



Contract Documents for the Construction of  
Sacramento Regional Wastewater  
Treatment Plant

BOARD OF DIRECTORS

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NON-POTABLE WATER  
FILL STATIONS PROJECT  
RFB 8193



VOLUME 1 OF 2

PART A - SPECIFICATIONS

00820 - SAFETY

01140 - COORDINATION WITH OPERATIONS

02500 - PAVING

JUNE 2015

## **SECTION 00820**

### **SAFETY**

#### **1.01 GENERAL**

- A. All operations shall conform to applicable occupational safety and health standards, rules, regulations and orders which include, but are not limited to: Title 29 of the Code of Federal Regulations and the Electrical, Construction, Tunnel and General Industry Safety Orders issued by the Division of Industrial Safety (Cal/OSHA) of the State of California. In the event of a conflict between the requirements in the referenced standards, the most stringent standard shall prevail.
- B. The Contractor shall submit their IIPP for review.
- C. All contractors, vendors and visitors will wear hardhats and safety vests at all times while in construction areas. In addition, if necessary, appropriate foot, eye and ear protection shall be worn.
- D. Contractor shall have a Site Specific Safety Plan that has been specifically prepared for the contemplated work. Site Specific Safety Plan shall comply with section 3203 of Cal/OSHA and shall be applicable to all individuals engaged in the Work, including the Contractor's subcontractors, suppliers and others.
- E. An Emergency Action Plan and a Fire Prevention Plan in accordance with sections 3220 and 3221 respectively of Cal/OSHA shall be included in Site Specific Safety Plan.
- F. The responsibility for safety rests with the Contractor who must provide a safe work site for workers and other individuals entering the area.
- G. District reserves the right to stop any work activity that creates a serious safety violation as defined by Cal/OSHA, and Contractor does not take immediate corrective actions.
- H. In accordance with OSHA's National Emphasis Program (NEP), any contractor or subcontractor working on or adjacent to chlorine, sulfur dioxide, and/or digester gas systems during a Process Safety Management (PSM) inspection will also be inspected by OSHA per CPL 02-09-06.

#### **1.02 PROJECT SPECIFIC SAFETY PROGRAM**

- A. Project Specific Safety Program shall include:
  - 1. Designation of Safety Manager. A resume shall be provided.
  - 2. Detailed description of Site Specific Safety Plan.

3. Policies and procedures to ensure compliance with regulations.
  4. Staffing plan and organization chart for implementation of the safety program.
  5. Training program including new employee orientation.
  6. List of equipment, supplies and personal protective devices that will be available and utilized.
  7. Description of accountability for foreman and supervisors.
  8. Site Specific Emergency Response Plan for accidents and injuries.
  9. Description of accident investigation and reporting procedures.
  10. Description and frequency of tailgate and regular safety meetings.
  11. Participation of subcontractors, suppliers and others in Project Safety Program.
  12. Method of identifying, correcting, or remedying situations that are unsafe or not in compliance with Project Safety Program.
  13. Plans and procedures for confined space entries.
  14. Provisions for excavation safety.
  15. Procedure for preparation of Work Permits.
  16. Method to remedy nonconforming situations.
- B. The Project Specific Safety Program shall be submitted to District, for Review, prior to commencement of work and shall remain in effect until the Work has been completed. Site Specific Safety Plan shall be reviewed, updated, and changes submitted as they occur.

### **1.03 SAFETY MANAGER**

- A. A Safety Manager shall be designated who has responsibility for safety of the Work and who has the duty to implement and secure compliance with the Site Specific Safety Plan. Safety Manager shall have the authority to remedy or correct any unsafe or noncompliance situations or problems.
- B. Safety Manager or designated alternate individual shall be on site when Work is being pursued. Contractor will be permitted to designate an alternate individual to act on behalf of Safety Manager when Safety Manager is absent from the work site.
- C. Safety Manager shall prepare Work Permits for each confined space entry and shall organize and observe each entry.

## **1.04 PROTECTION OF WORKERS**

- A. SRWTP receives sewage and industrial wastes. There is a possibility that solvents, fuels and hazardous material may be in the wastewater. The wastewater and the associated facilities should be considered contaminated. Individuals who contact wastewater, debris or existing facilities should take appropriate safety and health precautions such as personal protective equipment and inoculations for disease.
- B. Safety equipment and precautions shall be utilized to protect workers and District personnel during the work.

