CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF

APRON REHABILITATION, MARKING & BEACON

REEDLEY MUNICIPAL AIRPORT
CITY OF REEDLEY
REEDLEY, CALIFORNIA

FAA AIP PROJECT NO. 3-06-0196-20(C)
CALTRANS PROJECT NO. FRE-23-XX-XX-XXX

JUNE 2011
CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF

APRON REHABILITATION, MARKING
& BEACON

REEDLEY MUNICIPAL AIRPORT
CITY OF REEDLEY
REEDLEY, CALIFORNIA

FAA AIP PROJECT NO. 3-06-0196-20(C)
CALTRANS PROJECT NO. FRE-23-XX-XX-XXX

JUNE 2011

C&S ENGINEERS, INC.
2020 Camino Del Rio North, Suite 1000
San Diego, California 92108

Arnold L. White Jr. – CA P.E. License No. 57014

NO ALTERATION PERMITTED HEREIN EXCEPT AS PROVIDED UNDER CALIFORNIA STATE LAW

PROJECT NO. H35.004.001
TABLE OF CONTENTS

ADVERTISEMENT

QUANTITIES FOR CANVASS OF BIDS

PROPOSAL

ATTACHMENTS TO PROPOSAL
Contractor’s Certification of Eligibility
Non-Collusive Bidding Certificate
Resolution for Corporate Bidders
Buy American Preferences & Certificate
Certifications:
  - Certification of Non-Segregated Facilities
  - Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
Certification for Receipt of Addenda
Statement of Surety’s Intent
List of Subcontractors

AGREEMENT

SPECIFICATIONS

GENERAL PROVISIONS

Section 10 - Definition of Terms

Section 20 - Proposal Requirements and Conditions
  20-01 - Advertisement
  20-02 - Qualifications of Bidders
  20-03 - Contents of Proposal Form
  20-04 - Issuance of Proposal Forms
  20-05 - Interpretation of Estimated Proposal Quantities
  20-06 - Examination of Plans, Specifications and Site
  20-07 - Preparation of Proposal
  20-08 - Irregular Proposals
  20-09 - Proposal Guarantee
  20-10 - Delivery of Proposal
  20-11 - Withdrawal or Revision of Proposals
  20-12 - Public Opening of Proposals
  20-13 - Disqualification of Bidders
  20-14 - Addenda and Interpretation

Section 30 - Award and Execution of Contract
  30-01 - Consideration of Proposals
  30-02 - Award of Contract
  30-03 - Cancellation of Award
  30-04 - Return of Proposal Guarantee
  30-05 - Requirements of Contract Bonds
  30-06 - Execution of Contract
  30-07 - Approval of Contract
  30-08 - Failure to Execute Contract
Section 40 - Scope of Work
40-01 - Intent of Contract
40-02 - Alteration of Work and Quantities
40-03 - Omitted Items
40-04 - Extra Work
40-05 - Maintenance of Traffic
40-06 - Removal of Existing Structures
40-07 - Rights In and Use of Materials Found In the Work
40-08 - Final Cleaning Up
40-09 - Debris

Section 50 - Control of Work
50-01 - Authority of the Engineer
50-02 - Conformity with Plans and Specifications
50-03 - Coordination of Contract, Plans and Specifications
50-04 - Cooperation of Contractor
50-05 - Cooperation between Contractors
50-06 - Construction Layout and Stakes
50-07 - Automatically Controlled Equipment
50-08 - Authority and Duties of Inspectors
50-09 - Inspection of the Work
50-10 - Removal of Unacceptable and Unauthorized Work
50-11 - Load Restrictions
50-12 - Maintenance during Construction
50-13 - Failure to Maintain the Work
50-14 - Partial Acceptance
50-15 - Final Acceptance
50-16 - Claims for Adjustment and Disputes
50-17 - Removal of Water
50-18 - Sheeting and Bracing

Section 60 - Control of Materials
60-01 - Source of Supply and Quality Requirements
60-02 - Samples, Tests and Cited Specifications
60-03 - Certification of Compliance
60-04 - Plant Inspection
60-05 - Engineer’s Field Office
60-06 - Storage of Materials
60-07 - Unacceptable Materials
60-08 - Owner Furnished Materials
60-09 - Shop and Setting Drawings and Catalogue Data
60-10 - Electrical Shop Drawings
60-11 - Substitute Items
60-12 - Submittal Procedure

Section 70 - Legal Relations and Responsibility to Public
70-01 - Laws to be Observed
70-02 - Permits, Licenses and Taxes
70-03 - Patented Devices, Materials and Processes
70-04 - Restoration of Surfaces Disturbed by Others
70-05 - Federal Aid Participation
70-07 - Public Convenience and Safety
70-08 - Barricades, Warning Signs and Hazard Markings
70-09 - Use of Explosives
70-10 - Protection and Restoration of Property and Landscape
70-11 - Responsibility for Damage Claims
70-12 - Third Party Beneficiary Clause
70-13 - Opening Sections of the Work to Traffic
70-14 - Contractor’s Responsibility for Work
70-15 - Contractor’s Responsibility for Utility Service and Facilities of Others
70-16 - Furnishing Rights-of-Way
70-17 - Personal Liability of Public Officials
70-18 - No Waiver of Legal Rights
70-19 - Environmental Protection
70-20 - Archaeological and Historical Findings
70-21 - Civil Rights Act Of 1964, Title VI – Contractor Contractual Requirements
   A. Compliance with Regulations
   B. Nondiscrimination
   C. Solicitations for Subcontracts, Including Procurements of Materials and Equipment
   D. Information and Reports
   E. Sanctions for Noncompliance
   F. Incorporation of Provisions.
70-22 - Airport and Airway Improvement Act of 1982, Section 520 - General Civil Rights Provisions
70-23 - Lobbying and Influencing Federal Employees
70-24 - Access to Records and Reports
70-25 - (Section Not Used)
70-26 - Energy Conservation Requirements
70-27 - Breach of Contract Terms
70-28 - Rights to Inventions
70-29 - Trade Restriction Clause
70-30 - Veteran’s Preference
70-31 - Davis Bacon Requirements
   1. Minimum Wages
   2. Withholding
   3. Payrolls and basic records
   4. Apprentices and Trainees
   5. Compliance with Copeland Act Requirements
   6. Subcontracts
   7. Contract Termination: Debarment
   8. Compliance with Davis-Bacon and Related Act Requirements
   9. Disputes Concerning Labor Standards
   10. Certification of Eligibility
70-32 - Equal Employment Opportunity - 41 CFR Part 60-1.4(B)
70-35 - Contract Work Hours and Safety Standards Act Requirements 29 CFR Part 5
   1. Overtime Requirements
   2. Violation; Liability for Unpaid Wages; Liquidated Damages
   3. Withholding for Unpaid Wages and Liquidated Damages.
   4. Subcontractors.
70-36 - CALTRANS Standard Specifications (Section 7 Selections) for California State Contracts (Appendix A)

Equal Employment Opportunity Poster

Federal Wage Rates

State Wage Rates
Section 80 - Prosecution and Progress
80-01 - Subletting of Contract
80-02 - Notice to Proceed
80-03 - Prosecution and Progress
80-04 - Limitation of Operations
80-04.1 - Operational Safety on Airport during Construction
80-04.2 - Aviation Safety Requirements during Construction (Safety Plan)
80-05 - Character of Workers, Methods and Equipment
80-06 - Temporary Suspension of the Work
80-07 - Determination and Extension of Contract Time
80-08 - Failure to Complete on Time
80-09 - Default and Termination of Contract
80-10 - Termination for National Emergencies
80-11 - Work Area, Storage Area and Sequence of Operations

Section 90 - Measurement and Payment
90-01 - Measurement of Quantities
90-02 - Scope of Payment
90-03 - Compensation for Altered Quantities
90-04 - Payment for Omitted Items
90-05 - Payment for Extra and Force Account Work
90-06 - Partial Payments
90-07 - Payment for Materials on Hand
90-08 - Payment of Withheld Funds
90-09 - Acceptance and Final Payment
90-10 - Closeout Documentation
90-11 - Guarantee
90-12 - Security for Guarantee
90-13 - Lien Law

Section 100 - (Section Not Used)

Section 110 - (Section Not Used)

Section 120 - Nuclear Gages
120-01 - Testing
120-02 - Verification Testing

FAA TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-101</td>
<td>Surface Preparation</td>
</tr>
<tr>
<td>P-151</td>
<td>Clearing and Grubbing</td>
</tr>
<tr>
<td>P-152</td>
<td>Excavation and Embankment</td>
</tr>
<tr>
<td>P-156</td>
<td>Soil Erosion and Sediment Control</td>
</tr>
<tr>
<td>P-603</td>
<td>Bituminous Tack Coat</td>
</tr>
<tr>
<td>P-605</td>
<td>Joint Sealing Filler</td>
</tr>
<tr>
<td>P-612</td>
<td>Field Office</td>
</tr>
<tr>
<td>P-620</td>
<td>Runway and Taxiway Painting (water based w/glass beads)</td>
</tr>
<tr>
<td>P-626</td>
<td>Emulsified Asphalt Slurry Seal Type I Surface Treatment</td>
</tr>
<tr>
<td>D-710</td>
<td>Stabilization Fabric</td>
</tr>
<tr>
<td>L-101</td>
<td>Airport Rotating Beacon</td>
</tr>
<tr>
<td>L-103</td>
<td>Airport Beacon Towers</td>
</tr>
<tr>
<td>L-108</td>
<td>Underground Cable for Airports</td>
</tr>
<tr>
<td>L-109</td>
<td>Airport Electric Building Equipment</td>
</tr>
</tbody>
</table>
L-110  Airport Underground Electrical Duct Banks and Conduits
L-115  Electric Manholes and Junction Structures
L-119  Airport Obstruction Lights
L-127  Traffic Signs
M-100  Maintenance and Protection of Traffic
M-150  Project Survey and Stakeout
M-200  Mobilization

CALTRANS STANDARD SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION 26</td>
<td>Aggregate Bases</td>
</tr>
<tr>
<td>SECTION 39</td>
<td>Asphalt Concrete</td>
</tr>
<tr>
<td>SECTION 84</td>
<td>Traffic Stripes and Pavement Markings</td>
</tr>
<tr>
<td>SECTION 90</td>
<td>Portland Cement Concrete</td>
</tr>
</tbody>
</table>

CALTRANS STANDARD SPECIFICATIONS BY REFRENCE ONLY

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION 56</td>
<td>Signs</td>
</tr>
<tr>
<td>SECTION 84</td>
<td>Signals, Lighting and Electrical Systems</td>
</tr>
</tbody>
</table>

CONTRACT DRAWINGS

<table>
<thead>
<tr>
<th>Sheet No.</th>
<th>Ref. No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>G-001</td>
<td>TITLE SHEET</td>
</tr>
<tr>
<td>2</td>
<td>G-002</td>
<td>SHEET INDEX, QUANTITIES AND SURVEY CONTROL</td>
</tr>
<tr>
<td>3</td>
<td>G-003</td>
<td>GENERAL NOTES, LEGEND AND ABBREVIATIONS</td>
</tr>
<tr>
<td>4</td>
<td>G-101</td>
<td>GENERAL PLAN</td>
</tr>
<tr>
<td>5</td>
<td>G-102</td>
<td>WORK PHASING PLAN AND DETAILS</td>
</tr>
<tr>
<td>6</td>
<td>G-103</td>
<td>WORK PHASING NOTES</td>
</tr>
<tr>
<td>7</td>
<td>G-104</td>
<td>WORK PHASING NOTES</td>
</tr>
<tr>
<td>8</td>
<td>G-105</td>
<td>WORK PHASING NOTES</td>
</tr>
<tr>
<td>9</td>
<td>C-101</td>
<td>DEMOLITION PLAN</td>
</tr>
<tr>
<td>10</td>
<td>C-102</td>
<td>PAVEMENT RECONSTRUCTION PLAN</td>
</tr>
<tr>
<td>11</td>
<td>C-103</td>
<td>APRON PAVEMENT REPAIR PLANS</td>
</tr>
<tr>
<td>12</td>
<td>C-104</td>
<td>EROSION CONTROL PLAN</td>
</tr>
<tr>
<td>13</td>
<td>C-501</td>
<td>PAVEMENT DETAILS</td>
</tr>
<tr>
<td>14</td>
<td>X-101</td>
<td>MARKING PLAN</td>
</tr>
<tr>
<td>15</td>
<td>X-102</td>
<td>MARKING PLAN</td>
</tr>
<tr>
<td>16</td>
<td>E-101</td>
<td>BEACON PLAN</td>
</tr>
<tr>
<td>17</td>
<td>E-102</td>
<td>BEACON DETAILS</td>
</tr>
</tbody>
</table>

END OF TABLE OF CONTENTS
ADVERTISEMENT

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF

APRON REHABILITATION, MARKING AND BEACON

AT THE

REEDLEY MUNICIPAL AIRPORT

Sealed proposals for the construction of Apron Rehabilitation, Marking and Beacon Contract will be received at the City of Reedley 1733 9th Street, Reedley, California 93654 until 3:00 PM local time, July 18, 2011 and there, at said office, at said time, publicly opened and read aloud.

This project includes the rehabilitation of the airport apron which involves approximately 51,000 square yards of asphalt slurry seal, including selective pavement repairs, crack routing and sealing and apron marking. The project also includes the reconstruction of approximately 3,500 square yards of the terminal building parking lot and a portion of the apron adjacent to the terminal building and all associated parking lot striping, apron marking and the replacement of the airport beacon.

On June 29, 2011 the Contract Documents (consisting of the Advertisement, the Proposal, the Agreement, and the Specifications) and the Contract Drawings may be purchased for fifty-dollars ($50.00) per set only from the Office of the City Engineer, Reedley City Hall.

On June 29, 2011 copies of the above described Contract Documents may be examined at no expense at the Office of the City Engineer, Reedley City Hall having an address of 1733 9th Street, Reedley, California 93654 and at the Offices of C&S Engineers, Inc. having an address of 2020 Camino Del Rio North, Ste 1000 San Diego, CA 92108.

Each proposal must be accompanied by a certified check or bid bond, in the amount of ten percent (10%) of the total maximum proposal price (combination of base bid and alternate bid add-on items) for the contract in the form and subject to the conditions provided in the specification section Preparation of Proposal.

Any questions regarding this project shall be directed in writing, to Arnie White PE/PLS, of C&S Engineers, Inc. All requests shall be in writing via postal delivery or via e-mail to awhite@cscos.com, or via fax 619-296-5683.

All prospective bidders are encouraged to visit the airport. Please coordinate all airport site visits with the City of Reedley Public Works Department by contacting Mike Pardo, Lead Senior Engineering Assistant, Phone:(559)637-4200 ext. 223, Email: mike.pardo@reedley.ca.gov

The Owner reserves the right to waive any informalities in the proposal, and to reject any and all proposals.

CITY OF REEDLEY

END OF ADVERTISEMENT
# Quantities for Canvass of Bids

**Reedley Municipal Airport**  
**Apron Rehab, Marking and Beacon Project**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>FAA/CALTRANS</th>
<th>Description</th>
<th>Quantity</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>P-101</td>
<td>Preparation of Existing Pavement</td>
<td>51,000</td>
<td>SY</td>
</tr>
<tr>
<td>2</td>
<td>P-101</td>
<td>Routing and Sealing of Existing Cracks and Joints</td>
<td>18,000</td>
<td>LF</td>
</tr>
<tr>
<td>3</td>
<td>P-101</td>
<td>Joint and Crack Repair (Full Depth)</td>
<td>1,500</td>
<td>LF</td>
</tr>
<tr>
<td>4</td>
<td>P-101</td>
<td>Remove &amp; Reinstall (E)Shade Hangars Incl.</td>
<td>25</td>
<td>EACH</td>
</tr>
<tr>
<td>5</td>
<td>P-151</td>
<td>Clearing &amp; Grubbing</td>
<td>6,500</td>
<td>SY</td>
</tr>
<tr>
<td>6</td>
<td>P-152</td>
<td>Unclassified Excavation</td>
<td>600</td>
<td>CY</td>
</tr>
<tr>
<td>7</td>
<td>P-156</td>
<td>Compliance W/Pollution, Erosion &amp; Siltation</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>8</td>
<td>SEC 26</td>
<td>Caltrans Crushed Aggregate Base Course Type II</td>
<td>1,100</td>
<td>TON</td>
</tr>
<tr>
<td>9</td>
<td>SEC 39</td>
<td>Caltrans Asphalt Concrete Pavement Type B</td>
<td>600</td>
<td>TON</td>
</tr>
<tr>
<td>10</td>
<td>P-603</td>
<td>Bituminous Tack Coat</td>
<td>150</td>
<td>GAL</td>
</tr>
<tr>
<td>11</td>
<td>P-612</td>
<td>Field Office Lease &amp; Equipment</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>12</td>
<td>P-620</td>
<td>Airport Apron &amp; Taxiway Painting</td>
<td>4,000</td>
<td>SF</td>
</tr>
<tr>
<td>13</td>
<td>P-626</td>
<td>Emulsified Asphalt Slurry Seal Type I, Surface Treatment</td>
<td>51,000</td>
<td>SY</td>
</tr>
<tr>
<td>14</td>
<td>SEC 84</td>
<td>Caltrans TrafficStripes &amp; Pavement Markings</td>
<td>450</td>
<td>SF</td>
</tr>
<tr>
<td>15</td>
<td>L-101</td>
<td>Airport Rotating Beacon L-801A &amp; 55' Tip-Down</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>16</td>
<td>L-108</td>
<td>No. 10 AWG, 600V, 1/C Airport Lighting Cable</td>
<td>3,525</td>
<td>LF</td>
</tr>
<tr>
<td>17</td>
<td>L-109</td>
<td>No. 6 AWG, Safety Ground</td>
<td>1,175</td>
<td>LF</td>
</tr>
<tr>
<td>18</td>
<td>L-109</td>
<td>Airport Electrical Building Equip &amp; Utility</td>
<td>ALLOWANCE</td>
<td>ALW0</td>
</tr>
<tr>
<td>19</td>
<td>L-110</td>
<td>2-Inch Dia. PVC Conduit In Turf</td>
<td>50</td>
<td>LF</td>
</tr>
<tr>
<td>20</td>
<td>L-115</td>
<td>Electric Junction Can</td>
<td>2</td>
<td>EACH</td>
</tr>
<tr>
<td>21</td>
<td>M-100</td>
<td>Maintenance and Protection of Traffic</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>22</td>
<td>M-150</td>
<td>Project Survey &amp; Stakeout</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>23</td>
<td>M-200</td>
<td>Mobilization (4% Maximum)</td>
<td>1</td>
<td>LS</td>
</tr>
</tbody>
</table>
## QUANTITIES FOR CANVASS OF BIDS

**REEDLEY MUNICIPAL AIRPORT**  
**REEDLEY, CA 93654**  
**APRON REHAB, MARKING AND BEACON PROJECT**  
**ADD-ON NO. 1 BID**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>FAA/CALTRANS SPEC</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>P-101</td>
<td>PREPARATION OF EXISTING PAVEMENT</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>2</td>
<td>P-152</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>375</td>
<td>CY</td>
</tr>
<tr>
<td>3</td>
<td>P-156</td>
<td>COMPLIANCE W/POLLUTION, EROSION &amp; Siltation Control</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>4</td>
<td>SEC 26</td>
<td>CALTRANS CRUSHED AGGREGATE BASE COURSE</td>
<td>450</td>
<td>TON</td>
</tr>
<tr>
<td>5</td>
<td>SEC 39</td>
<td>CALTRANS ASPHALT CONCRETE PAVEMENT</td>
<td>375</td>
<td>TON</td>
</tr>
<tr>
<td>6</td>
<td>P-603</td>
<td>BITUMINOUS TACK COAT</td>
<td>100</td>
<td>GAL</td>
</tr>
<tr>
<td>7</td>
<td>SEC 84</td>
<td>CALTRANS TRAFFIC STRIPES &amp; PAVEMENT MARKINGS</td>
<td>140</td>
<td>SF</td>
</tr>
<tr>
<td>8</td>
<td>L-127</td>
<td>TRAFFIC SIGNS - ADA HANDICAP PARKING &amp; STOP</td>
<td>2</td>
<td>EACH</td>
</tr>
<tr>
<td>9</td>
<td>M-100</td>
<td>MAINTENANCE AND PROTECTION OF TRAFFIC</td>
<td>1</td>
<td>LS</td>
</tr>
<tr>
<td>10</td>
<td>M-150</td>
<td>PROJECT SURVEY &amp; STAKEOUT</td>
<td>1</td>
<td>LS</td>
</tr>
</tbody>
</table>
PROPOSAL

FOR CONSTRUCTION OF THE

APRON REHABILITATION, MARKING AND BEACON

AT

REEDLEY MUNICIPAL AIRPORT

REEDLEY, CA

TO: City of Reedley
1733 9th Street
Reedley, CA 93654

The undersigned, as bidder, hereby declares that he/she has examined the site of the work and informed himself/herself fully in regard to all conditions pertaining to the place where the work is to be done; that he/she has examined and read the Contract Documents and Contract Drawings for the work and all addenda relative thereto furnished prior to the opening of bids; that he/she has satisfied himself/herself relative to the work to be performed.

The bidder understands that the advertisement, located in the front of these Contract Documents, contains the location and a description of the proposed construction, as well as indicates the place, date, and time of the proposal opening; information about a Pre-Bid conference, if scheduled, is contained in the advertisement; a listing of estimated quantities is located in the front of these Contract Documents; the time in which the work must be completed shall be in accordance with the subsection titled FAILURE TO COMPLETE ON TIME of Section 80. If the bidder considers that the time to complete the work is inadequate, they should not submit a bid.

The bidder understands the quantities for bid items listed on the proposal sheets are estimated quantities only for the purpose of comparing bids; any difference between these estimated quantities and actual quantities required for construction shall not be taken as a basis for claims by the Contractor for extra compensation; compensation will be based upon the unit prices and actual construction quantities.

The bidder understands that the description under each item, being briefly stated, implies, although it does not mention, all incidentals and that the prices stated are intended to cover all such work, materials and incidentals as constitute bidder's obligations as described in the specifications and any details not specifically mentioned, but evidently included in the Contract shall be compensated for in the item which most logically includes it.

The bidder understands that proposal guaranty shall be in the form of a bid bond or certified check in the amount of ten percent (10%) of this bid in accordance with the subsection titled BID GUARANTEE of Section 20; the proposal guaranty shall become the property of the Owner in the event the Contract and bond(s) are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

The bidder agrees that upon receipt of written notice of the acceptance of this proposal, bidder will execute the Contract attached within 15 days and deliver a Surety Bond or Bonds as required by the subsection titled REQUIREMENTS OF CONTRACT BONDS OF Section 30. The bidder further agrees to commence construction with an adequate work force, plant and equipment on the date stated in the written notice to proceed and will progress therewith to its completion within the time stated, and in accordance with this Contract and Specification.

