilities shall first be lowered prior to cold planing and then adjusted to finish grade after completion of the resurfacing work. At various locations a monument box and cover shall be installed at finish grade over any unprotected, existing monumentation in the paved roadway.

All such work shall conform to the applicable provisions of the State of California, Department of Transportation, Standard Specifications (Caltrans); these Special Provisions; the plans and typical sections; and as directed by the Engineer.

TS-10.02 Construction

The Contractor shall properly locate and tie all existing facilities to be raised in advance of paving operations.

Care shall be taken to keep frames and covers clean. The Contractor shall completely protect with heavy plastic or other suitable material all utility covers or other items that are visible on the surface and will be covered by his operations. This shall be completed prior to the start of operations and approved by the Engineer. Any materials that adhere to the frames and covers shall be removed.

Facilities damaged by the Contractor shall be replaced at the Contractor's expense. Facilities (box and lid or frame and cover) found existing in a damaged condition, and reported to the Engineer before disturbing, shall be replaced by the Contractor with materials furnished by the Owner.

The Contractor shall notify owners of private utility facilities seven days prior to the start of the resurfacing work. Such owners may request the contractor to raise the private facilities.

TS-10.02A Tolerances

The concrete around these adjusted facilities in the roadway shall be brought up to match the finished pavement elevation.

The surface of the adjusted facilities shall be true to the new pavement surface to within a 1/8-inch deviation. This tolerance shall apply in a single direction only, either up or down. In addition, the adjusted facility shall not vary to the high tolerance on one side and the low tolerance on the other (i.e. the total aggregate tolerance on both sides shall be limited to the 1/8 inch variation). This variation shall apply to the adjacent patch paving around the facility such that neither the paving nor facility vary by more than the stated tolerances.

The adjusted facilities in the sidewalk shall be flush with adjacent surface.

TS-10.02B Schedule

All facilities shall be adjusted to finish grade within 72 hours after the placement of the final surface paving on each individual street segment. If several lifts of pavement are to be placed, the facilities shall be raised if the paving operation ceases for more than 72 hours as approved by the engineer.

TS-10.02C Survey Monuments

Where new survey monument boxes and covers are required, the Contractor shall perform the installation without disturbing the location of the monument. If the monument is disturbed the Contractor will be responsible for re-establishing it as a monument in accordance with State laws. The work for placement of the box and cover over an existing monument will include removal and replacement of the hot mix asphalt around the monument.

TS-10.02D Monitoring Wells

Where monitoring wells are to be overlaid, the location of the wells shall be marked on the curbs. A site sketch shall be provided to the city indicating the location and distances on the monitoring wells relative to the curb markings five days prior to paving. If the monitoring wells have frames and covers, the frames and covers shall be adjusted as part of this work.

TS-10.03 Measurement and Payment

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in lowering and raising utility frames and covers to grade, complete in place, including coordination with the utility companies, the Engineer, and City Surveyors, replacing disturbed monuments, salvaging existing or furnishing new utility frames and covers, concrete, mortar, and HMA (type A), as directed by the Engineer and per City of Guadalupe details shall be included with the contract price of **“Digout or Remove & Replace 4” HMA”**.

TS-11 TRAFFIC STRIPING, MARKINGS, AND RAISED PAVEMENT MARKERS

TS-11.01 General

Thermoplastic traffic stripes (traffic lines) shall conform to the provisions in Sections 84-1, "General" and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings", of the Standard Specifications and these Special Provisions. Painted traffic stripes and pavement markings shall conform to Section 84-1, "General" and 84-3, "Painted Traffic Stripes and Pavement Markings", of the Standard Specifications and these Special Provisions. Delineators shall conform to Section 82, "Markers and Delineators". Road Signs shall conform to Section 56-2, "Roadside Signs".

TS-11.02 Materials

TS-11.02A Thermoplastic

Section 84-2.02, "Materials" of the Standard Specifications is deleted.

The thermoplastic material shall conform to State Specifications 8010-41G-21. Glass beads to be applied to the surface of the molten thermoplastic material shall conform to the requirements of State Specification 8010-22L-22 (Type II), or AASJTP Designation: M 247 (Type 1).

State Specifications for thermoplastic material and glass beads may be obtained from the Transportation Laboratory, P.O. Box 19128, Sacramento, CA. 95819, (916) 739-2400.

Thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.125-inch.