## **1.05 WORK PERMITS**

- A. There are areas and operations at the SRCSD which are potentially hazardous or dangerous if the appropriate precautions are not taken. The Work Permit process is utilized to review proposed work activities and to ensure good work practices and appropriate safety measures are followed. Contractor is required to prepare Work Permits and comply with the stipulated conditions. A Work Permit shall provide a detailed description of the proposed activities and sequencing.
- B. The Work Permit procedure is described in Section 01140. Examples of activities which require a Work Permit are:
  - 1. Operations that have open flames, the potential for sparks or activities that may result in high temperatures. Examples include welding, cutting, grinding and electrical work.
  - 2. The use of tools or electrical equipment in classified areas.
  - 3. Work on equipment or piping which contains, or has contained, a flammable or hazardous material, chemical or gas. Work on or in proximity to chemical or gas storage facilities.
  - 4. The use of hazardous materials.
  - 5. Activities which involve electricity at greater than 500 volts.
  - 6. Activities that involve pressures greater than 150 psi.
  - 7. Activities that involve work in a confined space including the opening of vaults and manholes.
  - 8. Activities that involve special precautions required by Cal/OSHA.

## **1.06 DOUBLE ISOLATION**

- A. Double isolation shall be provided as specified in Section 01140.

## **1.07 REPORTING**

- A. All incidents that are reportable on OSHA Form 200 or that result in property damage in excess of \$1,000 shall be promptly reported to District. A detailed description of the incident including names and statements of witnesses shall be provided within 5 days of the occurrence.
- B. Contractor shall inform the District within 5 days of any claims, suits, or citations of violations that may arise from an incident or injury.

## **1.08 NON COMPLIANCE**

- A. When a serious hazard is identified, the Contractor will receive a verbal notification of the problem and a request to rectify the situation. If the situation is not corrected in the allotted time or reoccurs, a written notification will be issued to the Contractor that will clearly describe the condition, date Contractor initially was notified, the recommended action and the expected date of compliance. If the situation is not corrected, the Contractor's worker's compensation insurance carrier will be notified.

**\*\*END OF SECTION\*\***

## SECTION 01140

### COORDINATION WITH EXISTING OPERATIONS

#### PART 1 -- GENERAL

##### 1.01 GENERAL REQUIREMENTS

- A. Contractor work activities that impact existing District operations, property or facilities (such as Interceptor pipelines, manholes, treatment processes, environmental resources, and access roads to District facilities) require an approved, signed Access Request (AR) prior to commencement of work. Interruption of flow or connection to an existing system or interceptor requires a Shutdown Plan and Location Map to be included with the Access Request. In addition to the Shutdown Plan, any activity that requires special safety precautions to be taken will require a Safety Work Plan to be included with the Access Request.
  
- B. The Access Request
  - 1. Allows District Operations time to review the proposed work and to schedule and coordinate necessary process or equipment shutdowns,
  
  - 2. Allows District Safety office review of proposed work and contractors' safe work practices related to the specific work to be performed,
  
  - 3. Informs the contractor of any special hazards or exposures related to the specific work.
  
- C. The District maintains permits to collect, treat and discharge wastewater. These permits establish discharge limits for wastewater, storm water, and air emissions and establish spill reporting requirements and fines. Violation of District permits shall not result from the Contractor's work. Any unauthorized discharge or spill shall immediately be reported to the District's Plant Control Center (916-875-9400). District will require Contractor to stop or restrict any activity that has or could result in an unauthorized discharge or permit violation. District will prevent or remedy the situation by the most expeditious means. Contractor will be responsible for all costs incurred including fines.

## **1.02 REQUIREMENTS**

### **A. COORDINATION AND ACCESS**

Activities that affect the operation of existing District equipment, including SRWTP processes, Interceptor pipelines or facilities, or access to District property will require coordination between District and Contractor.

1. Access Requests are generally required based on impending work activities discussed at weekly construction coordination meetings, and approval is issued jointly by the District O&M Support office and District Safety Office.
2. Unrestricted access for District personnel and equipment shall be provided at all times to existing facilities, unless a reduced level of access is explicitly allowed in the approved Access Request.