DO NOT REMOVE
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>FAA SPEC NO.</th>
<th>ITEM AND DESCRIPTION</th>
<th>AND UNIT PRICE IN WORDS</th>
<th>PRICE IN FIGURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-101</td>
<td>PREPARATION OF EXISTING PAVEMENT</td>
<td>51,000 SY</td>
<td>UNIT PRICE $</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER SY $</td>
<td>.</td>
</tr>
<tr>
<td>2</td>
<td>P-101</td>
<td>ROUTING AND SEALING OF EXISTING CRACKS AND JOINTS</td>
<td>18,000 LF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER LF $</td>
<td>.</td>
</tr>
<tr>
<td>3</td>
<td>P-101</td>
<td>JOINT AND CRACK REPAIR (FULL DEPTH)</td>
<td>1,500 LF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER LF $</td>
<td>.</td>
</tr>
<tr>
<td>4</td>
<td>P-101</td>
<td>REMOVE &amp; REINSTALL (E)SHADE HANGARS INCL. FASTENERS</td>
<td>25 EACH</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER EACH $</td>
<td>.</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>FAA SPEC NO.</td>
<td>ITEM AND DESCRIPTION</td>
<td>AND UNIT PRICE IN WORDS</td>
<td>PRICE IN FIGURES</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>5</td>
<td>P-151</td>
<td>CLEARING &amp; GRUBBING</td>
<td>6.500 SY</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER SY</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>P-152</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>600 CY</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER CY</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>P-156</td>
<td>COMPLIANCE W/ POLLUTION, EROSION &amp; SILTATION CONTROL</td>
<td>1 LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER LS</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>SEC 26</td>
<td>CALTRANS CRUSHED AGGREGATE BASE COURSE TYPE II</td>
<td>1,100 TON</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td>PER TON</td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>SPEC NO.</td>
<td>ITEM AND DESCRIPTION</td>
<td>ITEM AND DESCRIPTION AND UNIT PRICE IN WORDS</td>
<td>UNIT PRICE</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------------------</td>
<td>---------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>9</td>
<td>SEC 39</td>
<td>CALTRANS ASPHALT CONCRETE PAVEMENT TYPE B</td>
<td>600 TON FOR</td>
<td>PER TON $</td>
</tr>
<tr>
<td>10</td>
<td>P-603</td>
<td>BITUMINOUS TACK COAT</td>
<td>150 GAL FOR</td>
<td>PER GAL $</td>
</tr>
<tr>
<td>11</td>
<td>P-612</td>
<td>FIELD OFFICE LEASE &amp; EQUIPMENT</td>
<td>1 LS FOR</td>
<td>PER LS $</td>
</tr>
<tr>
<td>12</td>
<td>P-620</td>
<td>AIRPORT APRON &amp; TAXIWAY PAINTING</td>
<td>4,000 SF FOR</td>
<td>PER SF $</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>FAA SPEC NO.</td>
<td>ITEM AND DESCRIPTION</td>
<td>UNIT PRICE</td>
<td>TOTAL AMOUNT</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>----------------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>13</td>
<td>P-626</td>
<td>EMULSIFIED ASPHALT SLURRY SEAL TYPE I, SURFACE TREATMENT</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51,000 SY</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR PER SY</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>14</td>
<td>SEC 84</td>
<td>CALTRANS TRAFFIC STRIPES &amp; PAVEMENT MARKINGS</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>450 SF</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR PER SF</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>15</td>
<td>L-101</td>
<td>AIRPORT ROTATING BEACON L-801A &amp; 55' TIP-DOWN TOWER</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 LS</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR PER LS</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>16</td>
<td>L-108</td>
<td>NO. 10 AWG, 600V, 1/C AIRPORT LIGHTING CABLE</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3,525 LF</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR PER LF</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>FAA SPEC NO.</td>
<td>ITEM AND DESCRIPTION AND UNIT PRICE IN WORDS</td>
<td>PRICE IN FIGURES</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNIT PRICE $</td>
<td>TOTAL AMOUNT $</td>
</tr>
<tr>
<td>17</td>
<td>L-108</td>
<td>NO. 6 AWG, SAFETY GROUND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,175 LF FOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>L-109</td>
<td>AIRPORT ELECTRICAL BUILDING EQUIP &amp; UTILITY ALLOWANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UTILITY ALLOWANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR FOUR THOUSAND DOLLARS &amp; ZERO CENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UTILITY ALLOWANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$4,000.00</td>
<td>$4,000.00</td>
</tr>
<tr>
<td>19</td>
<td>L-110</td>
<td>2-INCH DIA. PVC CONDUIT IN TURF</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 LF FOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>L-115</td>
<td>ELECTRIC JUNCTION CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 EACH FOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER EACH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PROPOSAL - 6
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM SPEC NO.</th>
<th>ITEM AND DESCRIPTION AND UNIT PRICE IN WORDS</th>
<th>PRICE IN FIGURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNIT PRICE</td>
</tr>
<tr>
<td>21</td>
<td>M-100</td>
<td>MAINTENANCE AND PROTECTION OF TRAFFIC</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LS</td>
<td>$</td>
</tr>
<tr>
<td>22</td>
<td>M-150</td>
<td>PROJECT SURVEY &amp; STAKEOUT</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LS</td>
<td>$</td>
</tr>
<tr>
<td>23</td>
<td>M-200</td>
<td>MOBILIZATION (4% MAXIMUM)</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LS</td>
<td>$</td>
</tr>
<tr>
<td>TOTAL CONTRACT BASE BID</td>
<td>TOTAL PRICE IN WORDS</td>
<td>TOTAL PRICE IN FIGURES</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ ________________ . ____</td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>SPEC NO.</td>
<td>ITEM AND DESCRIPTION</td>
<td>ITEM AND DESCRIPTION AND UNIT PRICE IN WORDS</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>P-101</td>
<td>PREPARATION OF EXISTING PAVEMENT</td>
<td>1 LS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOR</td>
</tr>
<tr>
<td>2</td>
<td>P-152</td>
<td>UNCLASSIFIED EXCAVATION</td>
<td>375 CY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOR</td>
</tr>
<tr>
<td>3</td>
<td>P-156</td>
<td>COMPLIANCE W/POLLUTION, EROSION &amp; Siltation CONTROL</td>
<td>1 LS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOR</td>
</tr>
<tr>
<td>4</td>
<td>SEC 26</td>
<td>CALTRANS CRUSHED AGGREGATE BASE COURSE</td>
<td>450 TON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FOR</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>FAA SPEC NO.</td>
<td>ITEM AND DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>SEC 39</td>
<td>CALTRANS ASPHALT CONCRETE PAVEMENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>375 TON</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER TON</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>P-603</td>
<td>BITUMINOUS TACK COAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 GAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER GAL</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>SEC 84</td>
<td>CALTRANS TRAFFIC STRIPES &amp; PAVEMENT MARKINGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>140 SF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER SF</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>L-127</td>
<td>TRAFFIC SIGNS - ADA HANDICAP PARKING &amp; STOP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 EACH</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER EACH</td>
<td></td>
</tr>
</tbody>
</table>
### REEDLEY MUNICIPAL AIRPORT
### APRON REHAB & RECONSTRUCTION, STRIPING, AND BEACON PROJECT
### ADD-ON NO. 1 BID
### UNIT PRICE SCHEDULE

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>FAA SPEC NO.</th>
<th>ITEM AND DESCRIPTION AND UNIT PRICE IN WORDS</th>
<th>PRICE IN FIGURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNIT PRICE</td>
</tr>
<tr>
<td>9</td>
<td>M-100</td>
<td>MAINTENANCE AND PROTECTION OF TRAFFIC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LS</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>M-150</td>
<td>PROJECT SURVEY &amp; STAKEOUT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 LS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER LS</td>
<td></td>
</tr>
<tr>
<td>TOTAL CONTRACT ADD-ON NO. 1 BID</td>
<td>TOTAL PRICE IN WORDS</td>
<td>TOTAL PRICE IN FIGURES</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$ __________________</td>
<td></td>
</tr>
</tbody>
</table>
The bidder states that this proposal is based upon prevailing wages in County of Fresno, State of California and in no case are wages considered less than those predetermined by the State and Federal Departments of Labor, schedules of which are contained in the Contract Documents.

The bidder proposes and agrees, if this Proposal is accepted, to contract in the form of contract specified with the City of Reedley (Owner), to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the Apron Rehabilitation, Striping and Beacon project in full and complete accordance with the shown, noted, described and reasonably intended requirements of the Contract Documents and Contract Drawings, to the full and entire satisfaction of the above said Owner, with a definite understanding that no money will be allowed for extra work except as set forth in the attached Contract Documents, for the unit prices listed opposite each item.

BIDDER:

BY: ____________________________
    (Signature)

______________________________
    (Printed Name)

DATE: ____________________________

COMPANY NAME: ____________________________

ADDRESS: ____________________________

PHONE NO: ____________________________

NOTE: If Contractor is a corporation, Secretary should attest.

ATTEST:

SECRETARY: ____________________________
    (Signature)

______________________________
    (Printed Name)

DO NOT REMOVE
ATTACHMENTS TO PROPOSAL

BIDDER and his/her surety, where appropriate, have completed and executed the attached documents which are identified below.

Contractor’s Certification of Eligibility

Non-Collusive Bidding Certificate

Resolution for Corporate Bidders

Buy American Preferences & Certificate

Certifications:
   - Certification Of Non-Segregated Facilities
   - Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion

Certification for Receipt of Addenda

Statement of Surety’s Intent

List of Subcontractors

DO NOT REMOVE
CONTRACTOR'S CERTIFICATION OF ELIGIBILITY

The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

The bidder/offeror further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offer/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

That, the information above is true and complete to the best of my knowledge.

Printed Name and Title

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

The full names and residences of all persons interested in this proposal as principals are as follows:

(Do not remove)
NON-COLLUSIVE BIDDING CERTIFICATE

(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

TO THE CITY OF REEDLEY
DEPARTMENT OF PUBLIC WORKS.

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

________________________________
Signature of Affiant

Attach notary form required by California Law

Note: The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

(This form must be completed and submitted with the Proposal.)

DO NOT REMOVE
RESOLUTION FOR CORPORATE BIDDERS

RESOLVED, that ____________________________ be authorized (Name of Officer) to sign and submit the bid or proposal of this corporation for the following project:

Apron Rehabilitation, Marking & Beacon

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under penalties of perjury.

The foregoing is a true and correct copy of the resolution adopted by ____________________________ Corporation at a meeting of its Board of Directors held on the ________ day of ____________, 20__.

______________________________________
(Secretary)

(Seal)

(This form must be completed and submitted with the Proposal.)

DO NOT REMOVE
BUY AMERICAN PREFERENCES

(a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) steel produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs b. (1) or (2) shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

(b) The successful bidder will be required to assure that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen and suppliers in the performance of this contract, except those:

1. that the US Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;

2. that the US Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

3. that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

BUY AMERICAN CERTIFICATE

By submitting a bid/proposal under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid/proposal, the offeror certifies that steel and each manufactured product are produced in the United States, as defined in the clause Buy American - Steel and Manufactured Products for Construction Contracts and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Offerors may obtain from the owner a listing of articles, materials and supplies excepted from this provision.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>COUNTRY OF ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(This form must be completed and submitted with the Proposal.)

DO NOT REMOVE
CERTIFICATIONS

BIDDER'S NAME: ________________________________________________

ADDRESS: _____________________________________________________________________________

TELEPHONE NO.: __________________________ FAX NO. ________________________________

IRS EMPLOYER IDENTIFICATION NUMBER: ________________________________________________

CERTIFICATION OF NON-SEGREGATED FACILITIES - 41 CFR PART 60-1.8

CERTIFICATION OF NONSEGREGATED FACILITIES:

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

NOTICE TO PROSPECTIVE FEDERALLY ASSISTED CONSTRUCTION CONTRACTORS:

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving federally-assisted construction contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

DO NOT REMOVE
NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATION OF NON-SEGREGATED FACILITIES:

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

The bidder certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

Printed Name & Title: ____________________________________________________________

Signature: ___________________________________________________________________

Date: __________________________

(This form must be completed and submitted with the Proposal.)
CERTIFICATION FOR RECEIPT OF ADDENDA

Receipt of the following Addenda is acknowledged:

ADDENDUM NO.: ___________________________  DATED: ___________________________

ADDENDUM NO.: ___________________________  DATED: ___________________________

ADDENDUM NO.: ___________________________  DATED: ___________________________

(Firm or Corporation Making Bid)

(Signature of Authorized Person)

P.O. Address: _____________________________

Dated: _____________________________

(This form must be completed and submitted with the Proposal.)

DO NOT REMOVE
STATEMENT OF SURETY'S INTENT

TO: City of Reedley

We Have Reviewed The Bid of ________________________________ (Contractor)
of ________________________________ (Address)

for Apron Rehabilitation, Marking & Beacon

Bids for Which Will be Received On: ________________________________ (Bid Opening Date)

and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to him, it is our present intention to become surety on the performance bond and labor and material bond required by the Contract.

Any arrangement for the bonds required by the Contract is a matter between the Contractor and ourselves and we assure no liability to you or third parties if for any reason we do not execute the requisite bonds.

We are duly authorized to do business in the State of California

ATTEST: ________________________________

Surety's Authorized Signature(s)

(Corporate seal, if any. If no seal, write "No Seal" across this place and sign.)

ATTACH PROPOSAL GUARANTEE

ATTACH POWER OF ATTORNEY

(This form must be complete and submitted with the Proposal. Copies of this form may be filled out and attached to this page.)

DO NOT REMOVE
LIST OF SUBCONTRACTORS

The bidder is required to furnish the following information in accordance with the provisions of Section 4100 to 4113, inclusive, of the Public Contract Code of the State of California.

<table>
<thead>
<tr>
<th>Name Subcontractor is licensed under:</th>
<th>License Number:</th>
<th>Address of Subcontractor:</th>
<th>Percent (%) of Total Contract:</th>
<th>Specific Description of Subcontract:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(This form must be completed and submitted with the Proposal. Copies of this form may be filled out and attached to this page.)

DO NOT REMOVE

END OF PROPOSAL
AGREEMENT

THIS AGREEMENT is dated as of the ____ day of ______________ in the year 20___ by and between City of Reedley, a California, municipal corporation having an address at 1733 9th Street, Reedley California (hereinafter called Owner)

and ________________________________

having an address at ________________________________ (hereinafter called Contractor).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

Contractor shall perform, construct and complete all Work as specified and indicated in the Apron Rehabilitation, Striping & Beacon Contract.

ARTICLE 2 - CONTRACT TIMES

2.1 Contract Time. The Work shall be substantially complete within the Contract Time as stated in General Provisions Section 80-08 “Failure to Complete on Time”, and accepted in accordance with General Provisions Section 50-15 “Final Acceptance”. In addition, intermediate stages or sequences of the Work shall be substantially completed and accepted as in accordance with General Provisions Section 80-08.

2.2 Damages for Delay in Completion. If the Work is uncompleted after the Contract Time, including all extensions and adjustments in accordance with General Provisions Section 80-07 “Determination and Extension of Contract Time”, the sum stipulated in General Provisions Section 80-08 “Failure to Complete on Time” will be deducted from any money due or to become due the Contractor or their surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the Contract Time provided in this Contract.

ARTICLE 3 - CONTRACT PRICE

3.1 The Owner will pay Contractor for completion of the Work in accordance with the Contract for the Total Base Bid in the amount of $____________, and Add-On No. 1 in the amount of $____________, hereby identified as the Contract Price, as shown in the Contractor's Proposal, with discrepancies corrected in accordance with General Provisions Section 30-01 “Consideration of Proposals” if applicable.

3.2 When unit bid price items are included in the Contract Price, the quantities of various units contained in the Proposal are estimated and payment to the Contractor will be made only for the actual quantities of units that are incorporated in the Work or materials furnished in accordance with the plans and specifications, as determined by the Engineer in accordance with General Provisions Section 90, “Measurement and Payment”.

ARTICLE 4 - PAYMENT PROCEDURES

4.1 Partial Payments. Partial payments will be made at least once per month based on the Engineer’s estimate in accordance with General Provisions Section 90, “Measurement and Payment”. Progress payments will be made in accordance with General Provision Section 90-06, “Partial Payments”.

4.2 Retainage. From the total of the amount determined to be payable on a partial payment, the amount specified in General Provisions Section 90-06, “Partial Payments”, will be deducted and retained by the Owner until the final payment is made.
4.3 **Final Payment:** Final payment will be made in accordance with General Provisions Section 90-09, “Acceptance and Final Payment”.

**ARTICLE 5 - CONTRACTOR'S REPRESENTATIONS**

In executing this Agreement, Contractor makes the following representations:

5.1 Contractor has examined and carefully studied the Contract including Addenda.

5.2 Contractor has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

5.3 Contractor is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

5.4 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Contract. Contractor acknowledges that such reports and drawings are not part of the Contract and may not be complete for Contractor's purposes. Contractor acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract with respect to Underground Facilities at or contiguous to the site. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract.

5.5 Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract.

5.6 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract and all additional examinations, investigations, explorations, tests, studies and data with the Contract.

5.7 Contractor has given Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Contract and the written resolution thereof by Engineer is acceptable to Contractor, and the Contract is generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

**ARTICLE 6 - CONTRACT**

The Contract which comprises the entire Agreement between Owner and Contractor concerning the Work consists of the following:

6.1 The Proposal with discrepancies corrected.

6.2 This Agreement.

6.3 The Contractor’s Performance Bond and Payment Bond.

6.4 The Contractor’s Certificates of Insurance.

6.5 The Notice of Award and Notice to Proceed.

6.6 The General Provisions and the Technical Specifications, which are a part of the Contract.
6.7 The Contract Drawings as listed in the Table of Contents.

6.8 Addenda listed below:

<table>
<thead>
<tr>
<th>Addendum No.</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.9 There are no documents other than those listed above in this Article 6. The Contract may only be modified by Supplement Agreement.

ARTICLE 7 - MISCELLANEOUS

7.1 Terms used in this Agreement shall have the meanings in the General Provision Section 10, “Definition of Terms”.

7.2 No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

7.3 Owner and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract.

7.4 Any provision or part of the Contract held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner or Contractor, who agree that the Contract shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
IN WITNESS WHEREOF, Owner and Contractor have signed five (5) copies of this Agreement. This Agreement will be effective on the day and year first above written.

CITY OF REEDLEY

Owner’s Name: ____________________________________________ (SEAL)

Owner’s Title: ____________________________________________

CONTRACTOR: ____________________________________________ (SEAL)

(Company Name)

(Signature)

(Printed Name)

(Printed Title)
(ACKNOWLEDGMENT OF OFFICER OF OWNER)

STATE OF CALIFORNIA

COUNTY OF FRESNO

SS:

On the ______ day of ____________ in the year 2011, before me, the undersigned, a Notary Public in and for said State, personally appeared ______________________________________, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

________________________________________
Notary Public

(ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION)

STATE OF ____________________________

COUNTY OF ________________________

SS:

On the ______ day of ____________ in the year 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared ________________________________ to me known, who, being by me duly sworn, did depose and say that he/she/they reside(s) at ___________________________________________________________________, that he/she/they is(are) the ________________________ of ________________________________________, the corporation described in and which executed the above instrument; and that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

________________________________________
Notary Public
(ACKNOWLEDGMENT OF CONTRACTOR, IF OTHER THAN A CORPORATION)

STATE OF ____________________________
COUNTY OF ____________________________

SS:

On the ________ day of _______________ in the year 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared ________________________________, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is(are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

____________________________
Notary Public

(CERTIFICATE OF OWNER'S ATTORNEY)

I, the undersigned, ____________________________________________, the duly authorized and acting legal representative of the Owner, do hereby certify as follows:

I have examined the foregoing Contract and surety bond and the manner of execution thereof, and I am of the opinion that each of the aforesaid Agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said Agreements on behalf of the respective parties named therein; and that the foregoing Agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

____________________________
Owner’s Attorney

____________________________
Date

END OF AGREEMENT
SECTION 10 - DEFINITION OF TERMS

Whenever the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10-01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

10-02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

10-03 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10-04 AIP. The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

10-05 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10-06 AIRPORT. Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas, and includes a heliport. The name of the Airport for this Project is Reedley Municipal Airport.


10-08 AWARD. The acceptance, by the Owner, of the successful bidder's proposal.

10-09 BIDDER. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-10 BUILDING AREA. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

10-11 CALENDAR DAY. Every day shown on the calendar.

10-12 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

10-13 CONTRACT. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: the Advertisement; the Proposal; the Agreement; the Performance Bond; the Payment Bond; any required insurance certificates; the Specifications; the Contract Drawings; and any addenda issued to bidders.

10-14 CONTRACT DOCUMENTS. Contract Documents shall include, but is not limited to the Advertisement, the Proposal, the Agreement, and the Specifications.

10-15 CONTRACT DRAWINGS. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

10-16 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.
10-17 CONTRACT TIME. The number of calendar days or working days allowed for completion of the contract, including authorized time extensions. If a completion date is stated, in lieu of a number of calendar or working days, then the contract shall be completed by that date.

10-18 CONTRACTOR. The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

10-19 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-20 ENGINEER. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering inspection of the contract work and acting directly or through an authorized representative. The Engineer for this project is C&S Engineers, Inc., 2020 Camino Del Rio North, Ste 1000 San Diego, CA 92108.

10-21 EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-22 EXTRA WORK. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

10-23 FAA. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his/her duly authorized representative.

10-24 FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government. They may be obtained from:

DODSSP
Standardization Document Order Desk
700 Robbins Avenue, Bldg. 4D
Philadelphia, PA 19111-5094

10-25 FORCE ACCOUNT. Force account construction work is construction that is accomplished through the use of material, equipment, labor, and supervision provided by the Owner or by another public agency pursuant to an agreement with the Owner.

10-26 INSPECTOR. An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-27 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words ``directed,'' ``required,'' ``permitted,'' ``ordered,'' ``designated,'' ``prescribed,'' or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words ``approved,'' ``acceptable,'' ``satisfactory,'' or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-28 LABORATORY. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer.
10-29 LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

10-30 MAJOR AND MINOR CONTRACT ITEMS. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20 percent of the total amount of the award contract. All other items shall be considered minor contract items.

10-31 MATERIALS. Any substance specified for use in the construction of the contract work.

10-32 NOTICE TO PROCEED. A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-33 OWNER. The term “Owner” shall mean the party of the first part or the contracting agency signatory to the contract. For AIP contracts, the term “Sponsor” shall have the same meaning as the term “Owner.” Where the term “Owner” is capitalized in this document, it shall mean airport owner or sponsor only.

Whenever the words “Owner”, “Sponsor”, “City of Reedley”, “City or “Party of the first part” are used, the same are understood to mean the City of Reedley, California or its representative duly authorized to act.

10-34 PAVEMENT. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-35 PAYMENT BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-36 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-37 PLANS. See definition of “Contract Drawings”.

10-38 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-39 PROPOSAL. The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

10-40 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his/her proposal is accepted by the Owner.

10-41 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-42 SPECIFICATIONS. A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

10-43 SPONSOR. See definition above of “Owner.”

10-44 STRUCTURES. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

10-45 SUBCONTRACTOR. The subcontractor refers any individual, firm, or corporation to whom the contractor,
with approval of the Owner, sublets any part of work.

10-46 SUBGRADE. The soil that forms the pavement foundation.

10-47 SUPERINTENDENT. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-48 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the Owner covering (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-49 SURETY. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

10-50 TAXIWAY. For the purpose of this document, the term taxiway means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways or aircraft parking areas.

10-51 WORK. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

10-52 WORKING DAY. A Working Day shall be defined as an eight (8) hour shift of work on any day other than a legal holiday, Saturday, or Sunday.

One day shall be charged against Contract Time for any Working Day on which the Contractor is able to proceed with work for at least six (6) hours toward completion of the Contract. One-half day shall be charged against Contract Time for any Working Day on which the Contractor is able to proceed with work for at least three (3) hours toward completion of the Contract.

Contractors working more than an eight hour shift shall be charged Working Days against Contract Time in accordance with the following table:

<table>
<thead>
<tr>
<th>Working Day Table</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Hours</td>
<td>Working Days Charged</td>
</tr>
<tr>
<td>&gt; 8 to 10</td>
<td>1.25</td>
</tr>
<tr>
<td>&gt; 10 to 12</td>
<td>1.5</td>
</tr>
<tr>
<td>&gt; 12 to 14</td>
<td>1.75</td>
</tr>
<tr>
<td>&gt; 14 to 16</td>
<td>2.0</td>
</tr>
<tr>
<td>&gt; 16 to 18</td>
<td>2.25</td>
</tr>
<tr>
<td>&gt; 18 to 20</td>
<td>2.5</td>
</tr>
<tr>
<td>&gt; 20 to 22</td>
<td>2.75</td>
</tr>
<tr>
<td>&gt; 22 to 24</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Legal holidays, Saturdays and Sundays on which the Contractor chooses to engage in work, requiring the presence of an inspector, will be considered Working Days. Working Days will not be charged against Contract Time if work is suspended for causes beyond the Contractor’s control.
SECTION 20 - PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT (Notice to Bidders). See the Advertisement located in the front of these Contract Documents.

20-02 QUALIFICATIONS OF BIDDERS. Within one week of receiving a written request, a bidder shall furnish the owner satisfactory evidence of competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of the following:

A. A list of equipment that would be available for the work.
B. A list of key personnel that would be available for the work.
C. A list of the categories of work to be performed by the bidder’s work force and a list of work to be subcontracted out (See Section 80-01).
D. A list of construction projects completed in the past five years. The list shall include the project name, completion date, total contract value, value of bidder’s portion of the work, engineer and owner contact information (names and phone numbers).
E. A list of construction projects in progress and under contract including the project name, percent complete, estimated completion date, total contract value, value of bidder’s portion of the work, engineer and owner contact information (names and phone numbers).
F. The bidder shall furnish the owner satisfactory evidence of financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder’s financial resources and liabilities as of the last calendar year or the Contractor’s last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder’s true financial condition at the time such qualified statement or report is submitted to the Owner.
G. Unless otherwise specified, a bidder may submit evidence that he is prequalified with the State Highway Division and is on the current “bidder’s list” of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports hereinbefore specified.
H. A Schedule of Values showing the following information:

1. For each lump sum bid item: Provide a breakdown of values for major products, assemblies or operations, indicating separate amounts for (a) purchased materials, (b) labor, and (c) construction equipment, which total to the lump sum price bid for each item.