A primer of the type recommended by the manufacturer of the thermoplastic material shall be applied over all existing painted stripes and pavement legends to be covered with thermoplastic material as shown on the plans.

TS-11.02B Paint

Paint for traffic stripes and pavement markings shall comply with Section 84-3 of the Standard Specifications.

The use of either water or solvent-based paint will be determined by the Engineer according to the time of year and air pollution control requirements.

Paint shall be used at its manufactured consistency.

TS-11.03 Construction

All construction shall conform to the respective provisions of the Standard Specifications, manufacturer's installation requirements, and the Special Provisions.

TS-11.03A Existing Striping and Markings:

In areas adjacent to the reconstructed surfacing where existing striping must be changed to conform to a revised striping pattern, conflicting striping shall be removed by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer.

In areas to be slurry sealed, the contractor shall remove all existing thermoplastic striping by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer.

The Contractor shall replace all striping which has been damaged or obliterated by or during the work. This shall include striping replacement completely across the street even in the event that the Contractor's work may not extend that far. Both lines of each crosswalk shall be completely repainted even if only a portion of a line has been obliterated.

When the Contractor's work removes or reduces the visual appearance of a lane or centerline, the Contractor shall replace all striping between the adjacent intersections in both directions. Where a median exists, this work will be required only in the roadway where the work has occurred, unless a detour which altered the pavement markings occurred in the other roadway. In such cases, the striping will be replaced in both directions.

TS-11.03B Layout for Temporary and Permanent Striping

The alignment and layout of traffic stripes shall conform to Subsection 84-1.02, "Traffic Stripes and Pavement Markings", of the Standard Specifications.

The Contractor shall be responsible for compiling an existing striping and marking plan including but not limited to stop bars, legends, parking stall stripes, crosswalks and other traffic delineation markings within the project prior to removing,

obliterating, covering any existing striping, or starting work on the affected street. **This plan must be submitted to the Engineer and approved prior to commencing any striping and marking operations on the affected street.**

All alignments and layout measurements, and other work necessary to locate and replace traffic stripes and pavement markings shall be performed by the Contractor. The City will not provide any assistance, information, or materials to the Contractor. It will be entirely the responsibility of the Contractor to perform all necessary pre-construction and construction layout work, obtain all necessary measurements and information, and prepare all plans for performing the striping and marking work as specified. All traffic control systems necessary for performing striping and marking, as directed by the Engineer, shall be the responsibility of the Contractor.

The Contractor shall physically tie down the location of the beginning and ending of each paint or thermoplastic marking type in the adjacent curb top. The marking location shall not exceed 50 square inches each. Any locations exceeding this limit shall be removed by the Contractor prior to acceptance of the work. The Contractor shall contact the City Engineer for review of tie downs.

The Contractor shall be responsible for accurately referencing out and replacing the lines and positions of all traffic lines, directional lines, arrows, and other markings in accordance with the plans and City standard markings by cat tracking with painted marks. This shall occur no later than 2 hours behind the final surface course paving operation.

Cat tracking shall consist of stretching a rope on a straight line between control points on tangent alignment and on a true arc through control points on curved alignment and placing spots of paint along the rope. Temporary tab markers shall be placed not more than 12' apart on curves nor more than 24' apart on straight segments.

Temporary tab markers shall be the same color as the traffic stripe that they are replacing, shall measure 2" tall by 3-1/2" wide, and have a reflective lens across the width of the marker.

Prior to application of permanent striping and markers, the Contractor shall call for review and approval of the proposed striping by the City's Traffic Engineer or agent. The City shall have the right to make changes in the location and alignment of line stripes. Striping and traffic markings shall not be applied until after approval is granted by the Traffic Engineer. The Contractor shall allow a minimum of 3 working days for review of the layout by the City.

TS-11.03C Schedule

Raised pavement markers (RPM's) shall be placed as specified in Subsection 85-1.06, "Placement", of the Standard Specifications. When utilizing hot melt bituminous adhesive, RPM's shall be placed after the surface has been open to traffic for at least 7 days. When utilizing epoxy adhesive, RPM's shall be placed after the surface has been open to traffic for at least 14 days. Regardless of which adhesive is utilized, the RPM's shall not be placed more than 21 days after paving or surfacing.

Permanent traffic striping and markings including legends and arrows shall be placed within 21 days after paving or surfacing, unless otherwise directed by the Engineer.

Temporary yellow marking tape denoting school crosswalks shall be placed the same day that the pavement surfacing is placed.