## **1.03 ACCESS REQUESTS**

- A. An Access Request provides notification of a Work Item or other activity proposed by the Contractor. An Access Request describes the contemplated work including when, where and how it will be accomplished. An Access Request shall be submitted by a qualified representative of the Contractor who is familiar with all aspects of the work and pertinent safety requirements. An Access Request may be required whenever any of the following conditions are contained in or will be affected by Contractor's work:
1. General Project mobilization or District property access,
  2. Work in, connection to, or removal of any pipeline, manhole, pump station, asset or wastewater process or equipment.
  3. Any work that may impact environmental resources on District property,
  4. Any work that may impact or disrupt other activities on District property such as leased agricultural operations, scientific studies, or concurrent construction projects,

5. Excavation on District property, dewatering of any excavation, structure, tank, vessel, or piping system
  6. Installation or removal of bulkheads, cofferdams and isolation devices
- B. A fully completed Access Request form shall be submitted at least 14 calendar days prior to the date proposed for commencement of work. An Access Request meeting may be required prior to the approval of the work or upon the District's request.
  - C. Contractors are required to describe the proposed work activity, indicate the property, system or equipment that will be affected, list the labor and equipment to be utilized, indicate the date, time and duration of the work, describe measures that will be implemented to reduce impacts to District property and facilities, and describe safety precautions to be observed. Drawing and section numbers shall be indicated where appropriate. A Shutdown plan shall be included with the Access Request when the work affects an existing system or process.
  - D. The Contractor shall plan and schedule Access Requests as early as possible. An Access Request will be reviewed and returned within 14 calendar days after submission of all necessary information. Sufficient information and detail shall be included with an Access Request to permit District to evaluate the proposed operation and the associated risks. Insufficient information on an Access Request may delay approval within 14 calendar days.
  - E. Contractor shall not be allowed to proceed with any work, or any portion of the work, described in an Access Request without complying with all the conditions, in their entirety, of the Access Request approval. All conditions of approval, including additional safety precautions added by District Safety Office, shall be complied with and effectively communicated to Contractor's personnel and subcontractors. If the Contractor does not agree with the additional safety requirements, work shall not start until resolution is attained. Changes in the proposed activities or field conditions of an Access Request, or delay of the work, will require the submission of a new or revised Access Request.

#### **1.04 SHUTDOWN PLAN**

- A. A Shutdown Plan shall be included with an Access Request whenever an existing operating system or facility such as a pipeline, basin, tank, channel, power supply, control circuit, instrumentation, equipment, pump, meter, or structure is affected.



Shutdowns shall be planned and coordinated to minimize the number and duration of activities that affect existing operations.

B. District will limit the duration of shutdowns for critical systems. Stated durations are the total time period between when the system is made available to Contractor and when it is ready for return to service. If Contractor cannot complete the work within the allowed time, Contractor shall immediately request an extension from District. If District does not approve the requested extension, Contractor shall complete the work or return the system to operable condition. District will complete the work if Contractor does not return the system to operable condition as directed. Contractor is responsible for extra costs or damages incurred by Contractor or District to meet these requirements.

C. Requirements:

1. Designate the equipment or system that will be affected or removed from service. Describe the work to be undertaken. Identify the portion of the system that will be isolated, dewatered, decommissioned, de-energized, depressurized, or drained.
2. List the labor, equipment, materials, tools, utilities and incidental items to be used.
3. Indicate measures to prevent discharge of wastewater, stormwater pollution, odor or disruption of treatment processes.
4. Indicate dewatering method and means for disposal of leakage water.
5. Provide details for bulkheads, cofferdams and isolation devices.
6. Describe safety precautions and equipment.
7. Describe recovery plan if the shutdown cannot be completed as planned.
8. List activities to be done by District.
9. Indicate the time estimated to complete the shutdown.

**SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT**

# ACCESS REQUEST

Prime Contractor	Contract #	Date
Sub-Contractor	AR #	Revision
Contact for Contractor	Work Item #	CPM Activity #
Phone	<input type="checkbox"/> Work Plan Attached	<input type="checkbox"/> Drawing Attached

## PART 1 – CONTRACTOR WORK PERMIT

Start Date/Time	Completion Date/Time
Reference Contract Drawings/Specifications	
Equipment or System to be Worked On	
Location of Work	

Provide MOC ref. no. for work affecting the SRWTP Gas Mgmt. or Chemical Handling Areas:

Type of Work (check all that apply)	<input type="checkbox"/> Civil	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Electrical	<input type="checkbox"/> Instrumentation
	<input type="checkbox"/> Process	<input type="checkbox"/> Coating	<input type="checkbox"/> Hotwork	<input type="checkbox"/> Other (specify)
	<input type="checkbox"/> Mobilization	<input type="checkbox"/> Traffic/Ped. Access	<input type="checkbox"/> Shutdown	

Description of Work (Ref. process system/piping system)

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Anticipated Hazards

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Tools/Equipment to be Used	<input type="checkbox"/> Cutting/Welding Torches	<input type="checkbox"/> Arc Welders	<input type="checkbox"/> Jack Hammers
	<input type="checkbox"/> Power Saws	<input type="checkbox"/> Grinders	<input type="checkbox"/> Pneumatic Tools
	<input type="checkbox"/> Backhoe	<input type="checkbox"/> Crane	<input type="checkbox"/> Radioactive Test Device

**Access Request Instructions**

- Contractor fills out AR with sufficient information to define the work and anticipated safety hazards. Contractor signs AR at bottom of page 2.
- R.E. reviews AR and signs on page 3 prior to delivering AR to O&M Support and Safety Office staff.
- O&M Support and Safety Office review and approve the AR with conditions, restrictions, or additional Safety items (all additional safety items on page 2 will be initialed)
- RE gives approved AR back to contractor prior to contractor performing the work.
- Contractor reviews AR conditions and Safety page prior to beginning work.

## PART 2 – CONTRACTOR SAFETY PRECAUTIONS

All items checked will be complied with/used in accordance with applicable safety standards (CalOSHA, UFC, etc.) and the requesting contractor's safety program.

<p><b>HOT WORK PLAN</b></p> <input type="checkbox"/> Isolate Combustibles <input type="checkbox"/> Fire Extinguishers <input type="checkbox"/> Fire watch <input type="checkbox"/> Flash Protection <input type="checkbox"/> Not Applicable	<p><b>VENTILATION</b></p> <input type="checkbox"/> Natural only <input type="checkbox"/> Auxiliary, continuous <input type="checkbox"/> Not Applicable
<p><b>AIR MONITORING</b></p> <input type="checkbox"/> Periodic <input type="checkbox"/> Continuous <input type="checkbox"/> Frequency _____ <input type="checkbox"/> Not Applicable	<p><b>HOUSEKEEPING</b></p> <input type="checkbox"/> Debris Removal <input type="checkbox"/> Dust Control <input type="checkbox"/> Maintain access to/through worksite <input type="checkbox"/> Not Applicable
<p><b>POTENTIAL ATMOSPHERIC HAZARDS TO BE MONITORED</b></p> <input type="checkbox"/> Oxygen Deficiency <input type="checkbox"/> Combustible Gases <input type="checkbox"/> Oxygen Enrichment <input type="checkbox"/> Toxic Gases <input type="checkbox"/> Other _____ <input type="checkbox"/> Not Applicable	<p><b>EXCAVATION/TRENCHES</b></p> <input type="checkbox"/> Shoring <input type="checkbox"/> Benching <input type="checkbox"/> Sloping <input type="checkbox"/> Barricades <input type="checkbox"/> Excavation Plan Submittal Number _____ <input type="checkbox"/> Not Applicable
<p><b>HAZARDOUS MATERIALS TRAINING</b></p> <input type="checkbox"/> Substance(s) _____ <input type="checkbox"/> Not Applicable	<p><b>ELEVATED AREAS</b></p> <input type="checkbox"/> Fall Protection <input type="checkbox"/> Guardrails <input type="checkbox"/> Not Applicable
<p><b>ENERGY CONTROL PROCEDURES</b></p> <input type="checkbox"/> Lockout <input type="checkbox"/> Blockout <input type="checkbox"/> Tagout <input type="checkbox"/> Not Applicable	<p><b>PIPING/EQUIPMENT OPENING AND/OR ENTRY</b>(ensure prior to opening)</p> <input type="checkbox"/> Effectively Isolated <input type="checkbox"/> Depressurized <input type="checkbox"/> Drained <input type="checkbox"/> Purged/Flushed of Hazardous Substance(s) <input type="checkbox"/> Not Applicable
<p><b>REVIEW EMERGENCY PROCEDURES/ALARMS</b></p> <input type="checkbox"/> Chlorine/Sulfur Dioxide Areas <input type="checkbox"/> Oxygen Handling Areas <input type="checkbox"/> Gas Management Areas <input type="checkbox"/> Other _____ <input type="checkbox"/> Not Applicable	<p><b>ABATEMENT ACTIVITIES</b> (Title 8, Construction Safety Orders)</p> <input type="checkbox"/> Asbestos (Article 4 § 1529) <input type="checkbox"/> Lead (Article 4 § 1532.1) <input type="checkbox"/> Not Applicable
<p><b>CONFINED SPACE PROCEDURES</b></p> <input type="checkbox"/> Permit Required <input type="checkbox"/> Personnel Retrieval System <input type="checkbox"/> Non-permit <input type="checkbox"/> Communication w/ Entrant <input type="checkbox"/> C-5 <input type="checkbox"/> Rescue Personnel @ site <input type="checkbox"/> Entry Permit @ site <input type="checkbox"/> Supplied Air <input type="checkbox"/> Not Applicable	<p><b>OTHER SAFETY PRECAUTIONS</b></p> <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____