2. For each unit price bid item: Provide a breakdown of values for the unit price allocated to (a) purchased materials, (b) labor, and (c) construction equipment which total to the unit price bid for each item.

The Schedule of Values will be reviewed by the Engineer. Any additional detail or justification for cost distribution shall be provided by the apparent low bidder upon request. The Schedule of Values shall serve as a basis for computing progress payments during construction for installed portions of lump sum items, and to assist the Engineer in determining if change order costs are reasonable.

20-03 CONTENTS OF PROPOSAL FORMS. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-04 ISSUANCE OF PROPOSAL FORMS. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

A. Failure to comply with any “qualification of bidders” requirements on previous contracts with the Owner, if such regulations were cited, or otherwise included, in the proposal as a requirement for bidding.
B. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force (with the Owner) at the time the Owner issues the proposal to a prospective bidder.

C. Contractor default under previous contracts with the Owner.

D. Unsatisfactory work on previous contracts with the Owner.

20-05 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 without in any way invalidating the unit bid prices.

20-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or obtain from examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 PREPARATION OF PROPOSAL. DO NOT REMOVE the Proposal from the Contract Documents. All Contract Documents, must be submitted with the bid.

The bidder shall submit the proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which he proposes to do each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern. Prices shall be written in whole dollars and cents. The extended total amount of each item should not be rounded.

The bidder shall sign the proposal correctly and in ink. If the proposal is made by an individual, the person’s name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of authority to do so and that the signature is binding upon the firm or corporation.

20-08 IRREGULAR PROPOSALS. Proposals shall be considered irregular for the following reasons:

A. If the proposal is on a form other than that furnished by the Owner, or if the Owner’s form is altered, incomplete, or if any part of the proposal form is detached.

B. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

C. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

D. If the proposal contains unit prices that are obviously unbalanced.
E. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-09 PROPOSAL GUARANTEE. Each separate proposal shall be accompanied by a certified check or bid bond, in the amount of ten percent (10%) of the total maximum bid price (combination of base bid or alternate bid, plus add-on bids) for the proposal. Such certified check or bid bond shall be made payable to the City of Reedley.

20-10 DELIVERY OF PROPOSAL. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement before the time specified for opening all bids. The official time shall be kept locally by Owner. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-11 WITHDRAWAL OR REVISION OF PROPOSALS. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by telegram before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-12 PUBLIC OPENING OF PROPOSALS. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-13 DISQUALIFICATION OF BIDDERS. A bidder will be considered disqualified for any of the following reasons:

A. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
B. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.
C. If the bidder is considered to be in “default” for any reason specified in the subsection titled ISSUANCE OF PROPOSAL FORMS of this section.

20-14 ADDENDA AND INTERPRETATION. No interpretation of the meaning of the Contract Documents, Contract Drawings or other portions of the Contract will be made orally. Every request for such interpretation must be in writing and addressed to C&S Engineers, Inc., 2020 Camino Del Rio North Ste 1000 San Diego, CA 92108, and to be given consideration must be received at the above address at least seven (7) days prior to the date fixed for opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda, which, when issued, will be sent by certified mail with return receipt requested, or by confirmed facsimile to all holders of Contract Documents at the respective addresses furnished for such purposes, not later than twenty-four (24) hours prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such addenda or interpretation shall not relieve said Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract.

END OF SECTION 20
SECTION 30 - AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern. Where discrepancies in the unit bid prices occur, and where discrepancies in the product of the quantities and unit bid prices occur, and where discrepancies in the summation of the products occur, the Owner will make the necessary corrections and the corrected values will be used in the Owner’s consideration of proposals.

Until the award of a contract is made, the Owner reserves the right to reject a bidder’s proposal for any of the following reasons:

A. If the proposal is irregular as specified in the subsection titled IRREGULAR PROPOSALS of Section 20.

B. If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, to award only the Base Bid, to award only an Alternate Bid (if any), or to award either the Base Bid or the Alternate Bid plus any or all Add-On Bids (if any), waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests. The lowest bidder shall be determined by the lowest Base Bid.

30-02 AWARD OF CONTRACT. The award of a contract, if it is to be awarded, shall be made within 45 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner. Where discrepancies occur that affect the bid total(s) as described in the subsection titled CONSIDERATION OF PROPOSALS, the contract amount awarded will reflect the corrected values.

The Owner has the right to award the contract to the lowest qualified bidder (lowest base bid) plus any add-on bids which are chosen by the Owner to be awarded. The Owner shall award a single contract and there will not be separate awards for the base bid and any add-on bids.

30-03 CANCELLATION OF AWARD. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section.

30-04 RETURN OF PROPOSAL GUARANTY. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as hereinbefore specified in the subsection titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contracts bonds as specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section.

30-05 REQUIREMENTS OF CONTRACT BONDS. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

The successful bidder shall submit in triplicate, a “Performance Bond” guaranteeing the performance of the work.
equal to one hundred percent (100%) of the amount of the Contract awarded, and a “Labor and Material Payment Bond” guaranteeing the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work equal to one hundred percent (100%) of the amount of the Contract awarded.

**30-06 EXECUTION OF CONTRACT.** The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return such signed contract to the owner, along with the fully executed surety bond or bonds specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section, and furnish the required insurance certificates in accordance with the subsection titled RESPONSIBILITY FOR DAMAGE CLAIMS of Section 70 within 15 calendar days from the date mailed or otherwise delivered to the successful bidder. If the contract is mailed, special handling is recommended.

The successful bidder shall recognize that the proposal included in the contract for execution may differ from the proposal which was submitted with their bid. The proposal included in the contract for execution will include corrections to discrepancies which were discovered during the Owners consideration of proposals, and will contain only the pages from the successful bidder’s proposal which cover the bids which were awarded. As a result, the proposal pages in the contract to be executed may contain pages which are not consecutively numbered due to the intentional omission of those proposal pages which cover bids that were not awarded.

49 CFR Part 26 provides that each contract the owner signs with a contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

> “The contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department of Transportation (DOT) assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.”

**30-07 APPROVAL OF CONTRACT.** Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

**30-08 FAILURE TO EXECUTE CONTRACT.** Failure of the successful bidder to execute the contract, furnish an acceptable surety bond or bonds, and furnish the required insurance certificates within the 15 calendar day period specified in the subsection titled EXECUTION OF CONTRACT of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.
SECTION 40 - SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 ALTERATION OF WORK AND QUANTITIES. The owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25 percent limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations that are for work within the general scope of the contract shall be covered by “Change Orders” issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such altered work shall be covered by supplemental agreement. If the owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

All supplemental agreements shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds $2,000. However, if the Contractor elects to waive the limitations on work that increase or decrease the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of Labor wage determination as was included in the originally awarded contract.

All supplemental agreements shall require consent of the Contractor's surety and separate performance and payment bonds.

40-03 OMITTED ITEMS. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be nonperformed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the subsection titled PAYMENT FOR OMITTED ITEMS of Section 90.

40-04 EXTRA WORK. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, the same shall be called “Extra Work.” Extra Work that is within the general scope of the contract shall be covered by written change order. Change orders for such Extra Work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such Extra Work.

Extra work to be performed on the basis of agreed prices where no applicable unit or lump sum prices have been included in the Contract shall be based upon the Contractor's price analysis for the work. The price analysis will be completed as outlined in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Section 90.

When determined by the Engineer to be in the Owner's best interest, he may order the Contractor to proceed with Extra Work by force account as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Section 90.
Extra Work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as hereinbefore defined in the subsection titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of Extra Work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 MAINTENANCE OF TRAFFIC. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor’s equipment and personnel, is the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in the subsection titled CONTRACTOR’S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport.

When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor’s performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish erect, and maintain barricades, warning signs, flagperson, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

40-06 REMOVAL OF EXISTING STRUCTURES. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be utilized in the work as otherwise provided for in the contract and shall remain the property of the Owner when so utilized in the work.
40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, he may at his/her option either:

a. Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the Engineer; or

c. Use such material for his/her own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option A., B., or C., he shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option A., B., or C., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for his/her use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option A., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option A., B., or C.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 FINAL CLEANING UP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

40-09 DEBRIS. The Contractor shall remove all debris and rubbish resulting from his work at frequent intervals, on the order of the Engineer. Upon completion, leave the premises broom-clean and everything in perfect order and repair. Upon neglect or refusal of Contractor to keep the premises clean, the Engineer shall have the authority to have such work performed, and the cost of the same shall be charged to the Contractor in default and collected from any monies which have or may become due on this Contract; and the Engineer shall issue no certificates of payment on the Contract until premises are clean, in good order, and all claims created properly adjusted.

END OF SECTION 40
SECTION 50 - CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the work. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for the under contract.

The Engineer does not have the authority to accept pavements that do not conform to FAA specification requirements.

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his/her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, he will advise the Owner of his/her determination that the affected work be accepted and remain in place. In this event, the Engineer will document his/her determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. The Engineer's determination and recommended contract price adjustments will be based on good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (change order or supplemental agreement) as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority, after consultation with the FAA, to use good engineering judgment in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the contract, plans and specifications.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited FAA advisory circulars; contract general provisions shall govern over plans, cited standards for materials or testing, and cited FAA advisory circulars; plans shall govern over cited standards for materials or testing and cited FAA advisory circulars.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer for his/her interpretation and decision, and such decision shall be final.
50-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied with five copies each of the plans and specifications. He shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and his/her inspectors and with other contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his/her agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer or his/her authorized representative.

50-05 COOPERATION BETWEEN CONTRACTORS. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his/her work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-06 CONSTRUCTION LAYOUT AND STAKES. The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either his/her own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or his/her employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper prosecution and control of the work contracted for under these specifications.

If requested by the Engineer, the Contractor must give weekly copies of the survey notes to the Engineer so that the Engineer may check them as to accuracy and method of staking. All areas that are staked by the Contractor must be checked by the Engineer prior to beginning any work in the area. The Engineer will make periodic checks of the grades and alignment set by the Contractor. In case of error on the part of the Contractor, or his/her employees, resulting in establishing grades and/or alignment that are not in accordance with the plans or established by the Engineer, all construction not in accordance with the established grades and/or alignment shall be replaced without additional cost to the Owner.

Additional construction staking and layout may be required by technical specifications. Construction layout and staking, at a minimum, includes but is not limited to:

A. Clearing and Grubbing perimeter staking.
B. Rough Grade slope stakes at 100-foot stations.
C. Drainage Swales slope stakes and flow line stakes at 50-foot stations.
D. Subgrade stakes at 25 foot stations and 25 foot offset distance (max.) for the following section locations:
   1. Runway – minimum 5 per station
   2. Taxiways – minimum 3 per station
   3. Holding apron areas – minimum 3 per station
   4. Roadways – minimum 3 per station
E. Base Course stakes at 25 foot stations and 25 foot offset distance (max.) for the following section locations:
1. Runway – minimum 5 per station
2. Taxiways – minimum 3 per station
3. Holding apron areas – minimum 3 per station

F. Pavement areas:
   1. Stringline for initial lift, and between lifts at 25 foot stations for the following section locations:
      a. Runways – each paving lane width
      b. Taxiways – each paving lane width
      c. Holding areas – each paving lane width
   2. After finish paving operations at 50 foot stations
      a. All paved areas – Edge of each paving lane prior to next paving lane
   3. Shoulder and safety area stakes at 50 foot stations and at all break points with maximum of 50 foot offsets

G. Fence lines at 100 foot stations

H. Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, VASI’s, PAPI’s, REIL’s, Wind Cones, Distance Markers (signs), pull boxes and manholes.

I. Drain lines, cut stakes and alignment on 25-foot stations, inlets, catch basins and manholes.

J. Layout for painting and striping shall be by a method approved by the Engineer.

The use of lasers, or other automatic control devices, shall be approved by the Engineer prior to use. If approved, the contractor shall check its accuracy with temporary control points or grade hubs (or other known vertical control points) at a minimum of once per 400 feet per pass (i.e. paving lane).

NOTE: Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

50-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

50-08 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Owner shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner are authorized to notify the Contractor or his/her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for his/her decision.

50-09 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.
Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

**50-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK.** All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the subsection titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been given by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and unauthorized work to be removed and to deduct the costs (incurred by the Owner) from any monies due or to become due the Contractor.

**50-11 LOAD RESTRICTIONS.** The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his/her hauling equipment and shall correct such damage at his/her own expense.

**50-12 MAINTENANCE DURING CONSTRUCTION.** The Contractor shall maintain the work during construction and until the work is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

**50-13 FAILURE TO MAINTAIN THE WORK.** Should the Contractor at any time fail to maintain the work as provided in the subsection titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the Engineer's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be deducted from monies due or to become due the Contractor.
50-14 PARTIAL ACCEPTANCE. If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, he may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, he may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 FINAL ACCEPTANCE. Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be completed in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 CLAIMS FOR ADJUSTMENT AND DISPUTES. If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his/her intention to claim such additional compensation before he begins the work on which he bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit his/her written claim to the Engineer who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

50-17 REMOVAL OF WATER. The Contractor shall at all times during construction, provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work or the proper placing of materials or other work.

Removal of water includes the construction and removal of cofferdams, sheeting and bracing, the furnishing of materials and labor necessary therefore, the excavation and maintenance of ditches and sluiceways and the furnishing and operation of pumps, wellpoints and appliances needed to maintain thorough drainage of the work in a satisfactory manner.

Water shall not be allowed to rise over or come in contact with any masonry, concrete or mortar, until at least twenty-four (24) hours after placement and no stream of water shall be allowed to flow over such work until such time as the Engineer may permit.

Unless otherwise specified, all excavations which extend down to or below the static groundwater elevations at the sites of structures shall be dewatered by lowering and maintaining the groundwater beneath such excavations at an elevation not less than that specified herein at all times when work thereon is in progress, during subgrade preparation and the placing of the structure or other materials thereon.

Where the presence of fine granular subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick condition, the Contractor shall install and operate a suitable dewatering system to prevent the upward flow of water during construction.
When the water table is within the capillary rise of silt/clay subsurface material, the Contractor shall select and operate his equipment in a manner to prevent the deterioration of the working surface due to the upward flow of water during construction.

The effluent pumped from the dewatering system shall be examined periodically by qualified personnel to determine if the system is operating satisfactorily without the removal of fines.

Unless otherwise directed by the Engineer or shown on the Contract Documents, the water level shall not be permitted to rise until construction in the immediate area is completed and the excavation backfilled to the original grade or proposed grade.

Where well points are used, the groundwater shall be lowered and maintained continuously (day and night) at a level not less than two (2) feet below the bottom of the excavation. Excavation will not be permitted at a level lower than two (2) feet above the water level as indicated by the observation wells.

The wellpoint system shall be designed or installed by or under the supervision of an organization whose principal business is wellpointing and has at least five (5) consecutive years of similar experience and can furnish a representative list of satisfactory similar operations. Wellpoint headers, points and other pertinent equipment shall not be placed within the limits of the excavation in such a manner or location as to interfere with the laying of pipe or trenching operations or with the excavation for and/or construction of other structures. Standby gasoline or diesel powered equipment shall be provided so that in the event of failure of the operating equipment, the standby equipment can be readily connected to the dewatering system. The standby equipment shall be maintained in good order and actuated regularly not less than twice a week when directed.

Wellpoints shall be installed in the center of a sand wick drain which shall be placed by means of a sanding shell or other approved means to provide a sand core not less than ten (10) inches in diameter.

Detached observation wells of similar construction to the wellpoints shall be installed at intervals of not less than fifty (50) feet along the opposite side of the trench from the header pipe and line of wellpoints, or around the excavation for a structure or as shown on the Contract Drawings, to a depth of at least five (5) feet below the proposed excavation. In addition, one wellpoint in every fifty (50) feet shall be fitted with a tee, plug and valve so that the wellpoint can be converted for use as an observation well. Observation wells shall be not less than one and one-half (12) inch in diameter.

Water pumped or drained from excavations, or any sewers, drains, or water courses encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads and drives. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

Any damage caused by improper handling of water shall be repaired by the Contractor at his/her own expense.

**50-18 SHEETING AND BRACING.** The Contractor shall furnish, place and maintain such sheeting, bracing and shoring as required to support the sides and ends of excavations in such a manner as to prevent any movement which would in any way damage the pipe, sewers, masonry or other work, diminish the width necessary, otherwise damage or delay the work, or endanger existing structures, pipes or pavements, or to occasion a hazard to persons engaged on the project or to the general public.

Sheeting and bracing or other trench protection shall be utilized as required for the safety of employees exposed to the hazard of falling or sliding material from any trench or excavation in conformance with the provisions of Industrial Code Rule 23 as amended, and OSHA. The Contractor shall submit details of all sheeting to be used on this project to the Engineer for review. These submitted details must be signed and stamped by a Professional Engineer licensed to practice in the State in which the project is located.

The Contractor shall be responsible for the adequacy of all trench support systems used and for all damage to persons or property resulting from improper quality, strength, placing, maintenance and removal.
All material used for sheeting and bracing shall be sound and free from defects which might impair its strength or effectiveness.

All timber sheeting and bracing shall be sound and straight, free from cracks, shakes and large or loose knots, with dressed edges where directed and shall otherwise conform with National Design Specifications for Stress Grade Lumber for lumber of a minimum fiber stress of 1,200 pounds per square inch.

All steel sheeting and bracing shall be sound and straight, free from bends, twists or splits, having square and undamaged ends and shall otherwise conform with ASTM Designation A 328 and shall have a minimum thickness of 3/8-inch.

Sheeting shall be driven vertically from the original ground surface as the excavation progresses. Sufficient toe support shall be sustained so as to maintain pressure against the original ground at all times.

Timber sheeting shall be driven so that edges are tight together and steel sheeting driven with the individual members interlocking. All bracing shall be of such design and strength as to maintain the sheeting in its proper position.

If, in the judgment of the Engineer, the sheeting or supports furnished are inadequate or unsuited for the purpose, he may order such sheeting or bracing to be replaced or additional sheeting and bracing to be installed. Any sheeting and bracing ordered and so installed for such purpose shall be furnished and installed at the expense of the Contractor.

Whether or not the Engineer orders any additional sheeting or bracing to be installed or unsuitable sheeting or bracing to be replaced, the Contractor shall be solely responsible for the adequacy of all sheeting and bracing.

In general, all sheeting and bracing, whether of steel, timber or other material, used to support the sides of trenches or other open excavations, shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a pipe, sewer or structure shall be withdrawn, unless otherwise directed, before more than 6 inches of earth is placed above the top of the pipe, sewer or structure and before any bracing is removed. The voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Contractor shall be responsible for the adequate shoring and/or bracing of any existing utilities encountered during the excavation. Such utilities shall be braced or shored in a manner acceptable to the local jurisdictional agency having authority over the utility encountered. It shall be the responsibility of the Contractor to prevent damage to or displacement of utilities, and to work with and request the concurrence of the utility's company representative in this matter. The Contractor shall give written notice, seventy-two (72) hours in advance of excavation operations, to all utility companies with services in the vicinity of such operations. A copy of such notification shall be filed with the Engineer.

Where the use of sheeting and bracing is specifically required and paid for, the use of a trench shield, box or similar device in place of sheeting and bracing will not be allowed.

The Contractor, as a minimum, shall tight sheet and brace those areas shown on the Contract Drawings.

END OF SECTION 50
SECTION 60 - CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the source of supply before delivery is stated. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

A. Listed in FAA Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, that is in effect on the date of advertisement; and,

B. Produced by the manufacturer qualified (by FAA) to produce such specified and listed equipment.

The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection:

<table>
<thead>
<tr>
<th>EQUIPMENT NAME</th>
<th>CITED FAA SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beacons, Medium Intensity</td>
<td>L-801</td>
</tr>
<tr>
<td>Lights, Obstruction</td>
<td>L-810</td>
</tr>
<tr>
<td>Connectors, Cable</td>
<td>L-823</td>
</tr>
<tr>
<td>Underground Electrical Cable for Airport Lighting Circuits</td>
<td>L-824</td>
</tr>
</tbody>
</table>

All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the Engineer.

The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the Contract Documents. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer’s opinion, does not meet the system design and the standards and codes, specified herein.

The Contractor shall prepare an project Operations and Maintenance (O&M) Manual for the Owner. The O&M Manual shall consist of approved certification submittals, approved shop and setting drawing submittals, approved catalogue data submittals, and Operations & Maintenance Manuals for equipment installed that have operating procedures and/or maintenance requirements associated with them. The O&M manual shall be neatly bound in a properly sized 3-ring binder and tabbed by specification section. The O&M Manual shall be submitted to the Engineer prior to final payment to facilitate project closeout.

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. Unless otherwise designated, all materials used in the work shall be inspected, tested, and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense. Unless otherwise designated, tests in accordance with the cited standard methods of ASTM, AASHTO, Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids, will be made by and at the expense of the Owner. THE COST OF ALL FAILING TESTS SHALL BE BORNE BY THE CONTRACTOR. The testing organizations performing on-site field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel, including the Contractor's representative at his/her request. Unless
otherwise designated, samples will be taken by a qualified representative of the Owner. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at his/her request.

The Contractor shall employ a testing organization to perform all Contractor required tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of all test data shall be given to the Engineer daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the Engineer showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. Manufacturer's certificates of compliance shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer, and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

A. Conformance to the specified performance, testing, quality or dimensional requirements; and,

B. Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, he shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 PLANT INSPECTION. The Engineer or his/her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his/her acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

A. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.

B. The Engineer shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

C. If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be
reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 ENGINEER'S FIELD OFFICE. The Contractor shall furnish a field office, if required, as specified in the technical specifications.

60-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his/her entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

60-07 UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the Engineer has approved its used in the work.

60-08 OWNER FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due due to the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

60-09 SHOP AND SETTING DRAWINGS AND CATALOGUE DATA. All materials and equipment used in the work shall be submitted to the Engineer for approval prior to ordering the equipment. All information required for the Engineer’s review of each particular pay item shall be sent as one submittal. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Drawings and data shall be submitted sufficiently in advance of the work to
permit proper review, including time for necessary revisions and re-submittals. The Contractor is solely responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

Shop and setting drawings shall present complete and accurate information relative to all working dimensions, equipment weight assembly and sectional view, all the necessary details, pertaining to coordinating the work of the Contract, lists of materials and finishes, parts lists and the description thereof, lists of spare parts and tools where such parts or tools are required, no-scale control diagrams for control wiring and control piping, and any other items of information that are required to demonstrate detail compliance with the Plans and Specifications. Each drawing shall be dated and shall show the name of the Project, Contract Number and the name of the manufacturer of the equipment covered by the drawing or drawings. The Engineer will not review any drawings that are not properly identified or that do not contain complete data on the work or that have not been checked, stamped and signed by the Contractor for compliance with the Contract Documents.

The Engineer's review of the Contractor's Shop Drawings signifies only that such drawings appear to be in substantial conformity with the Contract Drawings and Contract Documents or with the Engineer's instructions. Such review does not indicate approval of every detail of the drawings nor of the work methods of the Contractor which are indicated thereon. Regardless of the corrections made in or made of such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings, for their conformity to the Plans and Specifications and for the proper fitting and construction of the work.

No work covered by shop and setting drawings shall be done until the drawings have been reviewed by the Engineer. No payment shall be made on any item for which acceptable submittals are not received by the Engineer.

60-10 ELECTRICAL SHOP DRAWINGS. Drawings for electrical equipment shall show physical dimensions and installation details and shall include elementary and connection diagrams for each control assembly and the interconnection diagrams for all equipment. The drawings shall show clearly the coordination of control work, shall identify the components external to electrical equipment and shall define the contact arrangement and control action of the primary and final control elements.

Where standard electrical control equipment having complex internal wiring is required, such as control panels, generator transfer panels, electric or electronic instruments and similar items, the detail shop wiring diagrams for such equipment will not be required, and, if submitted, will in general not be reviewed. The submittal for each such item of equipment shall, however, include an elementary diagram of the input and output elements which require connections to external equipment, and/or a complete step by step description of the control action of the equipment being submitted. In the event that any questions arise as to the type of information to be presented on the submittal, the supplier shall direct inquiries to the Engineer through the Prime Contractor in advance of the preparation of his/her submittal.