Failure to comply with these requirements shall result in a liquidated damage of \$1,000 per day for each street that has not received permanent installation of the required raised pavement markers, traffic striping, and markings.

TS-11.03D Pavement Stencils

The Contractor shall use stencils that conform to Caltrans Standard Plans and Details.

TS-11.03E Reflective and Raised Pavement Markers

Installation of both reflective and raised pavement markers shall conform to the provisions of Section 85 of the Standard Specifications. Pavement markers shall be placed in the same pattern and locations as they were previously, except as shown on the plans or modified herein.

TS-11.03F Pavement Delineation – Thermoplastic

Pavement temperature shall be measured at the beginning of the shift on each working day and this information shall be provided to the Traffic Engineer.

No primer or thermoplastic shall be installed within 48 hours from the last measurable rain report as provided by the City.

Thermoplastic traffic striping, legends, and arrows shall conform to the provisions of Section 84-1, "General"; Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings"; and refer to Section 85, "Pavement Markers"; and the Special Provisions.

TS-11.03G Pavement Markers

Pavement markers shall be placed to the line established by the Contractor and approved by the Engineer, which will consist of temporary painted line or new or existing stripes one for each line of markers.

All additional work necessary to establish satisfactory lines for markers shall be performed by the Contractor.

Subsection 9-1.06B, "Increases of More Than 25 Percent" and subsection 9-1.06C, "Decreases of More than 25 Percent" shall not apply to the bid items related to pavement markers.

At the option of the Contractor, a hot melt bituminous adhesive may be used to cement the markers to the pavement instead of the Rapid Set Type or Standard Set Type epoxy adhesive specified in 85-1.06, "Placement," of the Standard Specifications. Bituminous adhesive material shall conform to the following:

Specification	ASTM	Requirement
Flash Point, COC, °F	D 92	550 Min.
Softening Point, °F	D 36	200 Min.
Brookfield Thermosel		
Viscosity, Centipoise, No. 27 Spindle, 20 RPM, 400°F	D 4402	3,000-6,000
Penetration dmm, 100g, 55 seconds, 77°F	D 5	10 - 20
Filler Cement, percent by weight (Insoluble in 1,1,1 Trichloroethane)	D 2371	65 - 75

Filler material used in bituminous adhesive shall be Type PC, Grade III, calcium carbonate conforming to ASTM D1199, and shall conform to the following gradation:

Sieve Size	Percent Passing
No. 100	100
No. 200	95
No. 325	75

Bituminous adhesive shall be heated indirectly in an applicator with continuous agitation or recirculation. Bituminous adhesive shall not be heated above the maximum safe heating temperature recommended by the manufacturer and shall not be applied at temperatures greater than 425°F nor less than 375°F.

Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement.

Placement of pavement markers using bituminous adhesive shall conform to the requirements of the third, fourth, ninth and tenth paragraphs in said Section 85-1.06 of the Standard Specifications, except as follows:

1. Markers shall not be placed when the pavement or air temperature is 50°F or less.
2. Blast cleaning shall be required.

When bituminous adhesive is used for pavement marker placement, traffic control during placement operations shall conform to the requirements of "Traffic Control System" of these Special Provisions.

TS-11.04 Measurement and Payment

Subsection 9-1.06B, "Increases of More Than 25 Percent" and subsection 9-1.06C, "Decreases of More than 25 Percent" shall not apply to the bid items related to removing and replacing traffic striping, pavement markings and pavement markers.

The contract unit price paid for **"Install Blue RPM at Fire Hydrant"**, **"12" White Crosswalk/Limit Line (Thermo)"**, **"12" Yellow Crosswalk (Thermo)"** **"Install "SCHOOL" Legend (Thermo)"**, **"Install "SLOW" Legend (Thermo)"**, **"Install "STOP" Legend (Thermo)"**, **"Install "XING" Legend (Thermo)"**, **"Install Arrow Type I - 10' (Thermo)"**, and **"Red Curb Paint"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in applying pavement markings, markers and delineators, complete in place, including preparing and submitting an existing striping and marking plan, proper removal and disposal of pavement markings and markers, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract price paid per linear foot for **"Striping Detail #1 (Thermo)"**, **"Striping Detail #22 (Thermo)"**, and **"Install 4" White Traffic Stripe (Thermo)"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing and applying thermoplastic traffic stripes and pavement markers, complete in place, including preparing and submitting an existing striping and marking plan, proper removal and disposal of traffic stripes and pavement markers, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.