### SIGNATURE BLOCK

Contractor signs below after page 1 and 2 are filled out with sufficient detail to allow AR to be reviewed. Contractor identifies all anticipated safety items prior to signing below. Safety Office staff will initial next to any additional safety items that have been checked off during the AR review process.

_____ Contractor Representative	_____ Date
_____ Reviewed by Resident Engineer	_____ Date

**PART 3 – APPROVERS’ REMARKS**

Safety Office Comments  See Attachment

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Approved By: SRWTP Safety Office Date

District O&M Support Comments  See Attachment

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Approved By: District O&M Support Date

**Access Request – Page 3 of 3**

**Distribution:**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Operation Support           | <input type="checkbox"/> O&M Manager 1 (2)      | <input type="checkbox"/> Electrical Supervisor |
| <input type="checkbox"/> Safety Officer              | <input type="checkbox"/> Process Team Leader    | <input type="checkbox"/> Facility Maintenance  |
| <input type="checkbox"/> Resident Engineer           | <input type="checkbox"/> Ops Support Supervisor | <input type="checkbox"/> Project Engineer      |
| <input type="checkbox"/> Contractor (supplied by RE) | <input type="checkbox"/> Other                  |  |

**\*\* END OF SECTION \*\***

## SECTION 02500

### PAVING

#### PART 1 -- GENERAL

##### 1.01 GENERAL REQUIREMENTS

###### A. SCOPE:

1. This section specifies paving consisting of scarifying, grading, compacting, sealing, aggregate base, asphaltic concrete, and associated materials.

##### 1.02 REFERENCES

- A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and those of the listed references, the requirements of this section shall govern.

###### B. American Society of Testing Materials (ASTM)

<u>Reference</u>	<u>Title</u>
D1557	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 KN-m/m))
D2027	Cutback Asphalt (Medium-Curing Type)
D2922	Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D3017	Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

###### C. County of Sacramento Standard Construction Specification (CSCS)

1. SS-19 Aggregate Subbase
2. SS-20 Aggregate Base

D. State of California Department of Transportation (Caltrans)

1. Standard Plans and Specifications
2. CTM 205 Method of Test for Percentage of Crushed Particles
3. CTM 216 Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregate
4. CTM 231 Method of Testing for Relative Compaction of Untreated and Treated Soils and Aggregates by the Area Concept Utilizing Nuclear Gauges
5. 8010-91D-30 Paint, Water-Borne Traffic Line, White, Yellow and Black

**1.03 SUBMITTALS**

A. The following information shall be submitted for review:

1. Manufacturer's data and mix design.
2. A certificate of compliance signed by the manufacturer shall be furnished prior to the use of all bituminous materials. The certificate shall state that the material complies with the requirements of these specifications. A certificate shall be furnished with each lot of material delivered to the site and the lot so certified shall be clearly identified in the certificate.
3. Certify compliance with local Air Quality Management District rules.