60-11 SUBSTITUTE ITEMS. If in the Engineer's sole judgment an item of material or equipment proposed by the Contractor does not qualify as an “or-equal” item, it will be considered a substitute item. The Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the Engineer will include the following and as the Engineer may decide is appropriate under the circumstances. Requests for review of substitute items of material or equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall first make a written application to the Engineer for acceptance thereof, certifying that the substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the substitute will prejudice the Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with the Owner for work on the Project) to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. If the substitute item requires modifications to any existing features or to any proposed work, the application shall also include details of proposed modifications necessary to accommodate the substitute item. Such details shall include scaled layouts, dimensions and other pertinent information to enable the Engineer to accurately assess the entire application. If the substitute item and proposed modifications are approved, the Contractor, at no additional cost to
the Owner, shall do all work necessary to make such modifications and absorb all costs of any related changes imposed on other Contractor's. All variations of the substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the substitute. The Engineer may require the Contractor to furnish additional data about the substitute.

A. **Engineer's Evaluation.** The Engineer will be the sole judge of acceptability. No substitute will be ordered, installed or utilized without the Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Engineer will record time required by the Engineer and the Engineer's Consultants in evaluating substitutes proposed or submitted by the Contractor and in making changes in the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with Owner for work on the Project) occasioned thereby. The Engineer's charges shall be at the same rates the Engineer charges for such services to the Owner.

B. **Contractor's Expense.** All data to be provided by the Contractor in support of any substitute item will be at the Contractor's expense. In order to aid the Engineer in determining the equality of a or substitute item (when compared to the item actually specified), the Contractor shall arrange for the performance of any tests requested by the Engineer. The Engineer shall determine the nature, extent, tester and degree of supervision of such tests. Certified test results shall be mailed directly to the Engineer for all tests requested. All costs of such tests, including engineering costs, shall be borne by the Contractor. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. Whether or not the Engineer accepts a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer and the Engineer's Consultants for evaluating each such substitute item. The costs for evaluating substitute items shall be deducted from the Owner's payment to the Contractor.

**60-12 SUBMITTAL PROCEDURE.** The following procedure has been established for the submittal and processing of shop and setting drawings, working drawings, and catalogue data. Departures from this procedure may result in delay and misunderstandings.

A. All information required for the Engineer’s review of each particular pay item shall be sent as one submittal. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time.

B. In submitting certifications, drawings, catalog data, and similar items for review, at least five (5) copies shall be submitted. This number includes two copies for return to the Contractor bearing the review stamp, one of which will be incorporated into an O&M Manual prior to contract closeout. If the Contractor desires more than two copies returned, they shall submit the additional copies with the initial transmittals up to a maximum of four copies. If the need arises by the Engineer to require additional copies, the Contractor will be informed so that subsequent submittals will include the correct number of copies.

Additional copies of submittals will be required upon Owner request, or in cases where the subject matter shown thereon requires coordination of two or more prime Contracts. One copy of each of such submittals received will be transmitted by the Engineer, whenever possible, to each of the other prime Contractors whose work is to be correlated with such submittals. The Engineer will transmit these submittals in order to facilitate each Contractor's coordination of their own work with that of the other Contracts.

C. For transmitting data for review, two (2) copies of the letter of transmittal will be required by the Engineer's office. Form letters may be used.

D. All correspondence other than simple transmittal of data shall be in triplicate.

E. Unless otherwise requested, a single copy of the correspondence emanating from the Engineer's office will be sent. Additional copies of correspondence up to a maximum of four (4) copies will be provided, if requested.
F. Submittals will be stamped as follows:

1. "Approved", if no change or rejection is made. All but three (3) copies of the submitted data will be returned.

2. "Approved as Noted", if minor changes or additions are made, but re-submittal is not considered necessary. All but three (3) copies of the submitted data will be returned and all copies will bear the corrective marks.

3. "Revise and Resubmit", if the changes requested are extensive. In this case, re-submittal after correction is necessary and the same number of copies shall be included in the re-submittal as in the first submittal. One (1) copy of the first submittal will be retained by the Engineer's office and only two (2) copies will be returned to the Contractor unless the Contractor has requested the return of additional copies as set forth above. All other copies will be destroyed.

4. "Rejected", if it is considered that the data submitted cannot with reasonable revision meet the requirements of the Plans and Specifications. As in "3" above, only two (2) copies will be returned unless additional copies have been requested. One (1) copy will be retained by the Engineer's office and all others will be destroyed.

5. "Submit Specified Item", if the data submitted is not clear, complete, or for other reasons cannot be examined by the Engineer to establish compliance with the Plans and Specifications. Only two (2) copies will be returned to the Contractor, one (1) copy will be retained by the Engineer and all other copies shall be destroyed.

G. Unless otherwise approved in specific cases, all submittals must be transmitted by the Prime Contractor; not by the Subcontractors or vendors.

Any changes in re-submittals, other than those indicated as requested, must be specifically brought to the attention of the Engineer. Changes or additions shall not be made in, or to, any fabricated item, part or material without having a re-review.

END OF SECTION 60
SECTION 70 - LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of all Federal and state laws, all local laws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner, the Engineer, and all of their respective directors, officers, representatives, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his/her employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work, unless provided for elsewhere.

70-03 PATENTED DEVICES, MATERIALS, AND PROCESSES. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Owner, the Engineer, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner and the Engineer for any costs, expenses, and damages which either of them may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) is indicated as follows:

<table>
<thead>
<tr>
<th>Utility</th>
<th>Location</th>
<th>Person to Contact</th>
<th>Phone No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Not Applicable”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the owner of a public or private utility service, FAA or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such owner by arranging and performing the work in this contract so as to facilitate such construction, reconstruction, or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the Contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 FEDERAL AID PARTICIPATION. For AIP contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's) agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of Title 49 of the United States Code (USC) and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract work is subject to the inspection and approval of duly authorized representatives of the Administrator, FAA, and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, or this contract shall be construed as making the Federal Government a party to the contract nor will any such requirement interfere, in any way, with the
rights of either party to the contract.

**70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS.** The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his/her health or safety.

**70-07 PUBLIC CONVENIENCE AND SAFETY.** The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with the subsection titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

**70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS.** The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated.

Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area shall be a maximum of 18 inches high. Unless otherwise specified, barricades shall be spaced not more than 25 feet apart. Barricades, warning signs, and markings shall be paid for under Section 40-05.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of AC 150/5340-1, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

**70-09 USE OF EXPLOSIVES.** When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to
the Engineer and, in general, not closer than 1,000 feet from the work or from any building, road, or other place of human occupancy.

The Contractor shall notify each property owner and public utility company having structures or facilities in proximity to the site of the work of his/her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.

The use of electrical blasting caps shall not be permitted on or within 1,000 feet of the airport property.

70-10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, he shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

70-11 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify and save harmless the Engineer and the Owner and their officers, and employees from all suits actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the “Workmen's Compensation Act,” or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of his/her contract as may be considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, his/her surety may be held until such suit(s), action(s), or claim(s) for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance.

The Contractor, at his own expense, shall procure and maintain, until final acceptance by the Owner of the work covered by the Contract, comprehensive liability insurance for damages imposed by law of the kinds and in the amounts hereinafter provided, written by a financially solvent insurance company authorized to do such business and write such coverage in the place where the Project is located, covering all operations under the Contract, whether performed by the Contractor or by its Subcontractor(s). Before commencing the work, the Contractor shall furnish to the Owner three (3) certificates of insurance, in satisfactory form to the Owner, showing that the Contractor has complied with the requirements of this Section. The policies and certificates shall provide that the policies shall not be changed or canceled until thirty (30) days after written notice thereof has been given to each of the Additional Insureds listed below. Property damage insurance shall include coverage for explosion, collapse, and underground operations (XCU hazards).

A. The kinds and amounts of insurance are as follows:

1. General Liability insurance policies shall be Commercial General Liability Insurance and shall be written on an Occurrence basis with the following minimum limits:

<table>
<thead>
<tr>
<th>Each Occurrence</th>
<th>General Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000</td>
<td>$3,000,000</td>
</tr>
</tbody>
</table>
As an alternative to the above limits for General Aggregate and Each Occurrence, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall likewise be written on an Occurrence basis. If the Contractor so elects, then the sum of the General Liability Each Occurrence limit and the Excess Liability Each Occurrence limit shall total at least $1,000,000. The sum of the General Liability General Aggregate limit and the Excess Liability Aggregate limit shall total at least $3,000,000.

2. Automobile Liability policies shall cover “All Owned”, “Scheduled”, “Hired” and “Non-Owned” autos. The minimum Combined Single Limit shall be $1,000,000.

As an alternative to the above limit for Automobile Liability, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall be written on an Occurrence basis. If the Contractor so elects, then the sum of the Combined Single Limit and the Excess Liability Each Occurrence limit shall total at least $1,000,000.

3. Policy or policies covering the obligations of the Contractor in accordance with the provisions of any applicable Worker's Compensation or Disability Benefits Law.

B. This insurance shall be primary over all other collectible insurance.

C. Anti-subrogation applies to General Liability and to Automobile Liability.

D. The Certificate Holder shall be City of Reedley, CA

E. The following shall be named as Additional Insureds: City of Reedley; C&S Engineers, Inc.; the Federal Aviation Administration; the California State Department of Transportation.

F. The General Liability policies shall provide coverage for liability for damages imposed by law upon the Contractor and Subcontractor(s) with respect to all work performed by any of them under the Contract. The insurance company providing General Liability insurance coverage acknowledges that the Contractor has agreed in this Contract to defend, hold harmless, and indemnify the Owner and the Engineer and their officers and employees as set forth in this Section.

G. Contractor's policies shall provide coverage for contractual liability imposed by Contract, including this Contract, and completed operations liability for damages imposed by law arising between the date of the certification of completion of the work and the date of the expiration of the guarantee.

H. Contractor's policy shall provide coverage for liability arising out of the acts or omissions of its Subcontractors.

I. Each Subcontractor employed on site by the Contractor shall provide comprehensive liability insurance in accordance with the above described requirements of the Contractor. Such insurance requirements shall be submitted to the Engineer as part of the Subcontractor approval process.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such “phasing” of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his/her own estimate of the difficulties involved in arranging his/her work to permit such beneficial occupancy by the Owner as described below:
Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his/her expense.

The Contractor shall make his/her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

Contractor shall be required to conform to safety standards contained AC 150/5370-2, Operational Safety on Airports During Construction. See the subsection titled Aviation Safety Requirements During Construction (Safety Plan) of Section 80.

Contractor shall refer to the approved safety plan to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

70-14 CONTRACTOR'S RESPONSIBILITY FOR WORK. Until the Engineer's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the owners are indicated as follows:

| Utility Service or Facility | Person to Contract | Telephone No. |
It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two day's notice hereinabove provided shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within 3 feet of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, he shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his/her operations whether or not due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his/her surety.

**70-16 FURNISHING RIGHTS-OF-WAY.** The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

**70-17 PERSONAL LIABILITY OF PUBLIC OFFICIALS.** In carrying out any of the contract provisions or in exercising any power or authority granted to him by this contract, there shall be no liability upon the Engineer, his/her authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

**70-18 NO WAIVER OF LEGAL RIGHTS.** Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his/her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his/her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.
The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the owner's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. He shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter. The Contractor shall perform all testing, removal of contaminated material, transportation, treatment, remediation, and disposal of contaminated materials which are the result of a spill or release caused by the Contractor, and he shall provide and properly place materials to restore the property to its original condition, all to the Owner’s satisfaction and at the Contractor’s expense. Refer to the subsection titled PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE of this section.

Contractors and subcontractors agree:

A. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

B. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

C. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

D. To include or cause to be included in any construction contract or subcontract which exceeds $100,000 the aforementioned criteria and requirements.

E. Air Pollution

1. No burning of combustible waste shall be permitted.

   a. All spoil material from clearing and grubbing operations shall be disposed of in accordance with the Technical Specifications, unless otherwise directed.
   b. Wood may be salvaged for firewood or commercial use or it may be chipped and disposed of for use as mulch.
   c. Logs, brush, etc. may be removed to an authorized disposal area or disposed of to the general public without charge.

3. Dust Control.
   a. Common construction operations which may cause excessive dust include:
      1) Quarry, drilling and rock crushing.
      2) Clearing, grubbing and stripping.
      3) Excavation and placement of embankment.
      4) Cement and aggregate handling.
      5) Cement or lime stabilization.
      6) Blasting.
      7) Use of haul roads.
      8) Sandblasting or grinding.
   b. Other construction operations which may cause air pollution are:
      1) Volatiles escaping from asphalt and cut back materials.
2) Use of herbicides or fertilizers.
3) Smoke from asphalt plants or heater/planers.

c. Control of Dust and Other Air Pollutants shall be the responsibility of the Contractor and may include the following control methods:
1) Drilling apparatus equipped with water or chemical dust controlling systems.
2) Exposing the minimum area of land.
3) Applying temporary mulch with or without seeding.
4) Use of water sprinkling trucks.
5) Use of covered haul trucks.
6) Use of stabilizing agents in solution.
7) Use of dust palliative and penetration asphalt on temporary roads.
8) Use of wood chips in traffic or work areas.
9) Use of vacuum equipped sandblasting systems.
10) Use of plastic sheet coverings.
11) Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application, equipment and empty containers shall not be rinsed and discharged to a stream, etc. or allowed to enter the groundwater.
12) Use of dust control measures at bituminous mixing plants, and quarry operations.
13) Delay operations until climate or wind conditions dissipate or inhibit the potential pollutants in a manner satisfactory to the Engineer.

F. Water Pollution

1. The Contractor shall use suitable precautions to minimize water pollution during the progress of the work. Erosion control devices or methods may consist of berms, dikes, dams, drains, sediment basins, fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray or other control devices.

2. The amount of surface area of erodible earth at any one time shall not exceed the area allowed by permit.

3. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing and curing operations should not be allowed to enter streams, etc.

In the event of conflict between these requirements and pollution control laws, rules or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

70-20 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, he shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume his/her operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract modification (change order or supplemental agreement) as provided in the subsection titled EXTRA WORK of Section 40 and the subsection titled PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK of Section 90. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.
70-21 CIVIL RIGHTS ACT OF 1964, TITLE VI – CONTRACTOR CONTRACTUAL REQUIREMENTS.
During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

A. Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

B. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

C. Solicitations for Subcontracts, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

D. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

E. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

1. Withholding of payments to the contractor under the contract until the contractor complies, and/or
2. Cancellation, termination, or suspension of the contract, in whole or in part.

F. Incorporation of Provisions. The contractor shall include the provisions of paragraphs A through E in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

70-22 AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, SECTION 520 - GENERAL CIVIL RIGHTS PROVISIONS. The contractor assures that it will comply with pertinent statutes, Executive orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport a program, except where Federal assistance is to provide, or is in the form of personal property or real property or interest therein or structures or improvements thereon. In these cases the provision obligates the party or any transferee for the longer of the following periods: (a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits or (b) the period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this provision binds the contractors from the bid solicitation period through the completion of the
contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

70-23 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES.

A. No Federal appropriated funds shall be paid, by or on behalf of the contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant and the amendment or modification of any Federal grant.

B. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any Federal grant, the contractor shall complete and submit Standard Form-LLL, “Disclosure of Lobby Activities,” in accordance with its instructions.

70-24 ACCESS TO RECORDS AND REPORTS. The Contractor shall maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

70-25 (SECTION NOT USED)

70-26 ENERGY CONSERVATION REQUIREMENTS. The contractor shall comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

70-27 BREACH OF CONTRACT TERMS. Any violation or breach of terms of this contract on the part of the contractor or their subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of the agreement. The duties and obligations imposed by the Contract and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

70-28 RIGHTS TO INVENTIONS. All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

70-29 TRADE RESTRICTION CLAUSE. The contractor or subcontractor, by submission of a proposal and/or execution of a contract, certifies that it:

A. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

B. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

C. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.
Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

70-30 VETERAN’S PREFERENCE. In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Veterans of the Vietnam era and disabled veterans as defined in Section 515 (c) (1) and (2) of the Airport and Airway Improvement Act of 1982. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

70-31 DAVIS BACON REQUIREMENTS.

1. Minimum Wages.

   (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. SEE THE GENERAL DECISION REGARDING THE WAGE DETERMINATION FOLLOWING THIS SECTION.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.
(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to David-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor,
sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5(a)(3)(i) above. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under paragraph (3)(i) above and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the
contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for
the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part
shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as

5. **Compliance With Copeland Act Requirements.** The contractor shall comply with the requirements of 29
CFR Part 3, which are incorporated by reference in this contract.

6. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR
Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate
instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier
subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier
subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. **Contract Termination: Debarment.** A breach of the contract clauses in paragraph 1 through 10 of this section
may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as
provided in 29 CFR 5.12.

8. **Compliance With Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-
Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this
contract.

9. **Disputes Concerning Labor Standards.** Disputes arising out of the labor standards provisions of this contract
shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance
with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the
meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting
agency, the U.S. Department of Labor, or the employees or their representatives.

10. **Certification of Eligibility.**

    (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm
who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government
contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government
contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).


70-32 **EQUAL EMPLOYMENT OPPORTUNITY - 41 CFR PART 60-1.4(b)** During the performance of this
contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color,
religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are
employed, and that employees are treated during employment without regard to their race, color, religion, sex,
or national origin. Such action shall include, but not be limited to the following: Employment, upgrading,
demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms
of compensation; and selection for training, including apprenticeship. The contractor agrees to post in
conspicuous places, available to employees and applicants for employment, notices to be provided setting forth
the provisions of this nondiscrimination clause. **SEE THE “EQUAL EMPLOYMENT OPPORTUNITY IS
THE LAW” POSTER FOLLOWING THIS SECTION.**

2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor,
state that all qualified applicants will receive considerations for employment without regard to race, color,
religion, sex, or national origin.
3. The contractor will send to each labor union or representative of workers with which s/he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**70-33 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION - 41 CFR PART 60-2.**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   | Goals for minority participation for each trade | 26.1% |
   | Goals for female participation in each trade    | 6.9%  |

   a. These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its Federally involved and non-federally involved construction.

   b. The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training shall be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor's goals, shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
3. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is State of California, County of Fresno, City of Reedley.

70-34 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS – 41 CFR Part 60-4.3

1. As used in these specifications:
   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
   d. "Minority" includes:
      (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
      (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p below. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably
be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper,
annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7p above, provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness
of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 above, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

16. Standard Form 100, Employer Information Report, must be filed by:

A. All private employers who are:
   (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private membership clubs other than labor organizations; OR
   (2) SUBJECT TO Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise, and the entire enterprise employs a total of 100 or more employees.

B. All federal contractors (private employers), who:
   (1) are not exempt as provided for by 41 CFR 60-1.5,
(2) have 50 or more employees, and
   (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase
       order amounting to $50,000 or more; or
   (b) serve as a depository of Government funds in any amount, or
   (c) is a financial institution which is an issuing and paying agent for U.S. Savings Bonds and Notes.

C. Standard Form 100 must be filed with the Joint Reporting Committee no later than September 30. Standard
   Form 100 is normally furnished to employers annually based on a mailing list maintained by the Joint
   Reporting Committee. In the event a Contractor has not received the form, it may be obtained from the
   Joint Reporting Committee, Post Office Box 779, Norfolk, Virginia 23501, telephone (757) 461-1213.

70-35 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT REQUIREMENTS 29 CFR PART 5

1. Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which
   may require or involve the employment of laborers or mechanics shall require or permit any such laborer or
   mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to
   work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a
   rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in
   such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set
   forth in paragraph (1) above, the contractor and any subcontractor responsible therefor shall be liable for the
   unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of
   work done under contract for the District of Columbia or a territory, to such District or to such territory), for
   liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or
   mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 above,
   in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess
   of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth
   in paragraph 1 above.

3. Withholding for Unpaid Wages and Liquidated Damages. The Federal Aviation Administration or the
   Sponsor shall upon its own action or upon written request of an authorized representative of the Department of
   Labor withhold or cause to be withheld, from any monies payable on account of work performed by the
   contractor or subcontractor under any such contract or any other Federal contract with the same prime
   contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards
   Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any
   liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause
   set forth in paragraph 2 above.

4. Subcontractors. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in
   paragraphs 1 through 4 and also a clause requiring the subcontractor to include these clauses in any lower tier
   subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier
   subcontractor with the clauses set forth in paragraphs 1 through 4 of this section.

70-36 CALTRANS STANDARD SPECIFICATIONS (SECTION 7 SELECTIONS) FOR CALIFORNIA
   STATE CONTRACTS (APPENDIX A).

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the
contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract
(the word "Contractor" herein refers to any party other than the State, whether a contractor, licenser, licensee, lessor,
lessee or any other party):

In the event of a conflict between the terms of the contract (including any and all attachments thereto and
amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

This contract shall be governed by the laws of the State of California except where the Federal supremacy clause
requires otherwise.
7-1.01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of all existing and future State and Federal laws and county and municipal ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all times observe and comply with, and shall cause all the Contractor's agents and employees to observe and comply with all existing and future laws, ordinances, regulations, orders and decrees of bodies or tribunals having any jurisdiction or authority over the work; and shall protect and indemnify the State of California, and all officers and employees thereof connected with the work, including but not limited to the Director and the Engineer, against any claim or liability arising from or based on the violation of any law, ordinance, regulation, order or decree, whether by the Contractor or the Contractor's employees. If any discrepancy or inconsistency is discovered in the plans, drawings, specifications or contract for the work in relation to any law, ordinance, regulation, order or decree, the Contractor shall forthwith report the same to the Engineer in writing.

7-1.01A Labor Code Requirements. Attention is directed to the following requirements of the Labor Code:

7-1.01A(1) Hours of Labor. Eight hours labor constitutes a legal day's work. The Contractor or any subcontractor under the Contractor shall forfeit, as a penalty to the State of California, twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective Contractor or subcontractor for each calendar day during which that worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the requirements of the Labor Code, and in particular, Section 1810 to Section 1815, thereof, inclusive, except that work performed by employees of Contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay, as provided in Section 1815 thereof.

7-1.01A(2) Prevailing Wage. The Contractor and any subcontractor under the Contractor shall comply with Labor Code Sections 1774 and 1775. Pursuant to Section 1775, the Contractor and any subcontractor under the Contractor shall forfeit to the State or political subdivision on whose behalf the contract is made or awarded a penalty of not more than fifty dollars ($50) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any public work done under the contract by the Contractor or by any subcontractor under the Contractor in violation of the requirements of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. The amount of this forfeiture shall be determined by the Labor Commissioner and shall be based on consideration of the mistake, inadvertence, or neglect of the Contractor or subcontractor in failing to pay the correct rate of prevailing wages, or the previous record of the Contractor or subcontractor in meeting their respective prevailing wage obligations, or the willful failure by the Contractor or subcontractor to pay the correct rates of prevailing wages. A mistake, inadvertence, or neglect in failing to pay the correct rate of prevailing wages is not excusable if the Contractor or subcontractor had knowledge of the obligations under the Labor Code. In addition to the penalty and pursuant to Labor Code Section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor or subcontractor. If a worker employed by a subcontractor on a public works project is not paid the general prevailing per diem wages by the subcontractor, the prime contractor of the project is not liable for the penalties described above unless the prime contractor had knowledge of that failure of the subcontractor to pay the specified prevailing rate of wages to those workers or unless the prime contractor fails to comply with all of the following requirements:

(1) The contract executed between the contractor and the subcontractor for the performance of work on the public works project shall include a copy of the requirements in Sections 1771, 1775, 1776, 1777.5, 1813 and 1815 of the Labor Code.
(2) The contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.

(3) Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the subcontractor for work performed on the public works project.

(4) Prior to making final payment to the subcontractor for work performed on the public works project, the contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to the subcontractor's employees on the public works project and any amounts due pursuant to Section 1813 of the Labor Code.

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement shall notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages. If the Division of Labor Standards Enforcement determines that employees of a subcontractor were not paid the general prevailing rate of per diem wages and if the Department did not retain sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the contractor shall withhold an amount of moneys due the subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by the Division of Labor Standards Enforcement. The Contractor shall pay any money retained from and owed to a subcontractor upon receipt of notification by the Division of Labor Standards Enforcement that the wage complaint has been resolved. If notice of the resolution of the wage complaint has not been received by the Contractor within 180 days of the filing of a valid notice of completion or acceptance of the public works project, whichever occurs later, the Contractor shall pay all moneys retained from the subcontractor to the Department. These moneys shall be retained by the Department pending the final decision of an enforcement action.

Pursuant to the requirements in Section 1773 of the Labor Code, the Department has obtained the general prevailing rate of wages (which rate includes employer payments for health and welfare, pension, vacation, travel time and subsistence pay as provided for in Section 1773.8 of the Labor Code, apprenticeship or other training programs authorized by Section 3093 of the Labor Code, and similar purposes) applicable to the work to be done, for straight time, overtime, Saturday, Sunday and holiday work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned.