**1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (DELETED)**

**PART 2 -- PRODUCTS**

**2.01 AGGREGATE SUBBASE**

- A. Aggregate subbase shall be 2-1/2 or 3 inch with grading conforming to CSCS SS-19 and quality conforming to Caltrans Section.

## **2.02 AGGREGATE BASE**

- A. Aggregate base shall be 1-1/2 or 3/4 inch with grading conforming to CSCS SS-20 and quality conforming to Caltrans Section 26.

## **2.03 LIQUID ASPHALT**

- A. Liquid asphalt base shall be Grade MC 250 conforming to Caltrans Section 93 and ASTM D2027.

## **2.04 SEAL COAT**

- A. The bituminous binder shall meet all requirements of Caltrans Section 94-1.02 including Table 1 for Type SS-1 slow setting anionic asphaltic emulsion.

## **2.05 TACK COAT**

- A. Material for tack coat shall be SS-1 grade emulsified asphalt conforming to Caltrans Section 94.

## **2.06 PAVEMENT REINFORCING FABRIC**

- A. Pavement reinforcing fabric shall conform to the provisions of Section 39-4.03 and Section 88-1.02 of the State Standard Specifications, "Pavement Reinforcing Fabric". Paving fabric shall have minimum asphalt retention of 0.2 gallons per square yard per Task Force 25 Method #8, certified by the manufacturer, shall be of staple fiber construction in order to resist delamination and shall be heat bonded on one side in order to facilitate handling and trafficking

## **2.07 ASPHALT CONCRETE**

- A. Aggregate shall be Type A, 3/4-inch maximum medium grading, conforming to Caltrans Section 39. Asphalt binder shall be paving asphalt, PG 64-10, and shall

comply with Caltrans Section 92. Asphalt concrete mixing and proportioning shall comply with Caltrans Section 39.

## **2.08 TRAFFIC LINE PAINT**

- A. Traffic line paint and pavement markings shall conform to Section 48 of the Sacramento County Standard Specifications and Section 84 of the Standard State Specifications.

## **2.09 CHIP SEAL**

- A. This work shall consist of preparing and applying two coats of asphalt emulsion and screenings to the compacted aggregate base roadway. This double chip seal shall consist of an application of asphalt emulsion followed with an application of screenings, and another application of asphalt emulsion followed with another application of screenings.
- B. Asphalt emulsions shall be composed of a bituminous material uniformly emulsified with water and an emulsifying or stabilizing agent and conform to the requirements prescribed in Caltrans Section 94-1.02 "Requirements". Emulsified asphalt shall be Type CRS-2, or equal.
- C. Screenings shall consist of broken stone, crushed gravel, or both. At least 90 percent by weight of the screenings shall consist of crushed particles as determined by Caltrans CTM 205. Screenings shall be clean and free from dirt and other deleterious substances. Screenings shall be sized at 3/8-inch by No. 6 or 5/16-inch by No. 8, as specified as a "medium or medium fine" seal coat type in Caltrans standard specifications Section 37-1.02 "Materials".

## **2.10 GEOTEXTILE FABRIC**

- A. Geotextile fabric, where required on the drawings, shall be Mirafi 140.

## **2.11 PAINTING**

- A. Line paint shall be applied in accordance with the paint manufacturer's instructions and Caltrans Section 84.

## **PART 3 -- EXECUTION**

### **3.01 GENERAL**



- A. Construction shall conform to the details, dimensions and grades specified and shown on the drawings. Maximum variations in finished grade of paving shall be plus or minus 0.05 feet. Survey monuments have been or will be set by the Engineer in the locations indicated on the drawings as reference for vertical and horizontal control. The Contractor shall be responsible for setting all additional stakes or marks required for the completion of the work. New paving shall be installed after all trenching and backfilling is completed beneath it in accordance with Section 02200 and all associated piping has been tested and accepted. Installation shall comply with "Standard Construction Specifications" of the County of Sacramento referred to herein as CSCS and with "Standard Plans and Specifications" of the State of California, Department of Transportation referred to herein as Caltrans.