The general prevailing wage rates and any applicable changes to these wage rates are available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated. General prevailing wage rates are also available from the California Department of Industrial Relations' Internet Web Site at: http://www.dir.ca.gov.

The wage rates determined by the Director of Industrial Relations for the project refer to expiration dates. Prevailing wage determinations with a single asterisk after the expiration date are in effect on the date of advertisement for bids and are good for the life of the contract. Prevailing wage determinations with double asterisks after the expiration date indicate that the wage rate to be paid for work performed after this date has been determined. If work is to extend past this date, the new rate shall be paid and incorporated in the contract. The Contractor shall contact the Department of Industrial Relations as indicated in the wage rate determinations to obtain predetermined wage changes.

Pursuant to Section 1773.2 of the Labor Code, general prevailing wage rates shall be posted by the Contractor at a prominent place at the site of the work.
Changes in general prevailing wage determinations which conform to Labor Code Section 1773.6 and Title 8 California Code of Regulations Section 16204 shall apply to the project when issued by the Director of Industrial Relations at least 10 days prior to the date of the Notice to Contractors for the project.

The State will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining the bid, and will not under any circumstances be considered as the basis of a claim against the State on the contract.

7-1.01A(2)(a) Travel and Subsistence Payments. Attention is directed to the requirements in Section 1773.8 of the Labor Code. The Contractor shall make travel and subsistence payments to each workman, needed to execute the work, in conformance with the requirements in Labor Code Section 1773.8.

7-1.01A(3) Payroll Records. Attention is directed to the requirements in Labor Code Section 1776, a portion of which is quoted below. Regulations implementing Labor Code Section 1776 are located in Sections 16016 through 16019 and Sections 16207.10 through 16207.19 of Title 8, California Code of Regulations.

(a) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct.

(2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.
(d) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

(e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in a manner so as to prevent disclosure of an individual's name, address and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated.

(f) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(g) The contractor or subcontractor shall have 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

The penalties specified in subdivision (g) of Labor Code Section 1776 for noncompliance with the requirements in Section 1776 may be deducted from any moneys due or which may become due to the Contractor.

A copy of all payrolls shall be submitted weekly to the Engineer. Payrolls shall contain the full name, address and social security number of each employee, the employee's correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. They shall also indicate apprentices and ratio of apprentices to journeymen. The employee's address and social security number need only appear on the first payroll on which that name appears. The payroll shall be accompanied by a "Statement of Compliance" signed by the employer or the employer's agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the contract. The "Statement of Compliance" shall be on forms furnished by the Department or on any form with identical wording. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

If by the 15th of the month, the Contractor has not submitted satisfactory payrolls for all work performed during the monthly period ending on or before the first of that month, the Department will retain an amount equal to 10 percent of the estimated value of the work performed (exclusive of Mobilization) during the month from the next monthly estimate, except that this retention shall not exceed $10,000 nor be less than $1,000. Retentions for failure to submit satisfactory payrolls shall be additional to all other retentions provided for in the contract. The retention for failure to submit payrolls for any monthly period will be released for payment on the monthly estimate for partial payments next following the date that all the satisfactory payrolls for which the retention was made are submitted.

The Contractor and each subcontractor shall preserve their payroll records for a period of 3 years from the date of completion of the contract.

7-1.01A(4) Labor Nondiscrimination. Attention is directed to Section 1735 of the Labor Code, which reads as follows:
"No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter."

Attention is directed to the following "Nondiscrimination Clause" that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

**“NONDISCRIMINATION CLAUSE**

1. During the performance of this contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code, Section 12990 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

2. This Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

**STANDARD CALIFORNIA NONDISCRIMINATION CONSTRUCTION CONTRACT SPECIFICATIONS (GOV. CODE, SECTION 12990).**

These specifications are applicable to all state contractors and subcontractors having a construction contract or subcontract of $5,000, or more.

1. As used in the specifications:

   a. "Administrator" means Administrator, Office of Compliance Programs, California Department of Fair Employment and Housing, or any person to whom the Administrator delegates authority;

   b. "Minority" includes:

      (i) Black (all persons having primary origins in any of the black racial groups of Africa, but not of Hispanic origin);

      (ii) Hispanic (all persons of primary culture or origin in Mexico, Puerto Rico, Cuba, Central or South America or other Spanish derived culture or origin regardless of race);

      (iii) Asian / Pacific Islander (all persons having primary origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands);

      and

      (iv) American Indian / Alaskan Native (all persons having primary origins in any of the original peoples of North America and who maintain culture identification through tribal affiliation or community recognition).
2. Whenever the contractor or any subcontractor subcontracts a portion of the work, it shall physically include in each subcontract of $5,000 or more the nondiscrimination clause in this contract directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California Construction Contract Specifications, either directly or through incorporation by reference.

3. The contractor shall implement the specific nondiscrimination standards provided in paragraph 6(a) through (e) of these specifications.

4. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Government Code, Section 12990, or the regulations promulgated pursuant thereto.

5. In order for the nonworking training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor or the California Department of Industrial Relations.

6. The contractor shall take specific actions to implement its nondiscrimination program. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor must be able to demonstrate fully its efforts under Steps a. through e. below:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and at all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Provide written notification within seven days to the director of DFEH when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   c. Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment and outreach programs and requesting their cooperation in assisting the Contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction work is performed.

   d. Ensure all personnel making management and employment decisions regarding hiring, assignment, layoff, termination, conditions of work, training, rates of pay or other employment decisions, including all supervisory personnel, superintendents, general foremen, on-site foremen, etc., are aware of the Contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.

   e. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and
employment related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out.

7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling their equal employment opportunity obligations. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's.

8. The Contractor is required to provide equal employment opportunity for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Fair Employment and Housing Act (Gov. Code, Section 12990 et seq.) if a particular group is employed in a substantially disparate manner.

9. Establishment and implementation of a bona fide affirmative action plan pursuant to Section 8104 (b) of this Chapter shall create a rebuttal presumption that a contractor is in compliance with the requirements of Section 12990 of the Government Code and its implementing regulations.

10. The Contractor shall not use the nondiscrimination standards to discriminate against any person because of race, color, religion, sex, national origin, ancestry, physical handicap, medical condition, marital status or age over 40.

11. The Contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to Government Code Section 12990.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Government Code Section 12990 and its implementing regulations by the awarding agency. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Government Code Section 12990.

13. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by OCP and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records. NOTE: Authority cited: Sections 12935(a) and 12990(d), Government Code. References: Section 12990, Government Code.

7-1.01A(5) Apprentices. Attention is directed to Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code and Title 8, California Code of Regulations Section 200 et seq. To ensure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, each contractor or subcontractor should, where some question exists, contact the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, CA 94102, or one of its branch offices prior to commencement of work on the public works contract. Responsibility for compliance with this section lies with the Contractor.
It is State policy to encourage the employment and training of apprentices on public works contracts as may be permitted under local apprenticeship standards.

**7-1.01A(6) Workers' Compensation.** Pursuant to the requirements in Section 1860 of the Labor Code, the Contractor will be required to secure the payment of workers' compensation to the Contractor's employees in conformance with the requirements in Section 3700 of the Labor Code.

Prior to the commencement of work, the Contractor shall sign and file with the Engineer a certification in the following form:

"I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

This certification is included in the contract, and signature and return of the contract shall constitute signing and filing of the certificate.

**7-1.01A(7) Suits to Recover Penalties and Forfeitures.** Attention is directed to Sections 1730 to 1733, inclusive, of the Labor Code concerning suits to recover amounts withheld from payment for failure to comply with requirements of the Labor Code or contract provisions based on those laws.

Those sections provide that a suit on the contract for alleged breach thereof in not making the payment is the exclusive remedy of the Contractor or the Contractor's assignees with reference to amounts withheld for those penalties or forfeitures; and that the suit must be commenced and actual notice thereof received by the awarding authority prior to 90 days after completion of the contract and the formal acceptance of the job.

Submission of a claim under Section 50-16, "Claims for Adjustment and Disputes," for the amounts withheld from payment for those penalties and forfeitures is not a prerequisite for those suits, and these claims will not be considered.

**7-1.01B Fair Labor Standards Act.** The attention of bidders is invited to the fact that the State of California, Department of Transportation, has been advised by the Wage and Hour Division, U.S. Department of Labor, that contractors engaged in highway construction work are required to meet the provisions of the Fair Labor Standards Act of 1938 and as amended (52 Stat. 1060).

**7-1.01C Contractor's Licensing Laws.** Attention is directed to the provisions of Chapter 9 of Division 3 of the Business and Professions Code concerning the licensing of contractors.

All bidders and contractors shall be licensed in accordance with the laws of this State and any bidder or contractor not so licensed is subject to the penalties imposed by those laws.

Attention is also directed to the requirements in Public Contract Code Section 10164. In all projects where Federal funds are involved, the Contractor shall be properly licensed at the time the contract is awarded.

**7-1.01D Vehicle Code.** Pursuant to the authority contained in Vehicle Code Section 591, the Department has determined that within those areas that are within the limits of the project and are open to public traffic, the Contractor shall comply with all the requirements set forth in Divisions 11, 12, 13, 14 and 15 of the Vehicle Code.

Attention is directed to the statement in Vehicle Code Section 591 that this section shall not relieve the Contractor or any person from the duty of exercising due care. The Contractor shall take all necessary precautions for safe operation of the Contractor's equipment and the protection of the public from injury and damage from the Contractor's equipment.
7-1.01E Trench Safety. Attention is directed to the requirements in Section 6705 of the Labor Code concerning trench excavation safety plans.

7-1.01F Air Pollution Control. The Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 11017 of the Government Code.

Unless otherwise provided in the special provisions, material to be disposed of shall not be burned, either inside or outside the highway right of way.

7-1.01G Water Pollution. The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, bays, and coastal waters from pollution with fuels, oils, bitumens, calcium chloride and other harmful materials and shall conduct and schedule operations so as to avoid or minimize muddying and silting of streams, lakes, reservoirs, bays and coastal waters. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

Water pollution control work is intended to provide prevention, control and abatement of water pollution to streams, waterways and other bodies of water, and shall consist of constructing those facilities which may be shown on the plans, specified herein or in the special provisions, or directed by the Engineer.

In order to provide effective and continuous control of water pollution it may be necessary for the Contractor to perform the contract work in small or multiple units, on an out of phase schedule, and with modified construction procedures. The Contractor shall provide temporary water pollution control measures, including but not limited to, dikes, basins, ditches, and applying straw and seed, which become necessary as a result of the Contractor's operations. The Contractor shall coordinate water pollution control work with all other work done on the contract.

Before starting any work on the project, the Contractor shall submit, for acceptance by the Engineer, a program to control water pollution effectively during construction of the project. The program shall show the schedule for the erosion control work included in the contract and for all water pollution control measures which the Contractor proposes to take in connection with construction of the project to minimize the effects of the operations upon adjacent streams and other bodies of water. The Contractor shall not perform any clearing and grubbing or earthwork on the project, other than that specifically authorized in writing by the Engineer, until the program has been accepted.

If the measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may direct the Contractor to revise the operations and the water pollution control program. The directions will be in writing and will specify the items of work for which the Contractor's water pollution control measures are inadequate. No further work shall be performed on those items until the water pollution control measures are adequate and, if also required, a revised water pollution control program has been accepted.

The Engineer will notify the Contractor of the acceptance or rejection of any submitted or revised water pollution control program in not more than 5 working days.

The State will not be liable to the Contractor for failure to accept all or any portion of an originally submitted or revised water pollution control program, nor for any delays to the work due to the Contractor's failure to submit an acceptable water pollution control program.

The Contractor may request the Engineer to waive the requirement for submission of a written program for control of water pollution when the nature of the Contractor's operation is such that erosion is not likely to occur. Waiver of this requirement will not relieve the Contractor from responsibility for compliance with the other provisions of this section. Waiver of the requirement for a written program for control of water pollution will not preclude requiring submittal of a written program at a later time if the Engineer deems it necessary because of the effect of the Contractor's operations.
Unless otherwise approved by the Engineer in writing, the Contractor shall not expose a total area of erosible earth material, which may cause water pollution, exceeding 750,000 square feet for each separate location, operation or spread of equipment before either temporary or permanent erosion control measures are accomplished.

Where erosion which will cause water pollution is probable due to the nature of the material or the season of the year, the Contractor's operations shall be so scheduled that permanent erosion control features will be installed concurrently with or immediately following grading operations.

Nothing in the terms of the contract nor in the provisions in this Section 7-1.01G shall relieve the Contractor of the responsibility for compliance with Sections 5650 and 12015 of the Fish and Game Code, or other applicable statutes relating to prevention or abatement of water pollution.

When borrow material is obtained from other than commercially operated sources, erosion of the borrow site during and after completion of the work shall not result in water pollution. The material source shall be finished, where practicable, so that water will not collect or stand therein.

The requirements of this section shall apply to all work performed under the contract and to all non-commercially operated borrow or disposal sites used for the project.

The Contractor shall also conform to the following provisions:

1. Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams, and during construction of the barriers, muddying of streams shall be held to a minimum.

2. Removal of material from beneath a flowing stream shall not be commenced until adequate means, such as a bypass channel, are provided to carry the stream free from mud or silt around the removal operations.

3. Should the Contractor's operations require transportation of materials across live streams, the operations shall be conducted without muddying the stream. Mechanized equipment shall not be operated in the stream channels of the live streams except as may be necessary to construct crossings or barriers and fills at channel changes.

4. Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, adequate to prevent muddy water from entering live streams.

5. Oily or greasy substances originating from the Contractor's operations shall not be allowed to enter or be placed where they will later enter a live stream.

6. Portland cement or fresh portland cement concrete shall not be allowed to enter flowing water of streams.

7. When operations are completed, the flow of streams shall be returned as nearly as possible to a meandering thread without creating possible future bank erosion, and settling pond sites shall be graded so they will drain and will blend in with the surrounding terrain.

8. Material derived from roadway work shall not be deposited in a live stream channel where it could be washed away by high stream flows.

9. Where there is possible migration of anadromous fish in streams affected by construction on the project, the Contractor shall conduct work operations so as to allow free passage of the migratory fish.
Compliance with the provisions in this section shall in no way relieve the Contractor from the responsibility to comply with the other provisions of the contract, in particular the responsibility for damage and for preservation of property.

Full compensation for conforming to the provisions in this section shall be considered as included in the prices paid for the various items of work and no additional compensation will be allowed therefor.

7-1.01H Use of Pesticides. The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations and all other agencies which govern the use of pesticides required in the performance of the work on the contract.

Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants and repellents.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered a pesticide.

7-1.01I Sound Control Requirements. The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

7-1.01J Assignment of Antitrust Actions. The Contractor's attention is directed to the following requirements in Public Contract Code 7103.5 and Government Code Sections 4553 and 4554, which shall be applicable to the Contractor and the Contractor's subcontractors:

"In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties.

"If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

“Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.”

7-1.02 LOAD LIMITATIONS. Unless expressly permitted in the special provisions, construction equipment or vehicles of any kind which, laden or unladen, exceed the maximum weight limitations set forth in Division 15 of the Vehicle Code, shall not be operated over completed or existing treated bases, surfacing, pavement or structures in any areas within the limits of the project, whether or not the area is subject to weight limitations under Section 7-1.01D, "Vehicle Code,” except as hereinafter provided in this Section 7-1.02.
After application of the curing seal, no traffic or Contractor's equipment will be permitted on cement treated base or lean concrete base for a period of 72 hours. After 72 hours, traffic and equipment operated on the base shall be limited to that used in paving operations and placing additional layers of cement treated base. No traffic or Contractor's equipment will be permitted on treated permeable base except for that equipment required to place the permeable base and the subsequent layer of pavement. Trucks used to haul treated base, Portland cement concrete, or asphalt concrete shall enter onto the base to dump at the nearest practical entry point ahead of spreading equipment. Empty haul trucks shall exit from the base at the nearest practical exit point. Entry and exit points shall not be more than 1,000 feet ahead of spreading equipment except in locations where specifications prohibit operation of trucks outside the area occupied by the base or where steep slopes or other conditions preclude safe operation of hauling equipment. In those locations, entry and exit points shall be established at the nearest point ahead of spreading equipment permitted by specifications and allowing safe operation of hauling equipment. Damage to curing seal or base shall be repaired promptly by the Contractor, at the Contractor's expense, as directed by the Engineer.

Within the limits of the project and subject to the control of the Engineer, and provided that the Contractor, at the Contractor's expense, shall provide such protective measures as are deemed necessary by the Engineer and shall repair any damage caused by the operations, the Contractor will be permitted to:

(1) Make transverse crossings of those portions of an existing public road or street that are within the highway right of way, with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code.

(2) Make transverse crossings of treated bases, surfacing or pavement which are under construction or which have been completed, with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code.

(3) Cross bridge structures that are not open to public traffic and which are designed for HS20-44 Live Loading (culverts and pipes excluded), with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code, but not exceeding the load limitations hereinafter specified, provided that the Contractor furnishes to the Engineer the dimensions and maximum axle loadings of equipment proposed for use on bridge structures:

(a) The maximum loading on bridge structures due to pneumatic-tired truck and trailer combinations shall not exceed (1) 28,000 pounds for single axles, (2) 48,000 pounds for tandem axles, nor (3) 60,000 pounds total gross load for single vehicles or 110,000 pounds total gross load for truck and trailer or semi-trailer combinations.

(b) The loading on bridge structures due to 2 and 3 axle pneumatic-tired earthmovers shall not exceed that shown in the following table.

<table>
<thead>
<tr>
<th>Spacing of Bridge Girders (center to center in feet)</th>
<th>Maximum Axle Loading (in pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>28,000</td>
</tr>
<tr>
<td>5</td>
<td>29,000</td>
</tr>
<tr>
<td>6</td>
<td>30,000</td>
</tr>
<tr>
<td>7</td>
<td>32,000</td>
</tr>
<tr>
<td>8</td>
<td>34,000</td>
</tr>
</tbody>
</table>
Minimum axle spacing:
For 3-axle earthmovers
Axles 1 to 2 = 8 feet
Axles 2 to 3 = 20 feet
For 2-axle earthmovers
Axles 1 to 2 = 20 feet

(4) Move equipment within the limits of the project over completed or existing base, surfacing, pavement and structures, whether or not open to the public, in accordance with the limitations and conditions in the "Permit Policy" of the Department of Transportation.

Within the limits of the project and subject to the condition that the Contractor shall repair, at the Contractor's expense, any damage caused thereby, the Contractor will be permitted to cross culverts and pipes with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code in accordance with the conditions set forth on the plans. If the conditions are not set forth on the plans, the provisions in the first paragraph in this Section 7-1.02 will apply.

Should the Contractor desire to increase the load carrying capacity of a structure or structures which are to be constructed as a part of the contract, in order to facilitate the Contractor's own operations, the Contractor may request the Engineer to consider redesigning the structure or structures. Proposals by the Contractor to increase the load carrying capacity of structures above 130,000 pounds per single axle or pair of axles less than 8 feet apart, or above 330,000 pounds total gross vehicle weight, will not be approved. The request shall include a description of the structure or structures involved and a detailed description of the overloads to be carried, the date the revised plans would be required, and a statement that the Contractor agrees to pay all costs involved in the strengthening of the structure or structures, including the cost of revised plans, and further that the Contractor agrees that no extension of time will be allowed by reason of any delay to the work which may be due to the alteration of the structure or structures. If the Engineer determines that strengthening the structure or structures will be permitted, the Engineer will inform the Contractor of the estimated cost of the alterations, including engineering, and the date that revised plans could be furnished. If the cost and date are satisfactory to the Contractor, the Engineer will prepare a change order providing for the agreed upon alterations.

7-1.03 PAYMENT OF TAXES. The contract prices paid for the work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State or local government, including, without being limited to, Federal excise tax. No tax exemption certificate nor any document designed to exempt the Contractor from payment of any tax will be furnished to the Contractor by the Department, as to any tax on labor, services, materials, transportation, or any other items furnished pursuant to the contract.

7-1.04 PERMITS AND LICENSES. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work.

The Environmental Quality Act (Public Resources Code, Sections 21000 to 21176, inclusive) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of those statutes in obtaining the permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays to the work.

In the event that the Department has obtained permits, licenses or other authorizations, applicable to the work, in conformance with the requirements in the Environmental Quality Act, the Contractor shall comply with the provisions of those permits, licenses and other authorizations.

7-1.05 PATENTS. The Contractor shall assume all costs arising from the use of patented materials, equipment, devices or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State
of California, the Director, the Engineer, and their duly authorized representatives, from all suits at law, or actions of every nature for, or on account of the use of any patented materials, equipment, devices or processes.

**7-1.06 SAFETY AND HEALTH PROVISIONS.** The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations and orders established by the State of California. Working areas utilized by the Contractor to perform work during the hours of darkness, shall be lighted to conform to the minimum illumination intensities established by California Division of Occupational Safety and Health Construction Safety Orders.

All lighting fixtures shall be mounted and directed in a manner precluding glare to approaching traffic.

Full compensation for conforming to the provisions in this section shall be considered as included in the contract prices paid for the various items of work involved and no separate payment will be made therefor.

**7-1.07 (BLANK)**

**7-1.08 PUBLIC CONVENIENCE.** This Section 7-1.08 defines the Contractor's responsibility with regard to convenience of the public and public traffic in connection with the Contractor's operations.

Attention is directed to Section 7-1.09, "Public Safety," for provisions relating to the Contractor's responsibility for the safety of the public. The provisions in Section 7-1.09 are in addition to the provisions in this Section 7-1.08, and the Contractor will not be relieved of the responsibilities as set forth in Section 7-1.09 by reason of conformance with any of the provisions in this Section 7-1.08.

The Contractor shall so conduct operations as to offer the least possible obstruction and inconvenience to the public and shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public.

Unless otherwise provided in the special provisions, all public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible. Where possible, public traffic shall be routed on new or existing paved surfaces.

Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor at the Contractor's expense.

Existing traffic signals and highway lighting shall be kept in operation for the benefit of the traveling public during progress of the work, and other forces will continue routine maintenance of existing systems.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners.

Convenient access to driveways, houses, and buildings along the line of the work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition. When the abutting property owner's access across the right of way line is to be eliminated, or to be replaced under the contract by other access facilities, the existing access shall not be closed until the replacement access facilities are usable.

Roadway excavation and the construction of embankments shall be conducted in such a manner as to provide a reasonably smooth and even surface satisfactory for use by public traffic at all times; sufficient fill at culverts and bridges to permit traffic to cross shall be placed in advance of other grading operations; and if ordered by the Engineer roadway cuts shall be excavated in lifts and embankments constructed part width at a time, construction being alternated from one side to the other and traffic routed over the side opposite the one under construction. Culvert installation or culvert construction shall be conducted on but one-half the width of the traveled way at a time, and that portion of the traveled way being used by public traffic shall be kept open and unobstructed until the opposite side of the traveled way is ready for use by traffic.
Upon completion of rough grading at the grading plane, or placing any subsequent layer thereon, the surface of the roadbed shall be brought to a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic.

After the surface of the roadbed has been brought to a smooth and even condition for the passage of public traffic as above provided, any work ordered by the Engineer for the accommodation of public traffic prior to commencing subgrade operations will be paid for as extra work as provided in the provision set forth in this Contract. After subgrade preparation for a specified layer of material has been completed, the Contractor shall, at the Contractor's expense, repair any damage to the roadbed or completed subgrade, including damage caused by the Contractor's operations or use by public traffic.

While subgrade and paving operations are underway, public traffic shall be permitted to use the shoulders and, if half-width paving methods are used, shall also be permitted to use the side of the roadbed opposite the one under construction. When sufficient width is available, a passageway wide enough to accommodate at least 2 lanes of traffic shall be kept open at locations where subgrade and paving operations are in active progress. Any shaping of shoulders or reshaping of subgrade necessary for the accommodation of public traffic thereon during subgrade preparation and paving operations will be paid for as extra work as provided in the provisions set forth in this Contract.

When ordered by the Engineer, the Contractor shall furnish a pilot car and driver and flaggers for the purpose of expediting the passage of public traffic through the work under one-way controls, and the cost thereof will be paid for as extra work as provided in the provisions set forth in this Contract. At locations where traffic is being routed through construction under one-way controls and when ordered by the Engineer, the movement of the Contractor's equipment from one portion of the work to another shall be governed in accordance with the one-way controls.

Water or dust palliative shall be applied if ordered by the Engineer for the alleviation or prevention of dust nuisance as provided in the provisions set forth in this Contract.

In order to expedite the passage of public traffic through or around the work and where ordered by the Engineer, the Contractor shall install signs, lights, flares, temporary railing (Type K), barricades and other facilities for the sole convenience and direction of public traffic. Also where directed by the Engineer, the Contractor shall furnish competent flaggers whose sole duties shall consist of directing the movement of public traffic through or around the work. The cost of furnishing and installing the signs, lights, flares, temporary railing (Type K), barricades, and other facilities, not to be paid for as separate contract items, will be paid for as extra work as provided in the provisions set forth in this Contract.

The cost of furnishing flaggers for the sole convenience and direction of public traffic will be paid for as provided in the provisions set forth in this Contract.

The Contractor will be required to pay the cost of replacing or repairing all facilities installed under extra work for the convenience or direction or warning of public traffic that are lost while in the Contractor's custody, or are damaged by reason of the Contractor's operations to such an extent as to require replacement or repair, and deductions from any moneys due or to become due the Contractor will be made to cover the cost.

Whenever a section of surfacing, pavement or the deck of a structure has been completed, the Contractor shall open it to use by public traffic if the Engineer so orders or may open it to use by public traffic if the Engineer so consents. In either case the Contractor will not be allowed any compensation due to any delay, hindrance or inconvenience to the Contractor's operations caused by public traffic, but will thereupon be relieved of responsibility for damage to completed permanent facilities caused by public traffic, within the limits of that use. The Contractor will not be relieved of any other responsibility under the contract nor will the Contractor be relieved of cleanup and finishing operations.

Except as otherwise provided in this Section 7-1.08 or in the special provisions, full compensation for conforming to the provisions in this Section 7-1.08 shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.
7-1.09 PUBLIC SAFETY. It is the Contractor's responsibility to provide for the safety of traffic and the public during construction.

Attention is directed to Section 7-1.12, "Indemnification and Insurance."

Attention is directed to Section 7-1.08, "Public Convenience," for provisions relating to the Contractor's responsibility for providing for the convenience of the public in connection with the Contractor's operations.

Whenever the Contractor's operations create a condition hazardous to traffic or to the public, the Contractor shall, at the Contractor's expense and without cost to the State, furnish, erect and maintain those fences, temporary railing (Type K), barricades, lights, signs and other devices and take such other protective measures that are necessary to prevent accidents or damage or injury to the public.

The Contractor shall also furnish such flaggers as are necessary to give adequate warning to traffic or to the public of any dangerous conditions to be encountered, and payment therefor will be made as provided in the provisions set forth in this Contract.

Signs, lights, flags, and other warning and safety devices and their use shall conform to the requirements set forth in Part 6 of the MUTCD and of the MUTCD California Supplement. Signs or other protective devices furnished and erected by the Contractor, at the Contractor's expense, as above provided, shall not obscure the visibility of, nor conflict in intent, meaning and function of either existing signs, lights and traffic control devices or any construction area signs and traffic control devices for which furnishing of, or payment for, is provided elsewhere in the specifications. Signs furnished and erected by the Contractor, at the Contractor's expense, shall be approved by the Engineer as to size, wording and location.

The installation of general roadway illumination shall not relieve the Contractor of the responsibility for furnishing and maintaining any of the protective facilities herein before specified.

Construction equipment shall enter and leave the highway via existing ramps and crossovers and shall move in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic shall be performed in a manner that will not endanger public traffic.

The Contractor's trucks or other mobile equipment which leave a freeway lane, that is open to public traffic, to enter the construction area, shall slow down gradually in advance of the location of the turnoff to give following public traffic an opportunity to slow down.

When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

No material or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each day's work and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from that portion of the roadway open for use by public traffic.

Temporary facilities which the Contractor uses to perform the work shall not be installed or placed where they will interfere with the free and safe passage of public traffic.

Temporary facilities which could be a hazard to public safety if improperly designed shall comply with design requirements specified in the contract for those facilities or, if none are specified, with standard design criteria or codes appropriate for the facility involved. Working drawings and design calculations for the temporary facilities shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California and shall be submitted to the Engineer for approval pursuant to the provisions set forth in this Contract. The submittals shall designate thereon the standard design criteria or codes used. Installation of the temporary facilities shall not start until the Engineer has reviewed and approved the drawings.

Should the Contractor appear to be neglectful or negligent in furnishing warning devices and taking protective measures as above provided, the Engineer may direct attention to the existence of a hazard and the necessary
warning devices shall be furnished and installed and protective measures taken by the Contractor at the Contractor's expense. Should the Engineer point out the inadequacy of warning devices and protective measures, that action on the part of the Engineer shall not relieve the Contractor from responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Provision for the payment for signs, lights, flares, temporary railing (Type K), barricades, and other facilities by extra work as provided in Section 7-1.08, "Public Convenience," or by contract item as provided in the provisions set forth in this Contract shall in nowise relieve the Contractor from the responsibility as provided in this Section 7-1.09.

Except as otherwise provided in this Section 7-1.09 or in the special provisions, full compensation for conforming to all of the provisions in this Section 7-1.09 shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

7-1.10 USE OF EXPLOSIVES. When explosives are used, the Contractor shall exercise the utmost care not to endanger life or property.

In advance of doing any blasting work within 200 feet of any railroad's tracks or structures, the Contractor shall notify the railroad of the location, date, time and approximate duration of the blasting operations.

7-1.11 PRESERVATION OF PROPERTY. Due care shall be exercised to avoid injury to existing highway improvements or facilities, utility facilities, adjacent property, and roadside trees, shrubs and other plants that are not to be removed.

Roadside trees, shrubs and other plants that are not to be removed, and pole lines, fences, signs, markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and water lines, all highway facilities and any other improvements or facilities within or adjacent to the highway shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards, approved by the Engineer, to protect the objects from injury or damage. If the objects are injured or damaged by reason of the Contractor's operations, the objects shall be replaced or restored at the Contractor's expense. The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the work, or as good as required by the specifications accompanying the contract, if any of the objects are a part of the work being performed under the contract. The Engineer may make or cause to be made those temporary repairs that are necessary to restore to service any damaged highway facility. The cost of the repairs shall be borne by the Contractor and may be deducted from any moneys due or to become due to the Contractor under the contract.

It shall be the Contractor's responsibility, pursuant to the provisions set forth in this Contract, to ascertain the location of those underground improvements or facilities which may be subject to damage by reason of the Contractor's operations.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in protecting or repairing property as specified in this Section 7-1.11, shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

END OF SECTION 70
Equal Employment Opportunity is
THE LAW

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, employment agencies, and labor organizations are protected under Federal law from discrimination on the following bases.

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN
Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITIES
Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who’s is an applicant or employee, barring undue hardship.

AGE
The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)
In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in payment of wages to women and men performing substantially equal work jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS
Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETRALIATION
All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED
There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected:
The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (toll-free) or 1-800-669-6820 (toll-free TTY number for individuals with hearing impairments). EEOC field office information is available at www.eeoc.gov or in most telephone directories in the U.S. Government or Federal Government section.
Additional information about EEOC, including information about charge filing, is available at www.eeoc.gov.
Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract, are protected under Federal law from discrimination on the following bases.

**RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN**
Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

**INDIVIDUALS WITH DISABILITIES**
Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

**DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS**
The Vietnam Era Veterans’ Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

**RETALIATION**
Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:
The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at OFCCP-Public@dol.gov, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

**RACE, COLOR, NATIONAL ORIGIN, SEX**
In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

**INDIVIDUALS WITH DISABILITIES**
Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any institution which receives Federal financial assistance, you should immediately contact the Federal agency providing such assistance.

EEOC 9/02 and OFCCP 8/08 Versions Useable with 11/09 Supplement
FEDERAL WAGE RATES
GENERAL DECISION: CA20100029 03/18/2011 CA29

Date: March 18, 2011
General Decision Number: CA20100029 03/18/2011

Superseded General Decision Number: CA20080029

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway


BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

<table>
<thead>
<tr>
<th>Modification Number</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>03/12/2010</td>
</tr>
<tr>
<td>1</td>
<td>03/19/2010</td>
</tr>
<tr>
<td>2</td>
<td>04/02/2010</td>
</tr>
<tr>
<td>3</td>
<td>05/28/2010</td>
</tr>
<tr>
<td>4</td>
<td>06/11/2010</td>
</tr>
<tr>
<td>5</td>
<td>06/25/2010</td>
</tr>
<tr>
<td>6</td>
<td>07/02/2010</td>
</tr>
<tr>
<td>7</td>
<td>07/09/2010</td>
</tr>
<tr>
<td>8</td>
<td>08/13/2010</td>
</tr>
<tr>
<td>9</td>
<td>08/20/2010</td>
</tr>
<tr>
<td>10</td>
<td>08/27/2010</td>
</tr>
<tr>
<td>11</td>
<td>09/03/2010</td>
</tr>
<tr>
<td>12</td>
<td>09/10/2010</td>
</tr>
<tr>
<td>13</td>
<td>10/08/2010</td>
</tr>
<tr>
<td>14</td>
<td>10/15/2010</td>
</tr>
<tr>
<td>15</td>
<td>10/29/2010</td>
</tr>
<tr>
<td>16</td>
<td>11/19/2010</td>
</tr>
<tr>
<td>17</td>
<td>12/03/2010</td>
</tr>
<tr>
<td>18</td>
<td>01/21/2011</td>
</tr>
<tr>
<td>19</td>
<td>01/28/2011</td>
</tr>
<tr>
<td>20</td>
<td>02/11/2011</td>
</tr>
<tr>
<td>21</td>
<td>02/18/2011</td>
</tr>
<tr>
<td>22</td>
<td>03/18/2011</td>
</tr>
</tbody>
</table>

ASBE0016-001 01/01/2010

AREA 1: ALAMEDA, CONTRA COSTA, LAKE, MARIN, MENDOCINO, MONTEREY, NAPA, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, & SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LASSEN, MADERA, MARIPOSA, MERCED, MODOC, MONO, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN JOAQUIN, SHASTA, SIERRA, SISKIYOU, STANISLAU,
<table>
<thead>
<tr>
<th>County</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUTTER, TEHEMA, TRINITY, TULARE, TUOLUMNE, YOLO, &amp; YUBA COUNTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asbestos Workers/Insulator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area 1</td>
<td>$50.43</td>
<td>16.66</td>
</tr>
<tr>
<td>Area 2</td>
<td>$39.78</td>
<td>16.66</td>
</tr>
</tbody>
</table>

| **ASBE0016-004 01/01/2010** |        |         |
| Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not) | $15.18 | 2.80 |

| **BOIL0549-001 01/01/2009** |        |         |
| **AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES** |        |         |
| **AREA 2: REMAINING COUNTIES** |        |         |
| **BOILERMAKER** |        |         |
| Area 1 | $40.17 | 22.32   |
| Area 2 | $37.01 | 22.25   |

| **BRCA0003-001 08/01/2008** |        |         |
| **MARBLE FINISHER** | $28.02 | 12.12   |

| **BRCA0003-003 08/01/2008** |        |         |
| **MARBLE MASON** | $39.22 | 18.58   |

| **BRCA0003-005 05/01/2010** |        |         |
### BRICKLAYER

<table>
<thead>
<tr>
<th>Area</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 1) Fresno, Kings, Madera, Mariposa, Merced</td>
<td>$32.96</td>
<td>18.59</td>
</tr>
<tr>
<td>( 7) San Francisco, San Mateo</td>
<td>$39.10</td>
<td>20.97</td>
</tr>
<tr>
<td>( 8) Alameda, Contra Costa, San Benito, Santa Clara</td>
<td>$38.38</td>
<td>19.17</td>
</tr>
<tr>
<td>( 9) Calaveras, San Joaquin, Stanislaus, Tuolumne</td>
<td>$33.86</td>
<td>18.24</td>
</tr>
<tr>
<td>(16) Monterey, Santa Cruz</td>
<td>$34.91</td>
<td>21.42</td>
</tr>
</tbody>
</table>

---

### TERRAZZO FINISHER

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30.30</td>
<td>13.77</td>
</tr>
</tbody>
</table>

### TERRAZZO WORKER/SETTER

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$39.30</td>
<td>21.20</td>
</tr>
</tbody>
</table>

---

### CARP0022-001 07/01/2010

### San Francisco County

#### Carpenters

<table>
<thead>
<tr>
<th>Position</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$37.65</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$37.60</td>
<td>24.73</td>
</tr>
</tbody>
</table>
CARP0034-001 07/01/2009

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diver</td>
<td></td>
</tr>
<tr>
<td>Assistant Tender, ROV</td>
<td>$35.75</td>
</tr>
<tr>
<td>Tender/Technician ....</td>
<td>$35.75</td>
</tr>
<tr>
<td>Diver standby ........</td>
<td>$40.33</td>
</tr>
<tr>
<td>Diver Tender ...........</td>
<td>$39.33</td>
</tr>
<tr>
<td>Diver wet ................</td>
<td>$80.66</td>
</tr>
<tr>
<td>Manifold Operator (mixed gas)</td>
<td>$44.33</td>
</tr>
<tr>
<td>Manifold Operator (Standby)</td>
<td>$39.33</td>
</tr>
</tbody>
</table>

DEPTH PAY (Surface Diving):
- 050 to 100 ft $2.00 per foot
- 101 to 150 ft $3.00 per foot
- 151 to 220 ft $4.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

----------------------------------------------------------------
CARP0034-003 07/01/2010

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piledriver</td>
<td>$36.75</td>
</tr>
<tr>
<td>Piledriver</td>
<td>43.68</td>
</tr>
</tbody>
</table>

----------------------------------------------------------------
CARP0035-007 07/01/2010

AREA 1: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara counties

AREA 2: Monterey, San Benito, Santa Cruz Counties

AREA 3: Calaveras, Fresno, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tuolumne Counties
Modular Furniture Installer

Area 1
Installer I...................$ 22.11 14.98
Installer II.................$ 18.68 14.98
Lead Installer...............$ 25.56 15.48
Master Installer.............$ 29.78 15.48

Area 2
Installer I...................$ 19.46 14.98
Installer II.................$ 16.51 14.89
Lead Installer...............$ 22.43 15.48
Master Installer.............$ 26.06 15.48

Area 3
Installer I...................$ 18.51 14.98
Installer II.................$ 15.74 14.98
Lead Installer...............$ 21.31 15.48
Master Installer.............$ 24.73 15.48

Drywall Installers/Lathers:
Area 1......................$ 37.50 22.02
Area 2......................$ 31.62 22.02
Area 4......................$ 30.77 22.02

Drywall Stocker/Scrapper
Area 1......................$ 18.75 12.88
Area 2......................$ 15.81 12.88
Area 4......................$ 15.39 12.88

Carpenters
Bridge Builder/Highway
Carpenter....................$ 37.50 23.14
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.........................$ 37.65 23.14
Journeyman Carpenter........$ 37.50 23.14
Millwright...................$ 37.60 24.73
## San Joaquin County

<table>
<thead>
<tr>
<th>Carpenters</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$31.32</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$31.17</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$33.67</td>
<td>24.73</td>
</tr>
</tbody>
</table>

## Calaveras, Mariposa, Merced, Stanislaus and Tuolumne Counties

<table>
<thead>
<tr>
<th>Carpenters</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$30.42</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$30.27</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$32.77</td>
<td>24.73</td>
</tr>
</tbody>
</table>

## San Mateo County

<table>
<thead>
<tr>
<th>Carpenters</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$37.65</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$37.60</td>
<td>24.73</td>
</tr>
</tbody>
</table>

## Santa Clara County

<table>
<thead>
<tr>
<th>Carpenters</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$37.65</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$37.60</td>
<td>24.73</td>
</tr>
<tr>
<td></td>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>------------------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Carpenters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$37.65</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$37.60</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP0405-002 07/01/2010

San Benito County

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$31.77</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$31.62</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$34.12</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP0505-001 07/01/2010

Santa Cruz County

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$31.77</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$31.62</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$34.12</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP0605-001 07/01/2010

Monterey County

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$31.77</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$31.62</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$34.12</td>
<td>24.73</td>
</tr>
<tr>
<td>Carpenter Position</td>
<td>Rate</td>
<td>Fringe</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Steel Shoring Erector, Saw</td>
<td>$ 31.77</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$ 31.62</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$ 34.12</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP0701-001 07/01/2010

Fresno and Madera Counties

<table>
<thead>
<tr>
<th>Carpenter Position</th>
<th>Rate</th>
<th>Fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$ 37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$ 30.42</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$ 30.27</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$ 32.77</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP0713-001 07/01/2010

Alameda County

<table>
<thead>
<tr>
<th>Carpenter Position</th>
<th>Rate</th>
<th>Fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$ 37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$ 37.65</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$ 37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$ 37.60</td>
<td>24.73</td>
</tr>
</tbody>
</table>

CARP1109-001 07/01/2010

Kings County

<table>
<thead>
<tr>
<th>Carpenter Position</th>
<th>Rate</th>
<th>Fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Builder/Highway Carpenter</td>
<td>$ 37.50</td>
<td>23.14</td>
</tr>
<tr>
<td>Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &amp; Steel Shoring Erector, Saw Filer</td>
<td>$ 30.42</td>
<td>23.14</td>
</tr>
<tr>
<td>Journeyman Carpenter</td>
<td>$ 30.27</td>
<td>23.14</td>
</tr>
<tr>
<td>Millwright</td>
<td>$ 32.77</td>
<td>24.73</td>
</tr>
</tbody>
</table>

ELEC0006-001 12/01/2008
ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, AND SANTA CRUZ COUNTIES

Rates Fringes

Sound & Communications
Installer..........................$ 29.87 3%+11.95
Technician..........................$ 34.01 3%+11.95

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

SAN FRANCISCO COUNTY

Rates Fringes

ELECTRICIAN.........................$ 53.05 22.69

----

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES

Rates Fringes

Communications System
Installer..........................$ 23.47 3%+10.65
Technician..........................$ 26.72 3%+10.65

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed
in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

---

ELEC0100-002 12/01/2010

FRESNO, KINGS, AND MADERA COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICIAN......................$ 32.85</td>
<td>3%+15.25</td>
</tr>
</tbody>
</table>

---

ELEC0100-005 12/01/2009

FRESNO, KINGS, MADERA

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications System Installer...................$ 26.29</td>
<td>12.14</td>
</tr>
<tr>
<td>Technician..................$ 29.93</td>
<td>12.25</td>
</tr>
</tbody>
</table>

SCOPE OF WORK
Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS
Background foreground music, Intercom and telephone interconnect systems, Telephone systems Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage, master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide,

B. FIRE ALARM SYSTEMS Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and
surveillance systems  Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems, Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems, Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems, VSAT Data Systems Data Communication Systems RF and Remote Control Systems, Fiber Optic Data Systems

WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICIAN.......................$ 41.20</td>
<td>21.49</td>
</tr>
</tbody>
</table>

CONTRA COSTA COUNTY

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABLE SPLICER...................$ 52.49</td>
<td>3%+20.15</td>
</tr>
<tr>
<td>ELECTRICIAN......................$ 46.21</td>
<td>3%+20.15</td>
</tr>
</tbody>
</table>

SANTA CLARA COUNTY

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABLE SPLICER...................$ 54.71</td>
<td>26.67</td>
</tr>
<tr>
<td>ELECTRICIAN......................$ 47.57</td>
<td>26.46</td>
</tr>
</tbody>
</table>
FOOTNOTES: Work under compressed air or where gas masks are required, or work on ladders, scaffolds, stacks, "Bosun's chairs," or other structures and where the workers are not protected by permanent guard rails at a distance of 40 to 60 ft. from the ground or supporting structures: to be paid one and one-half times the straight-time rate of pay. Work on structures of 60 ft. or over (as described above): to be paid twice the straight-time rate of pay.

---

### ALAMEDA COUNTY

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABLE SPLICER</td>
<td>$ 50.06</td>
<td>23.67+3%</td>
</tr>
<tr>
<td>ELECTRICIAN</td>
<td>$ 44.50</td>
<td>23.67+3%</td>
</tr>
</tbody>
</table>

---

### CALAVERAS AND SAN JOAQUIN COUNTIES

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CABLE SPLICER</td>
<td>$ 37.13</td>
<td>7.5%+20.39</td>
</tr>
<tr>
<td>ELECTRICIAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Tunnel work</td>
<td>$ 34.65</td>
<td>7.5%+20.39</td>
</tr>
<tr>
<td>(2) All other work</td>
<td>$ 33.00</td>
<td>7.5%+20.39</td>
</tr>
</tbody>
</table>

---

### SAN MATEO COUNTY

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICIAN</td>
<td>$ 50.00</td>
<td>22.33</td>
</tr>
</tbody>
</table>

---

### MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICIAN</td>
<td>$ 34.60</td>
<td>3%+16.90</td>
</tr>
<tr>
<td>CABLE SPLICER</td>
<td>110% of Journeyman Electrician</td>
<td></td>
</tr>
</tbody>
</table>

---

### LINE CONSTRUCTION

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Lineman; Cable splicer</td>
<td>$ 46.14</td>
<td>13.41</td>
</tr>
<tr>
<td>(2) Equipment specialist (operates crawler tractors, commercial motor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment) ................ $ 36.85 12.36
(3) Groundman ................ $ 28.19 12.10
(4) Powderman ............... $ 41.20 12.53


-----------------------------------

ELEVATOR MECHANIC ................ $ 54.89 20.035

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.