### **3.02 REGULATORY REQUIREMENTS**

- A. The Contractor shall comply with the requirements of the Regional Air Pollution Control District with regard to all asphalt paving materials and application.

### **3.03 PLACEMENT OF AGGREGATE BASE AND SUBBASE**

#### **A. SUBBASE PREPARATION**

- 1. The subbase shall be compacted, as specified, to a relative compaction of not less than 95 percent.

#### **B. AGGREGATE BASE TOLERANCE:**

- 1. The aggregate base shall not be placed before the subbase is approved by the Engineer. The finished aggregate base shall not vary more than 0.05 foot above, nor 0.10 foot below, the planned grade.

#### **C. AGGREGATE BASE PLACING:**

- 1. The aggregate base material shall be spread on the prepared subgrade by means of approved spreading devices subject to approval by the Engineer; the aggregate base material may be dumped in piles upon the subgrade and spread by bulldozing ahead from the dumped material. Each layer shall not exceed 0.50 feet. Segregation of large or fine particles of aggregate shall be avoided, and the material as spread shall be free from pockets of large and fine material.

#### D. COMPACTION:

1. The relative compaction of each layer of compacted aggregate base and subgrade material shall not be less than 95 percent of Caltrans CTM 216 as determined by Caltrans CTM 231 or ASTM D2922 (Nuclear method). Compaction shall be in accordance with Caltrans Section 26-1.05. Aggregate base, after compaction, shall be watered as provided in Caltrans Section 17.

### 3.04 PRIME COAT APPLICATION

#### A. PRIME COAT

1. In advance of spreading paving materials, a prime coat of liquid asphalt shall be applied to all base course surface areas to be covered with asphaltic concrete.

#### B. APPLICATION:

1. Liquid asphalt shall be applied by pressure distributors at a temperature between 125 degrees F and 200 degrees F. The Engineer reserves the right to require an adjustment of the temperature of the liquid asphalt at the time of placement. The rate of application shall be between 0.1 and 0.15 gallons per square yard. Excess liquid asphalt which has failed to penetrate the base shall be blotted and removed with fine sand. All loose sand shall be removed from the treated areas before placing any surfacing material thereon. Liquid asphalt shall not be applied when the atmospheric temperature is below 50 degrees Fahrenheit. The prime coats shall be applied at least 24 hours in advance of paving or as recommended by the manufacturer. Immediately in advance of paving asphalt concrete surfacing, additional prime coats shall be applied, as directed by the Engineer to areas where the prime coat has been damaged.

### 3.05 TACK COAT APPLICATION

#### A. TACK COAT:

1. In advance of spreading bituminous material upon an existing bituminous or portland cement concrete surface, a tack coat shall be applied to all areas to be surfaced and to all vertical surfaces of existing pavement, curb, gutters and construction joints in the surfacing against which additional material is to be

placed. When two or more lifts of asphaltic concrete are required, a tack coat shall be applied between each lift unless successive lifts are placed within eight hours.

#### B. PREPARATION:

1. Immediately before applying a tack coat, the area to be surfaced shall be cleaned of all loose material by power broom or equivalent method acceptable to the Engineer.

#### C. APPLICATION:

1. The tack coat shall be applied by means of pressure distributors by pressure hand-spray equipment. The rate of application shall be 1/20 of a gallon per square yard. Emulsified asphalt shall not be applied when the atmospheric temperature is below 50 degrees F. If emulsified asphalt Type SS-1 is used, it may be diluted with an equal part of water. The rate of application of the dilution shall be such that the rate of application of undiluted emulsion shall be within the tolerances specified.