----------------------------------------------------------------

ENGI0003-008 07/01/2009

Dredging: (DREDGING:
CLAMSHELL & DIPPER DREDGING;
HYDRAULIC SUCTION DREDGING:)

AREA 1:
(1) Leverman ............... $ 38.94 22.58
(2) Dredge Dozer; Heavy duty repairman ............... $ 33.98 22.58
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator ....................... $ 32.86 22.58
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler .. $ 29.56 22.58

AREA 2:
(1) Leverman ............... $ 40.94 22.58
(2) Dredge Dozer; Heavy duty repairman ............... $ 35.98 22.58
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator ....................... $ 34.86 22.58
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler .. $ 31.56 22.58

AREA DESCRIPTIONS
AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCEDE, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2:  MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1:  Northernmost part
Area 2:  Remainder

CALAVERAS COUNTY:
Area 1:  Remainder
Area 2:  Eastern part

COLUSA COUNTY:
Area 1:  Eastern part
Area 2:  Remainder

ELDORADO COUNTY:
Area 1:  North Central part
Area 2:  Remainder

FRESNO COUNTY:
Area 1:  Remainder
Area 2:  Eastern part

GLENN COUNTY:
Area 1:  Eastern part
Area 2:  Remainder

LASSEN COUNTY:
  Area 1:  Western part along the Southern portion of border with Shasta County
  Area 2:  Remainder

MADERA COUNTY:
Area 1:  Except Eastern part
Area 2:  Eastern part

MARIPOSA COUNTY
Area 1:  Except Eastern part
Area 2:  Eastern part

MONTEREY COUNTY
Area 1:  Except Southwestern part
Area 2:  Southwestern part

NEVADA COUNTY:
  Area 1:  All but the Northern portion along the border of Sierra County
  Area 2:  Remainder
PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
Area 1: All but the Western border with Mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeastern border with Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

----------------------------------------------------------------

"AREA 1" WAGE RATES ARE LISTED BELOW
"AREA 2" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATOR: Power Equipment (AREA 1:)</td>
<td></td>
</tr>
<tr>
<td>GROUP 1................. $ 37.77</td>
<td>23.00</td>
</tr>
<tr>
<td>GROUP 2................. $ 36.24</td>
<td>23.00</td>
</tr>
<tr>
<td>GROUP 3................. $ 34.76</td>
<td>23.00</td>
</tr>
<tr>
<td>GROUP 4................. $ 33.38</td>
<td>23.00</td>
</tr>
<tr>
<td>GROUP 5................. $ 32.11</td>
<td>23.00</td>
</tr>
<tr>
<td>GROUP 6................. $ 30.79</td>
<td>23.00</td>
</tr>
</tbody>
</table>
GROUP 7 ..................... $ 29.65 23.00  
GROUP 8 ..................... $ 28.51 23.00  
GROUP 8-A ................. $ 28.30 23.00

OPERATOR: Power Equipment
(Cranes and Attachments - AREA 1:)

GROUP 1
Cranes ....................... $ 38.65 23.00  
Oiler ........................ $ 29.39 23.00  
Truck crane oiler .......... $ 31.68 23.00

GROUP 2
Cranes ....................... $ 36.89 23.00  
Oiler ........................ $ 29.18 23.00  
Truck crane oiler .......... $ 31.42 23.00

GROUP 3
Cranes ....................... $ 35.14 23.00  
Hydraulic.................... $ 30.79 23.00  
Oiler ........................ $ 28.90 23.00  
Truck Crane Oiler ......... $ 31.18 23.00

OPERATOR: Power Equipment
(Piledriving - AREA 1:)

GROUP 1
Lifting devices .......... $ 38.99 23.00  
Oiler ........................ $ 29.73 23.00  
Truck crane oiler .......... $ 32.01 23.00

GROUP 2
Lifting devices .......... $ 37.17 23.00  
Oiler ........................ $ 29.46 23.00  
Truck Crane Oiler ......... $ 31.76 23.00

GROUP 3
Lifting devices .......... $ 35.49 23.00  
Oiler ........................ $ 29.24 23.00  
Truck Crane Oiler ......... $ 31.47 23.00

GROUP 4 ..................... $ 33.72 23.00  
GROUP 5 ..................... $ 31.08 23.00  
GROUP 6 ..................... $ 28.85 23.00

OPERATOR: Power Equipment
(Steel Erection - AREA 1:)

GROUP 1
Cranes ....................... $ 39.62 23.00  
Oiler ........................ $ 30.07 23.00  
Truck Crane Oiler ......... $ 32.30 23.00

GROUP 2
Cranes ....................... $ 37.85 23.00  
Oiler ........................ $ 29.80 23.00  
Truck Crane Oiler ......... $ 32.08 23.00

GROUP 3
Cranes ....................... $ 36.37 23.00  
Hydraulic.................... $ 31.42 23.00  
Oiler ........................ $ 29.58 23.00  
Truck Crane Oiler ......... $ 31.81 23.00
GROUP 4 ..................... $ 34.35 23.00  
GROUP 5 ..................... $ 33.05 23.00

OPERATOR: Power Equipment
(Tunnel and Underground Work - AREA 1:)
SHAFTS, STOPES, RAISES:
GROUP 1....................$ 33.87            23.00
GROUP 1-A...................$ 36.34            23.00
GROUP 2.....................$ 32.61            23.00
GROUP 3.....................$ 31.28            23.00
GROUP 4.....................$ 30.14            23.00
GROUP 5.....................$ 29.00            23.00

UNDERGROUND:
GROUP 1.....................$ 33.77            23.00
GROUP 1-A...................$ 36.34            23.00
GROUP 2.....................$ 32.51            23.00
GROUP 3.....................$ 31.18            23.00
GROUP 4.....................$ 30.04            23.00
GROUP 5.....................$ 28.90            23.00

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip
form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed construction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpprette gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom-type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self-propelled pipeline wrapping machine; Soils & materials tester; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination; Pipe cleaning machine (tractor propelled and
supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing machine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck-type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader—Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder

----------------------------------------------

ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under; Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons;

-----------------------------------------------

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge
mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu.
yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-
propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

---

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-
propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

---

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine
operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS, TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSENN COUNTY:
  Area 1: Western part along the Southern portion of border with Shasta County
  Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
  Area 1: All but the Northern portion along the border of Sierra County
  Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
  Area 1: All but the Western border with mendocino & Trinity Counties
  Area 2: Remainder
TRINITY COUNTY:
  Area 1: East Central part and the Northeaster border with
  Shasta County
  Area 2: Remainder

TULARE COUNTY:
  Area 1: Remainder
  Area 2: Eastern part

TUOLUMNE COUNTY:
  Area 1: Remainder
  Area 2: Eastern Part

SEE AREA DESCRIPTIONS BELOW

<table>
<thead>
<tr>
<th>OPERATOR:</th>
<th>Power Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(LANDSCAPE WORK ONLY)</td>
</tr>
<tr>
<td>GROUP 1</td>
<td></td>
</tr>
<tr>
<td>AREA 1</td>
<td>$28.64</td>
</tr>
<tr>
<td>AREA 2</td>
<td>$30.64</td>
</tr>
<tr>
<td>GROUP 2</td>
<td></td>
</tr>
<tr>
<td>AREA 1</td>
<td>$25.04</td>
</tr>
<tr>
<td>AREA 2</td>
<td>$27.04</td>
</tr>
<tr>
<td>GROUP 3</td>
<td></td>
</tr>
<tr>
<td>AREA 1</td>
<td>$20.43</td>
</tr>
<tr>
<td>AREA 2</td>
<td>$22.43</td>
</tr>
</tbody>
</table>

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydrographic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscape Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES
AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder
MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
   Area 1: All but the Northern portion along the border of Sierra County
   Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
   Area 1: All but the Western border with mendocino & Trinity Counties
   Area 2: Remainder

TRINITY COUNTY:
   Area 1: East Central part and the Northeaster border with Shasta County
   Area 2: Remainder

TULARE COUNTY:
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

IRON00002-004 07/01/2010

Ironworkers:
PREMIUM PAY:

$6.00 additional per hour at the following locations:


$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

SAN FRANCISCO AND SAN MATEO COUNTIES:

<table>
<thead>
<tr>
<th>Mason Tender, Brick</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$26.93</td>
<td>16.50</td>
<td></td>
</tr>
</tbody>
</table>

FOOTNOTES: Underground work such as sewers, manholes, catch basins, sewer pipes, telephone conduits, tunnels and cut trenches: $5.00 per day additional. Work in live sewage: $2.50 per day additional.

SAN FRANCISCO AND SAN MATEO COUNTIES:

<table>
<thead>
<tr>
<th>Plaster Tender</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$26.48</td>
<td>16.23</td>
<td></td>
</tr>
</tbody>
</table>

FOOTNOTES: Work on a suspended scaffold: $5.00 per day additional. Work operating a plaster mixer pump gun: $1.00 per hour additional.

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL
NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCEDE, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos Removal Laborer</td>
<td></td>
</tr>
<tr>
<td>Areas A &amp; B..............$ 18.68</td>
<td>6.60</td>
</tr>
<tr>
<td>LABORER (Lead Removal)</td>
<td></td>
</tr>
<tr>
<td>Area A....................$ 36.25</td>
<td>6.68</td>
</tr>
<tr>
<td>Area B....................$ 35.25</td>
<td>6.68</td>
</tr>
</tbody>
</table>

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LAB00067-003 07/01/2009

AREA A: ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO & SANTA CLARA

AREA B: ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENOCINO, MERCEDE, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SIERRA, SHASTA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO & YUBA COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORER (TRAFFIC CONTROL/LANE CLOSURE)</td>
<td></td>
</tr>
<tr>
<td>Escort Driver, Flag Person</td>
<td></td>
</tr>
<tr>
<td>Area A........................$ 26.89</td>
<td>14.93</td>
</tr>
<tr>
<td>Area B........................$ 25.89</td>
<td>14.93</td>
</tr>
<tr>
<td>Traffic Control Person I</td>
<td></td>
</tr>
<tr>
<td>Area A.........................$ 27.19</td>
<td>14.93</td>
</tr>
<tr>
<td>Area B.........................$ 26.19</td>
<td>14.93</td>
</tr>
<tr>
<td>Traffic Control Person II</td>
<td></td>
</tr>
<tr>
<td>Area A.........................$ 24.69</td>
<td>14.93</td>
</tr>
<tr>
<td>Area B.........................$ 23.69</td>
<td>14.93</td>
</tr>
</tbody>
</table>

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.
## AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN
## MATEO AND SANTA CLARA COUNTIES

## AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, EL
## DORADO, FRESNO, GLENN, KINGS, LASSEN, MADERA, MARIPOSA, MERCED,
## MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN
## BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU,
## SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE,
## TUOLUMNE, YOLO AND YUBA COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
</table>
| Laborers: (CONSTRUCTION CRAFT
LABORERS - AREA A:) |
| Construction Specialist |
| Group........................$ 27.84 | 15.82 |
| GROUP 1........................$ 27.14 | 15.82 |
| GROUP 1-a.....................$ 27.36 | 15.82 |
| GROUP 1-c.....................$ 27.19 | 15.82 |
| GROUP 1-e.....................$ 27.69 | 15.82 |
| GROUP 1-f.....................$ 27.72 | 15.82 |
| GROUP 1-g (Contra Costa County).....................$ 27.34 | 15.82 |
| GROUP 2.....................$ 26.99 | 15.82 |
| GROUP 3.....................$ 26.89 | 15.82 |
| GROUP 4.....................$ 20.58 | 15.82 |
| See groups 1-b and 1-d under laborer classifications. |

Laborers: (CONSTRUCTION CRAFT
LABORERS - AREA B:)

| Construction Specialist |
| Group........................$ 26.84 | 15.82 |
| GROUP 1........................$ 26.14 | 15.82 |
| GROUP 1-a.....................$ 26.36 | 15.82 |
| GROUP 1-c.....................$ 26.19 | 15.82 |
| GROUP 1-e.....................$ 26.69 | 15.82 |
| GROUP 1-f.....................$ 26.72 | 15.82 |
| GROUP 2.....................$ 25.99 | 15.82 |
| GROUP 3.....................$ 25.89 | 15.82 |
| GROUP 4.....................$ 19.58 | 15.82 |
| See groups 1-b and 1-d under laborer classifications. |

Laborers: (GUNITE - AREA A:)

| GROUP 1.....................$ 28.10 | 15.82 |
| GROUP 2.....................$ 27.60 | 15.82 |
| GROUP 3.....................$ 27.60 | 15.82 |
| GROUP 4.....................$ 27.60 | 15.82 |

Laborers: (GUNITE - AREA B:)

| GROUP 1.....................$ 27.10 | 15.82 |
| GROUP 2.....................$ 26.60 | 15.82 |
| GROUP 3.....................$ 26.01 | 15.82 |
| GROUP 4.....................$ 25.89 | 15.82 |

Laborers: (WRECKING - AREA A:)

| GROUP 1.....................$ 27.14 | 15.82 |
| GROUP 2.....................$ 26.99 | 15.82 |

Laborers: (WRECKING - AREA B:)

GROUP 1.....................$ 26.14            15.82
GROUP 2.....................$ 25.99            15.82

Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE
LABORERS - AREA A:)
(1) New Construction........$ 26.89            15.82
(2) Establishment Warranty
Period.......................$ 20.58            15.82

Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE
LABORERS - AREA B:)
(1) New Construction........$ 25.89            15.82
(2) Establishment Warranty
Period.......................$ 19.58            15.82

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging
scaffolds, belts shall receive $0.25 per hour above the
applicable wage rate. This shall not apply to workers
entitled to receive the wage rate set forth in Group 1-a
below.

-----------------------------------------------

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker;
Chainsaw; Laser beam in connection with laborers' work;
Cast-in- place manhole form setter; Pressure pipelayer;
Davis trencher - 300 or similar type (and all small
trenchers); Blaster; Diamond driller; Multiple unit drill;
Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker
and similar type tampers; Buggymobile; Caulker, bander,
pipewrapper, conduit layer, plastic pipelayer; Certified
hazardous waste worker including Leade Abatement;
Compactors of all types; Concrete and magnesite mixer, 1/2
yd. and under; Concrete pan work; Concrete sander; Concrete
saw; Cribber and/or shoring; Cut granite curb setter;
Dri-pak-it machine; Faller, logloader and bucker; Form
raiser, slip forms; Green cutter; Headerboard, Hubsetter,
aligner, by any method; High pressure blow pipe (1-1/2" or
over, 100 lbs. pressure/over); Hydro seeder and similar
type; Jackhammer operator; Jacking of pipe over 12 inches;
Jackson and similar type compactor; Kettle tender, pot and
worker applying asphalt, lay-kold, creosote, lime, caustic
and similar type materials (applying means applying,
dipping or handling of such materials); Lagging, sheeting,
whaling, bracing, trenchjacking, lagging hammer; Magnesite,
epoxyresin, fiberglass, mastic worker (wet or dry); No
joint pipe and stripping of same, including repair of
voids; Pavement breaker and spader, including tool grinder;
Perma curb; Pipelayer (including grade checking in
connection with pipelaying); Precast-manhole setter;
Pressure pipe tester; Post hole digger, air, gas and
electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker.

GROUP 1-
a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder.

GROUP 1-
b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shall receive $5.00 per day above Group 1 wage rates.

GROUP 1-
c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding.

GROUP 1-
d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $.25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-
e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-
f: Wire winding machine in connection with guniting or shotcrete.

GROUP 1-
g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure
pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions: A: at demolition site for the salvage of the material. B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job. C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

--------------------------------------------------------

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzlemam

GROUP 2: Nozzlemam, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

--------------------------------------------------------

WRECKING WORK LABORER CLASSIFICATIONS
GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0067-010 07/01/2010

<table>
<thead>
<tr>
<th>Tunnel and Shaft Laborers:</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1..................</td>
<td>$33.35</td>
<td>16.08</td>
</tr>
<tr>
<td>GROUP 2..................</td>
<td>$33.12</td>
<td>16.08</td>
</tr>
<tr>
<td>GROUP 3..................</td>
<td>$32.87</td>
<td>16.08</td>
</tr>
<tr>
<td>GROUP 4..................</td>
<td>$32.42</td>
<td>16.08</td>
</tr>
<tr>
<td>GROUP 5..................</td>
<td>$31.88</td>
<td>16.08</td>
</tr>
<tr>
<td>Shotcrete Specialist.....</td>
<td>$33.87</td>
<td>16.08</td>
</tr>
</tbody>
</table>

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzlemen; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0073-003 07/01/2009

CALAVERAS, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

<table>
<thead>
<tr>
<th>LABORER</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mason Tender-Brick.....</td>
<td>$27.03</td>
<td>14.93</td>
</tr>
</tbody>
</table>

LABO0073-005 07/01/2009
### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasterer tender</td>
<td>$28.37</td>
<td>14.14</td>
</tr>
<tr>
<td>Brick Tender</td>
<td>$25.91</td>
<td>14.65</td>
</tr>
</tbody>
</table>

**FOOTNOTES:**
- Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasterer tender</td>
<td>$30.15</td>
<td>15.90</td>
</tr>
</tbody>
</table>

**FOOTNOTES:**
- Gun Man: $0.75 per hour additional.

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mason Tender, Brick</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Clara</td>
<td>$27.93</td>
<td>13.48</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>$26.93</td>
<td>13.48</td>
</tr>
</tbody>
</table>

**FOOTNOTE:**
- $2.00 per hour for refactory work where heat-protective clothing is required.

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaster Tender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Stories and under</td>
<td>$27.62</td>
<td>13.73</td>
</tr>
<tr>
<td>5 Stories and above</td>
<td>$29.54</td>
<td>13.73</td>
</tr>
</tbody>
</table>

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
</table>

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaster Tender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Stories and under</td>
<td>$27.62</td>
<td>13.73</td>
</tr>
<tr>
<td>5 Stories and above</td>
<td>$29.54</td>
<td>13.73</td>
</tr>
</tbody>
</table>

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaster Tender</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rates and Fringes

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaster Tender</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LABORER (Brick)
Mason Tender-Brick............$ 27.03 14.93

MONTEREY AND SAN BENITO COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasterer tender...............$ 23.70 11.50</td>
<td></td>
</tr>
</tbody>
</table>

FOOTNOTE: Mixer person: $4.00 per day additional.

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN MATEO, SANTA CLARA, AND SANTA CRUZ COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painters:.......................$ 32.71 19.16</td>
<td></td>
</tr>
</tbody>
</table>

PREMIUMS:
- EXOTIC MATERIALS - $0.75 additional per hour.
- SPRAY WORK: - $0.50 additional per hour.
- INDUSTRIAL PAINTING - $0.25 additional per hour
  - Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures

HIGH WORK:
- over 50 feet - $2.00 per hour additional
- 100 to 180 feet - $4.00 per hour additional
- Over 180 feet - $6.00 per hour additional

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: CALAVERAS, MARIPSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS & TUOLUMNE COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drywall Finisher/Taper AREA 1......................$ 42.66 17.26</td>
<td></td>
</tr>
<tr>
<td>AREA 2......................$ 36.53 14.78</td>
<td></td>
</tr>
</tbody>
</table>

ALAMEDA, CONTRA COSTA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES
<table>
<thead>
<tr>
<th>SOFT FLOOR LAYER................$ 40.17</th>
<th>17.41</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAIN0016-015 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS &amp; TUOLUMNE COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates Fringes</td>
<td></td>
</tr>
<tr>
<td>PAINTER................................$ 27.78</td>
<td>15.27</td>
</tr>
<tr>
<td>Brush..................................$ 29.82</td>
<td>12.72</td>
</tr>
<tr>
<td>FOOTNOTES:</td>
<td></td>
</tr>
<tr>
<td>SPRAY/SANDBLAST: $0.50 additional per hour.</td>
<td></td>
</tr>
<tr>
<td>EXOTIC MATERIALS: $1.00 additional per hour.</td>
<td></td>
</tr>
<tr>
<td>HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour.</td>
<td></td>
</tr>
<tr>
<td>100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.</td>
<td></td>
</tr>
<tr>
<td>PAIN0016-022 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>SAN FRANCISCO COUNTY</td>
<td></td>
</tr>
<tr>
<td>Rates Fringes</td>
<td></td>
</tr>
<tr>
<td>PAINTER................................$ 36.33</td>
<td>19.16</td>
</tr>
<tr>
<td>PAIN0169-001 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>Rates Fringes</td>
<td></td>
</tr>
<tr>
<td>GLAZIER..................................$ 30.89</td>
<td>16.92</td>
</tr>
<tr>
<td>PAIN0169-005 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>ALAMEDA CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA &amp; SANTA CRUZ COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates Fringes</td>
<td></td>
</tr>
<tr>
<td>GLAZIER..................................$ 41.88</td>
<td>20.29</td>
</tr>
<tr>
<td>* PAIN0294-004 02/01/2011</td>
<td></td>
</tr>
<tr>
<td>FRESNO, KINGS AND MADERA COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates Fringes</td>
<td></td>
</tr>
<tr>
<td>PAINTER</td>
<td></td>
</tr>
<tr>
<td>Brush, Roller..........................$ 25.67</td>
<td>14.57</td>
</tr>
<tr>
<td>Drywall Finisher/Taper...................$ 30.47</td>
<td>15.57</td>
</tr>
<tr>
<td>FOOTNOTE:</td>
<td></td>
</tr>
</tbody>
</table>
Spray Painters & Paperhangers receive $1.00 additional per hour. Painters doing Drywall Patching receive $1.25 additional per hour. Lead Abaters & Sandblasters receive $1.50 additional per hour. High Time - over 30 feet (does not include work from a lift) $0.75 per hour additional.

FRESNO, KINGS & MADERA

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFT FLOOR LAYER.................$ 27.83</td>
<td>14.33</td>
</tr>
</tbody>
</table>

CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLAZIER.................$ 32.34</td>
<td>18.49</td>
</tr>
</tbody>
</table>


Employee required to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

HIGHWAY IMPROVEMENT

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking Lot Striping/Highway Marking:</td>
<td></td>
</tr>
<tr>
<td>GROUP 1.....................$ 29.44</td>
<td>12.51</td>
</tr>
<tr>
<td>GROUP 2.....................$ 24.23</td>
<td>12.51</td>
</tr>
<tr>
<td>GROUP 3.....................$ 24.86</td>
<td>12.51</td>
</tr>
</tbody>
</table>

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing
<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFT FLOOR LAYER</td>
<td>$ 28.25</td>
<td>15.68</td>
</tr>
</tbody>
</table>

**ALAMEDA, CONTRA COSTA, SAN MATEO AND SAN FRANCISCO COUNTIES:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLASTERER........................................</td>
<td>$ 34.13</td>
<td>21.15</td>
</tr>
</tbody>
</table>

**Area 188: Fresno**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 29.72</td>
<td></td>
<td>14.21</td>
</tr>
</tbody>
</table>

**Area 224: San Benito, Santa Clara, Santa Cruz**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 34.22</td>
<td></td>
<td>14.08</td>
</tr>
</tbody>
</table>

**Area 295: Calaveras & San Joaquin Counties**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 32.82</td>
<td></td>
<td>15.10</td>
</tr>
</tbody>
</table>

**Area 337: Monterey County**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 31.01</td>
<td></td>
<td>13.93</td>
</tr>
</tbody>
</table>

**Area 429: Mariposa, Merced, Stanislaus, Tuolumne Counties**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 32.82</td>
<td></td>
<td>15.30</td>
</tr>
</tbody>
</table>

**San Francisco County**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)..........................</td>
<td>$ 55.25</td>
<td>37.04</td>
</tr>
</tbody>
</table>

**Landscape/Irrigation Fitter (Underground/Utility Fitter)***

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 46.96</td>
<td></td>
<td>26.35</td>
</tr>
</tbody>
</table>

**Monterey and Santa Cruz Counties**

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CONTRA COSTA COUNTY

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUMBER &amp; STEAMFITTER............$ 40.20</td>
<td>21.68</td>
</tr>
</tbody>
</table>

PLUM0159-001 01/01/2011

**Plumber and steamfitter**

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Refrigeration...........$ 48.58</td>
<td>26.39</td>
</tr>
<tr>
<td>(2) All other work...........$ 49.47</td>
<td>26.39</td>
</tr>
</tbody>
</table>

PLUM0246-001 01/01/2011

### FRESNO, KINGS & MADEIRA COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUMBER &amp; STEAMFITTER............$ 35.45</td>
<td>21.68</td>
</tr>
</tbody>
</table>

PLUM0246-004 07/01/2006

### FRESNO, MERCED & SAN JOAQUIN COUNTIES

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUMBER (PIPE TRADEXMAN)...........$ 13.00</td>
<td>7.30</td>
</tr>
</tbody>
</table>

### PIPE TRADEXMAN SCOPE OF WORK:

- **Installation of corrugated metal piping for drainage**, as well as installation of corrugated metal piping for culverts in connection with storm sewers and drains;
- **Grouting, dry packing and diapering of joints, holes or chases including paving over joints, in piping**;
- **Temporary piping for dirt work for building site preparation**;
- **Operating jack hammers, pavement breakers, chipping guns, concrete saws and spades to cut holes, chases and channels for piping systems**;
- **Digging, grading, backfilling and ground preparation for all types of pipe to all points of the jobsite**;
- **Ground preparation including ground leveling, layout and planting of shrubbery, trees and ground cover, including watering, mowing, edging, pruning and fertilizing, the breaking of concrete, digging, backfilling and tamping for the preparation and completion of all work in connection with lawn sprinkler and landscaping**;
- **Loading, unloading and distributing materials at jobsite**;
- **Putting away materials in storage bins in jobsite secure storage area**;
- **Demolition of piping and fixtures for remodeling and additions**;
- **Setting up and tearing down work benches, ladders and job shacks**;
- **Clean-up and sweeping of jobsite**;
- **Pipe wrapping and waterproofing where tar or similar material is applied for protection of buried piping**;
- **Flagman**

PLUM0342-001 07/01/2010

### ALAMEDA & CONTRA COSTA COUNTIES
<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPEFITTER</td>
<td></td>
</tr>
<tr>
<td>CONTRA COSTA COUNTY........$ 49.21</td>
<td>29.14</td>
</tr>
<tr>
<td>PLUMBER, PIPEFITTER, STEAMFITTER</td>
<td></td>
</tr>
<tr>
<td>ALAMEDA COUNTY................$ 49.21</td>
<td>29.14</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PLUM0355-004 07/01/2010</td>
<td></td>
</tr>
<tr>
<td>ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINDS, MADERA, MARIPOSA, MERCE, MONTEREY, SAN BENITO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, AND TUOLUMNE COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>Underground Utility Worker /Landscape Fitter...........$ 28.10</td>
<td>7.20</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PLUM0393-001 07/01/2010</td>
<td></td>
</tr>
<tr>
<td>SAN BENITO AND SANTA CLARA COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>PLUMBER/PIPEFITTER................$ 51.86</td>
<td>26.13</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PLUM0442-001 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>CALAVERAS, MARIPOSA, MERCE, SAN JOAQUIN, STANISLAUS &amp; TUOLUMNE COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>PLUMBER &amp; STEAMFITTER............$ 35.70</td>
<td>21.68</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PLUM0467-001 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>SAN MATEO COUNTY</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>Plumber/Pipefitter/Steamfitter...$ 52.95</td>
<td>24.76</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>ROOF0027-002 09/01/2010</td>
<td></td>
</tr>
<tr>
<td>FRESNO, KINDS, AND MADERA COUNTIES</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td>Fringes</td>
</tr>
<tr>
<td>ROOFER.........................$ 27.65</td>
<td>8.07</td>
</tr>
</tbody>
</table>

FOOTNOTE: Work with pitch, pitch base of pitch impregnated products or any material containing coal tar pitch, on any building old or new, where both asphalt and pitchers are used in the application of a built-up roof or tear off: $2.00 per hour additional.
### SAN FRANCISCO & SAN MATEO COUNTIES:

<table>
<thead>
<tr>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOFER</td>
<td>$33.33</td>
</tr>
<tr>
<td></td>
<td>Rates</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>SPRINKLER FITTER</td>
<td>$33.35</td>
</tr>
<tr>
<td>SHEE0104-001 07/01/2009</td>
<td></td>
</tr>
<tr>
<td>AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO, SANTA CLARA</td>
<td></td>
</tr>
<tr>
<td>AREA 2: MONTEREY &amp; SAN BENITO</td>
<td></td>
</tr>
<tr>
<td>AREA 3: SANTA CRUZ</td>
<td></td>
</tr>
<tr>
<td>SHEET METAL WORKER</td>
<td></td>
</tr>
<tr>
<td>AREA 1:</td>
<td></td>
</tr>
<tr>
<td>Mechanical Contracts</td>
<td></td>
</tr>
<tr>
<td>under $200,000</td>
<td>$43.32</td>
</tr>
<tr>
<td>All Other Work</td>
<td>$47.73</td>
</tr>
<tr>
<td>AREA 2</td>
<td>$37.32</td>
</tr>
<tr>
<td>AREA 3</td>
<td>$39.25</td>
</tr>
<tr>
<td>SHEE0104-015 07/01/2009</td>
<td></td>
</tr>
<tr>
<td>ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>SHEET METAL WORKER</td>
<td></td>
</tr>
<tr>
<td>SHEETMETAL WORKER (Metal Decking and Siding only)</td>
<td>$33.43</td>
</tr>
<tr>
<td>SHEE0162-001 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>CALAVERAS AND SAN JOAQUIN COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>SHEET METAL WORKER</td>
<td>$32.17</td>
</tr>
<tr>
<td>SHEE0162-003 07/01/2010</td>
<td></td>
</tr>
<tr>
<td>MARIPosa, MERced, STANISLAUS AND TUOLUMNE COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>SHEET METAL WORKER (Excluding metal deck and siding)</td>
<td>$31.34</td>
</tr>
<tr>
<td>SHEE0162-004 01/01/2011</td>
<td></td>
</tr>
<tr>
<td>FRESNO, KINGS, AND MADERA COUNTIES:</td>
<td></td>
</tr>
<tr>
<td>SHEET METAL WORKER</td>
<td>$32.72</td>
</tr>
</tbody>
</table>
### Rates and Fringes

<table>
<thead>
<tr>
<th></th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet metal worker (Metal</td>
<td>$32.72</td>
<td>24.31</td>
</tr>
<tr>
<td>decking and siding only)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Truck Drivers

<table>
<thead>
<tr>
<th>Group</th>
<th>Rates</th>
<th>Fringes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1</td>
<td>$27.13</td>
<td>18.99</td>
</tr>
<tr>
<td>GROUP 2</td>
<td>$27.43</td>
<td>18.99</td>
</tr>
<tr>
<td>GROUP 3</td>
<td>$27.73</td>
<td>18.99</td>
</tr>
<tr>
<td>GROUP 4</td>
<td>$28.08</td>
<td>18.99</td>
</tr>
<tr>
<td>GROUP 5</td>
<td>$28.43</td>
<td>18.99</td>
</tr>
</tbody>
</table>

### Footnotes

- Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.
- Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

### Truck Driver Classifications

**GROUP 1:** Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or person haul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

**GROUP 2:** Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

**GROUP 3:** Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over;
Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self-propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbed Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling
On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party’s position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=================================================================

END OF GENERAL DECISION
STATE WAGE RATE
Determination: C-14-X-2-2011-1  
Issue Date: February 22, 2011  
Expiration Date of Determination: March 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research at (415) 703-4774.