### **3.06 PLACEMENT OF PAVEMENT REINFORCING FABRIC**

#### A. REINFORCING FABRIC

1. Mechanical laydown equipment used must be capable of handling full rolls of fabric, and be capable of laying the fabric smoothly, without excessive wrinkles and/or folds. The laydown equipment shall maintain a 50 to 100 foot separation from the asphalt binder distributor truck to allow the proper inspection of the binder application. The minimum asphalt binder temperature shall be 290 degree F with a distributor tank temperature not to exceed 325 degree F. While the separate tractor is desired, a single laydown unit may be used, subject to the approval of the Engineer, its inspection of the oil distribution system can be verified as operating properly and accurately. Such a procedure must be presented in writing prior to the start of the job and approved in advance by the Engineer.
2. Asphalt binder shall be spread at a minimum rate of 0.2 gallons per square yard regardless of ambient or pavement temperature, and up to 0.25 gallons per square yard at the discretion of the Engineer. Actual spread rate will be determined by the Engineer, and gallonage corrected for temperature will be verified from weigh-backs for each load of asphalt binder spread.

3. The Contractor shall calibrate, prior to starting asphalt binder application, the bituminous distributor.

### **3.07 PLACEMENT OF ASPHALT CONCRETE**

#### **A. DELIVERY AND SPREADING:**

1. Bituminous mixtures shall be delivered to the roadbed at temperatures specified in Caltrans Section 39. Spreading of the mixture shall be in accordance with Caltrans Section 39. All loads shall be covered with tarpaulin or other material during transportation. The top layer of asphalt concrete shall not exceed 0.20 feet in compacted thickness. The next lower layer shall not exceed 0.25 feet in compacted thickness, and any lower layers shall not exceed 0.50 feet in compacted thickness.

#### **B. COMPACTION:**

1. Initial or breakdown rolling and the final rolling of the uppermost layer of the asphalt concrete shall be compacted in accordance with Caltrans Section 39. Compaction by vehicular traffic shall not be permitted. Engineer reserves the right to require an adjustment of the temperature of the asphalt concrete at the time of placement.

#### **C. PAVEMENT THICKNESS:**

1. Pavement shall match the existing adjoining pavement in thickness, or as indicated on the Drawings, or as specified, whichever is greater.

#### **D. JOINING PAVEMENT:**

1. The joints between old and new pavements or between successive days' work shall be carefully made in such a manner as to ensure a continuous bond between old and new sections of the course. Edges of existing pavement shall be exposed and cleaned and edges cut to straight, vertical surfaces. All joints shall be painted with a uniform tack coat before the fresh mixture is applied.

#### **E. PROTECTION OF PAVEMENT:**

1. After final rolling, no vehicular traffic of any kind shall be permitted on the pavement until it has cooled and hardened and in no case less than 6 hours.

### **3.08 APPLICATION OF FOG SEAL**

- A. A fog seal shall be applied to the upper surfaces of all installed asphalt concrete. It shall be applied in accordance with the applicable requirements of Caltrans Section 37.
- B. A final fog seal shall be applied to asphalt concrete after all other construction is complete.

### **3.09 CHIP SEAL**

#### **A. CHIP SEAL:**

1. Asphalt emulsions shall be applied to the width of the section to be primed by means of a pressure distributor is a uniform, continuous spread at a rate of between 0.25 to 0.35 gallons per square yard. Asphalt emulsions shall be applied as specified in Caltrans Section 94-2.06 "Applying." Asphalt emulsion shall not be applied on a wet surface, or when weather conditions would prevent the proper application and curing of the coat. When traffic is maintained, not more than one-half of the width of the section shall be treated in one application. Traffic shall not be permitted on the roadway until the asphalt emulsion and screenings have been placed and completely cured. Care shall be taken that the application of asphalt emulsion at junctions is not in excess of the specified amount. Excess material shall be squeegeed from the surface.
2. Screenings shall be applied at a rate of 20 to 30 pounds per square yard and conform to Caltrans Section 37-1.06 "Spreading Screenings" and Section 37-1.07 "Finishing."

### **3.10 PAINTING**

1. Line paint shall be applied in accordance with the paint manufacturer's instructions and Caltrans Section 84.

### **3.11 TESTING**

- A. The following test methods will be performed by the Engineer:

	<u>Tests</u>	<u>Test Method Number</u>
1.	Maximum Density and Optimum Moisture	ASTM D1557
2.	Relative Compaction	CTM 216, ASTM D2922, ASTM D3017 B
3.	Calibration	ASTM D2885-84

**\*\*END OF SECTION\*\***