Locality: All localities within the State of California

<table>
<thead>
<tr>
<th>CLASSIFICATION (Journeyperson)</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension[^a]</th>
<th>Vacation/Holiday[^a]</th>
<th>Training</th>
<th>Other Payments</th>
<th>Total Hours</th>
<th>Total Rate[^c]</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 1 Boilermaker-Blacksmith</td>
<td>$41.26</td>
<td>$8.57</td>
<td>$10.43[^b]</td>
<td>$4.93</td>
<td>$0.29</td>
<td></td>
<td>8</td>
<td>$66.23</td>
<td>$94.54[^c]$94.54</td>
</tr>
<tr>
<td>Area 2 Boilermaker-Blacksmith</td>
<td>$44.42</td>
<td>$8.57</td>
<td>$12.63[^b]</td>
<td>$3.37</td>
<td>$1.25</td>
<td>$0.29</td>
<td>8</td>
<td>$70.53</td>
<td>$100.74[^c]$100.74</td>
</tr>
<tr>
<td>Area 3 Boilermaker-Blacksmith</td>
<td>$40.80</td>
<td>$8.57</td>
<td>$11.95[^b]</td>
<td>$3.37</td>
<td>$1.25</td>
<td>$0.29</td>
<td>8</td>
<td>$66.23</td>
<td>$94.29[^c]$94.29</td>
</tr>
</tbody>
</table>

[^a] Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

[^b] Area 1 - Imperial, Inyo, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, San Luis Obispo (only that portion that is within a 25-mile radius of the city of Santa Maria), and Ventura counties.

[^c] All other remaining counties.

[^b] Contribution is factored at the applicable overtime multiplier for each overtime hour worked.

[^c] Rate applies to the first 2 daily overtime hours and the first 10 hours worked on Saturday. All other overtime is paid at the Sunday/Holiday rate.

[^d] Includes amount for Annuity Trust Fund.

Recognized Holidays: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

Travel and/or subsistence payment: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1

FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT:   # IRON WORKER

DETERMINATION:  C-20-X-1-2011-1
ISSUE DATE:  February 22, 2011
EXPIRATION DATE OF DETERMINATION:  June 30, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations.  Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

LOCALITY:  All localities within the State of California

<table>
<thead>
<tr>
<th>CLASSIFICATION (Journeyperson)</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health and Pension</td>
<td>Vacation/ Training Holiday</td>
</tr>
<tr>
<td>Iron Worker (Ornamental, Reinforcing, Structural)</td>
<td>$33.00</td>
<td>7.88</td>
<td>7.56</td>
</tr>
<tr>
<td>Fence Erector</td>
<td>$26.58</td>
<td>5.80</td>
<td>5.04</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft.  Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

a Includes supplemental dues.

b Rate applies to the first 2 daily overtime hours and the first 8 hours on Saturday.  All other overtime is at the Sunday/Holiday rate.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations.  If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.  You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD.  Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work.  You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD.  Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
## Pole Restoration Journeyman $22.09 4.75 a 0.60 0.53 8 60.42 108.28 108.28 108.28
## Powderman 41.20 4.75 a 6.54 b 0.31 0.47 8 54.50 97.24 97.24 97.24
## Groundman 28.19 4.75 a 6.50 b 0.20 0.33 8 40.815 70.05 70.05 70.05

---

<table>
<thead>
<tr>
<th>CLASSIFICATION (Journeyperson)</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension</th>
<th>Training</th>
<th>Other Payments</th>
<th>Total Hourly Rate</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># Lineman, Cable Splicer</strong></td>
<td>$46.14</td>
<td>4.75</td>
<td>7.28 a</td>
<td>0.34</td>
<td>0.53</td>
<td>8 60.42</td>
<td>108.28</td>
</tr>
<tr>
<td><strong>## Powderman</strong></td>
<td>41.20</td>
<td>4.75</td>
<td>6.54 b</td>
<td>0.31</td>
<td>0.47</td>
<td>8 54.50</td>
<td>97.24</td>
</tr>
<tr>
<td><strong>## Groundman</strong></td>
<td>28.19</td>
<td>4.75</td>
<td>6.50 b</td>
<td>0.20</td>
<td>0.33</td>
<td>8 40.815</td>
<td>70.05</td>
</tr>
</tbody>
</table>

---

**# Indicates an apprenticeable craft.** Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or the National Employees Benefit Board.

**## Indicates a non-apprenticeable craft.**

---

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
CRAFT: TELECOMMUNICATIONS TECHNICIAN

DETERMINATION: C-422-X-1-2003-2
ISSUE DATE: August 22, 2003
EXPIRATION DATE OF DETERMINATION: June 1, 2004* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics & Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.


Employer Payments

<table>
<thead>
<tr>
<th>Classification (Journeyperson)</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension and Vacation and Holidays</th>
<th>Training Hours</th>
<th>Straight-Time Total Hourly Rate</th>
<th>Overtime Hourly Rate</th>
<th>Holiday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications Technician</td>
<td>28.50</td>
<td>2.79</td>
<td>0.93</td>
<td>3.28</td>
<td>8 35.50</td>
<td>49.75</td>
<td>78.25</td>
</tr>
</tbody>
</table>

* Rate applies to work in excess of eight hours daily and for all hours over 40. Rate applies to all hours worked on Sunday.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773, AND 1773.1

FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: TELECOMMUNICATIONS TECHNICIAN

DETERMINATION: C-422-X-1-2003-2A
ISSUE DATE: August 22, 2003
EXPIRATION DATE OF DETERMINATION: June 1, 2004* Effective until superseded by a new determination issued by the
Director of Industrial Relations. Contact the Division of Labor Statistics & Research at (415) 703-4774 for the new rates after 10
days from the expiration date, if no subsequent determination is issued.

LOCALITY: All localities within Contra Costa, Marin, Orange, and San Diego counties.

<table>
<thead>
<tr>
<th>Classification (Journeyperson)</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health and Pension and Vacation and Training Hours</td>
<td>Total Hourly Rate</td>
</tr>
<tr>
<td>Telecommunications Technician</td>
<td>27.93</td>
<td>2.79</td>
<td>0.93</td>
</tr>
</tbody>
</table>

* Rate applies to work in excess of eight hours daily and for all hours over 40. Rate applies to all hours worked on Sunday.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be
all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the
project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate,
the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may
obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions
for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall
make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence
provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Travel and/or subsistence
requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773, AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: TELECOMMUNICATIONS TECHNICIAN

DETERMINATION: C-422-X-1-2003-2B
ISSUE DATE: August 22, 2003
EXPIRATION DATE OF DETERMINATION: June 1, 2004* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics & Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

LOCALITY: All localities within the Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Humboldt, Imperial, Kern, Kings, Lake, Lassen, Madera, Mariposa, Mendocino, Merced, Modoc, Monterey, Napa, Nevada, Placer, Plumas, Riverside, Sacramento, San Benito, San Joaquin, San Luis Obispo, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo and Yuba counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Straight-Time Hours</th>
<th>Overtime Hourly Rate</th>
<th>Holiday</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Journeyperson)</td>
<td>Employer Payments</td>
<td>Total Hourly Rate</td>
<td>1 1/2Xa 2 1/2X</td>
<td></td>
</tr>
<tr>
<td>Telecommunications Technician</td>
<td>27.18 2.79 0.93 3.13 -</td>
<td>8 34.03 47.62 74.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a Rate applies to work in excess of eight hours daily and for all hours over 40. Rate applies to all hours worked on Sunday.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773, AND 1773.1

FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: TELEPHONE INSTALLATION WORKER AND RELATED CLASSIFICATIONS

DETERMINATION: C-422-X-10-2001-1
ISSUE DATE: August 22, 2001
EXPIRATION DATE OF DETERMINATION: October 1, 2001* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

LOCALITY: All localities within Del Norte, Inyo, Mono and San Bernardino, and Santa Barbara Counties.

<table>
<thead>
<tr>
<th>Classification (Journey Person)</th>
<th>Step&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Pension</th>
<th>Vacation&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Training</th>
<th>Straight-Time Hours</th>
<th>Total Hourly Rate</th>
<th>Overtime Hourly Rate 1 1/2X&lt;sup&gt;d&lt;/sup&gt;</th>
<th>2X&lt;sup&gt;d&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone Installation Worker</td>
<td>1</td>
<td>$9.97</td>
<td>$0.06</td>
<td>-</td>
<td>$0.84</td>
<td>-</td>
<td>8</td>
<td>$10.87</td>
<td>$15.855</td>
<td>$20.84</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10.79</td>
<td>0.06</td>
<td>-</td>
<td>0.91</td>
<td>-</td>
<td>8</td>
<td>11.76</td>
<td>17.155</td>
<td>22.55</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>11.73</td>
<td>0.07</td>
<td>-</td>
<td>0.99</td>
<td>-</td>
<td>8</td>
<td>12.79</td>
<td>18.655</td>
<td>24.52</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>12.78</td>
<td>0.07</td>
<td>-</td>
<td>1.08</td>
<td>-</td>
<td>8</td>
<td>13.93</td>
<td>20.32</td>
<td>26.71</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>14.05</td>
<td>0.08</td>
<td>-</td>
<td>1.19</td>
<td>-</td>
<td>8</td>
<td>15.32</td>
<td>22.345</td>
<td>29.37</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>15.50</td>
<td>0.09</td>
<td>-</td>
<td>1.31</td>
<td>-</td>
<td>8</td>
<td>16.90</td>
<td>24.65</td>
<td>32.40</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>17.20</td>
<td>0.10</td>
<td>-</td>
<td>1.46</td>
<td>-</td>
<td>8</td>
<td>18.76</td>
<td>27.36</td>
<td>35.96</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>19.36</td>
<td>0.11</td>
<td>-</td>
<td>1.64</td>
<td>-</td>
<td>8</td>
<td>21.11</td>
<td>30.79</td>
<td>40.47</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>22.13</td>
<td>0.13</td>
<td>-</td>
<td>1.87</td>
<td>-</td>
<td>8</td>
<td>24.13</td>
<td>35.195</td>
<td>46.26</td>
</tr>
</tbody>
</table>

<sup>a</sup> The time interval between steps is six months.

<sup>b</sup> Rates apply to the first eight years of employment only: for employment over eight years, $2.30 per hour worked; for employment over fifteen years, $ 2.72 per hour worked; for employment over twenty-five years, $3.15 per hour worked.

<sup>c</sup> Rate applies to work in excess of a regular shift. Rate applies to all hours worked on Sunday, except those hours which exceed 55 hours weekly.

<sup>d</sup> Rate applies to all hours which exceed 55 hours weekly.

<sup>e</sup> Includes an amount for sick leave. Benefit is paid until 270 sick leave workdays are accumulated.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. Travel and/or subsistence requirements for each craft, classification or type of worker may be obtained from the Prevailing Wage Unit at (415) 703-4774.
Determination: C-TT-2010-2
Issue Date: August 22, 2010
Expiration Date of Determination: July 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.

Craft/Classification | Basic Hourly Rate | Health and Welfare | Pension | Vacation | Holiday | Straight-Time Total Hourly Rate | Overtime Daily
--- | --- | --- | --- | --- | --- | --- | ---
Climber | 20.39 | 4.75 | 0.64b | 0.39c | 0.55 | 8 | 26.72 | 31.50a | 42.00a
Groundperson First 6 months | 13.05 | 4.75 | 0.41 | 0.25 | 0.35 | 8 | 18.81 | 20.16a | 26.88a
Groundperson After 6 months | 13.98 | 4.75 | 0.44d | 0.27c | 0.38 | 8 | 19.82 | 21.60a | 28.80a

Determination: C-TT-2010-2A
Issue Date: August 22, 2010
Expiration Date of Determination: July 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
Locality: Kern, Lake, Madera, Mariposa, Merced, and Tuolumne Counties (REF: 61-1245-18)

Climber | 20.39 | 4.75 | 0.64f | 0.39g | 0.55 | 8 | 26.72 | 31.50a | 42.00a
Groundperson First 6 months | 13.05 | 4.75 | 0.41 | 0.25 | 0.35 | 8 | 18.81 | 20.16a | 26.88a
Groundperson After 6 months | 13.98 | 4.75 | 0.44h | 0.27i | 0.38 | 8 | 19.82 | 21.60a | 28.80a

Determination: C-TT-2010-2B
Issue Date: August 22, 2010
Expiration Date of Determination: June 30, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
Locality: Butte, Colusa, Sutter, and Yuba Counties (REF: 61-1245-16)

Climber | 20.67 | 4.75 | 0.65j | 0.40k | 0.56 | 8 | 27.03 | 31.94a | 42.58a
Groundperson First 6 months | 11.72 | 4.75 | 0.37 | 0.23 | 0.32 | 8 | 17.39 | 18.11a | 24.14a
Groundperson After 6 months | 14.06 | 4.75 | 0.44l | 0.27m | 0.38 | 8 | 19.90 | 21.72a | 28.96a

Determination: C-TT-2010-2C
Issue Date: August 22, 2010
Expiration Date of Determination: July 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
Locality: Alpine, El Dorado, Nevada, and Placer Counties (REF: 61-1245-12)

Climber | 20.92 | 4.75 | 0.66n | 1.05o | - | 8 | 27.38 | 32.32a | 43.10a
Groundperson First 6 months | 13.39 | 4.75 | 0.42 | 0.67 | - | 8 | 19.23 | 20.69a | 27.58a
Groundperson After 6 months | 14.37 | 4.75 | 0.45p | 0.72q | - | 8 | 20.29 | 22.20a | 29.60a

Footnotes listed on page 2F
(Recognized Holidays and Travel and Subsistence Payment footnotes listed on page 2G-1)
CRAFT: # TREE TRIMMER (HIGH VOLTAGE LINE CLEARANCE)

DETERMINATION: C-TT-2011-1D
ISSUE DATE: February 22, 2011
EXPIRATION DATE OF DETERMINATION: October 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.

<table>
<thead>
<tr>
<th>CRAFT/CCLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health 4.75</th>
<th>Pension 0.67&quot;</th>
<th>Vacation 0.41&quot;</th>
<th>Holiday 0.57</th>
<th>Straight-Time Hours</th>
<th>Total 8</th>
<th>Overtime Daily 1 1/2X</th>
<th>2X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climber</td>
<td>21.27</td>
<td>4.75</td>
<td>0.67&quot;</td>
<td>0.41&quot;</td>
<td>0.57</td>
<td>8</td>
<td>27.67</td>
<td>32.86&quot;</td>
<td>43.82</td>
</tr>
<tr>
<td>Groundperson First 6 months</td>
<td>13.64</td>
<td>4.75</td>
<td>0.43</td>
<td>0.26</td>
<td>0.37</td>
<td>8</td>
<td>19.45</td>
<td>21.07&quot;</td>
<td>28.10</td>
</tr>
<tr>
<td>Groundperson After 6 months</td>
<td>14.58</td>
<td>4.75</td>
<td>0.46&quot;</td>
<td>0.28&quot;</td>
<td>0.39</td>
<td>8</td>
<td>20.46</td>
<td>22.53&quot;</td>
<td>30.03</td>
</tr>
</tbody>
</table>

DETERMINATION: C-TT-2010-2E
ISSUE DATE: August 22, 2010
EXPIRATION DATE OF DETERMINATION: August 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
LOCALITY: Alameda and Contra Costa Counties (REF: 61-1245-12)

<table>
<thead>
<tr>
<th>CRAFT/CCLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health 4.75</th>
<th>Pension 0.42</th>
<th>Vacation 0.67</th>
<th>Holiday 0.72</th>
<th>Straight-Time Hours</th>
<th>Total 8</th>
<th>Overtime Daily 1 1/2X</th>
<th>2X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climber</td>
<td>20.92</td>
<td>4.75</td>
<td>0.66&quot;</td>
<td>1.05&quot;</td>
<td>-</td>
<td>8</td>
<td>27.38</td>
<td>32.32&quot;</td>
<td>43.10</td>
</tr>
<tr>
<td>Groundperson First 6 months</td>
<td>13.39</td>
<td>4.75</td>
<td>0.42</td>
<td>0.67</td>
<td>-</td>
<td>8</td>
<td>19.23</td>
<td>20.69&quot;</td>
<td>27.58</td>
</tr>
<tr>
<td>Groundperson After 6 months</td>
<td>14.37</td>
<td>4.75</td>
<td>0.45&quot;</td>
<td>0.72&quot;</td>
<td>-</td>
<td>8</td>
<td>20.29</td>
<td>22.20&quot;</td>
<td>29.60</td>
</tr>
</tbody>
</table>

DETERMINATION: C-TT-2011-1F
ISSUE DATE: February 22, 2011
EXPIRATION DATE OF DETERMINATION: January 3, 2012* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.
LOCALITY: Del Norte, Humbolt, Marin, Mendocino, Napa, and Sonoma Counties (REF: 61-1245-12)

<table>
<thead>
<tr>
<th>CRAFT/CCLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health 4.75</th>
<th>Pension 0.66&quot;</th>
<th>Vacation 1.05&quot;</th>
<th>Holiday -</th>
<th>Straight-Time Hours</th>
<th>Total 8</th>
<th>Overtime Daily 1 1/2X</th>
<th>2X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climber</td>
<td>20.96</td>
<td>4.75</td>
<td>0.66&quot;</td>
<td>1.05&quot;</td>
<td>-</td>
<td>8</td>
<td>27.42</td>
<td>32.38&quot;</td>
<td>43.18</td>
</tr>
<tr>
<td>Groundperson First 6 months</td>
<td>13.41</td>
<td>4.75</td>
<td>0.42</td>
<td>0.67</td>
<td>-</td>
<td>8</td>
<td>19.25</td>
<td>20.72&quot;</td>
<td>27.62</td>
</tr>
<tr>
<td>Groundperson After 6 months</td>
<td>14.39</td>
<td>4.75</td>
<td>0.45&quot;</td>
<td>0.72&quot;</td>
<td>-</td>
<td>8</td>
<td>20.31</td>
<td>22.23&quot;</td>
<td>29.64</td>
</tr>
</tbody>
</table>

DETERMINATION: C-TT-2010-2G
ISSUE DATE: August 22, 2010
EXPIRATION DATE OF DETERMINATION: March 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
LOCALITY: Glenn, Lassen, Modoc, Shasta, Siskiyou, Tehama, and Trinity Counties (REF: 61-1245-12)

<table>
<thead>
<tr>
<th>CRAFT/CCLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health 4.75</th>
<th>Pension 0.66&quot;</th>
<th>Vacation 0.59</th>
<th>Holiday 0.71&quot;</th>
<th>Straight-Time Hours</th>
<th>Total 8</th>
<th>Overtime Daily 1 1/2X</th>
<th>2X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climber</td>
<td>20.83</td>
<td>4.75</td>
<td>0.66&quot;</td>
<td>1.04&quot;</td>
<td>-</td>
<td>8</td>
<td>27.28</td>
<td>32.18&quot;</td>
<td>42.91</td>
</tr>
<tr>
<td>Groundperson First 6 months</td>
<td>11.81</td>
<td>4.75</td>
<td>0.37</td>
<td>0.59</td>
<td>-</td>
<td>8</td>
<td>17.52</td>
<td>18.25&quot;</td>
<td>24.33</td>
</tr>
<tr>
<td>Groundperson After 6 months</td>
<td>14.18</td>
<td>4.75</td>
<td>0.45&quot;</td>
<td>0.71&quot;</td>
<td>-</td>
<td>8</td>
<td>20.09</td>
<td>21.91&quot;</td>
<td>29.21</td>
</tr>
</tbody>
</table>

Footnotes listed on page 2F
(Recognized Holidays and Travel and Subsistence Payment footnotes listed on page 2G-1)
CRAFT: **TREE TRIMMER (HIGH VOLTAGE LINE CLEARANCE)**

**DETERMINATION:** C-TT-2010-2H  
**ISSUE DATE:** August 22, 2010  
**EXPIRATION DATE OF DETERMINATION:** August 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.  
**LOCALITY:** Plumas, Sierra, Solano, and Yolo Counties (REF: 61-1245-16)

<table>
<thead>
<tr>
<th>CRAFT/CLASSIFICATION</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic</td>
<td>Health and Welfare</td>
<td>Vacation</td>
</tr>
<tr>
<td>Climber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundperson</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 6 months</td>
<td>13.28</td>
<td>4.75</td>
<td>0.62</td>
</tr>
<tr>
<td>After 6 months</td>
<td>14.25</td>
<td>4.75</td>
<td>0.64</td>
</tr>
</tbody>
</table>

---

**DETERMINATION:** C-TT-2011-1I  
**ISSUE DATE:** February 22, 2011  
**EXPIRATION DATE OF DETERMINATION:** October 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.  
**LOCALITY:** Monterey, San Benito, San Luis Obispo, and Santa Cruz Counties (REF: 61-1245-12)

<table>
<thead>
<tr>
<th>CRAFT/CLASSIFICATION</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic</td>
<td>Health and Welfare</td>
<td>Vacation</td>
</tr>
<tr>
<td>Climber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundperson</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 6 months</td>
<td>13.98</td>
<td>4.75</td>
<td>0.44</td>
</tr>
<tr>
<td>After 6 months</td>
<td>14.97</td>
<td>4.75</td>
<td>0.47</td>
</tr>
</tbody>
</table>

---

^a Not an apprenticeable craft.  
^ Rate applies to the first 4 daily overtime hours. All other overtime is at the double time rate. A normal non-work day in the same workweek may be worked at straight time if job is shut down during the normal workweek due to inclement weather.  
• $0.65 after 3 years of service; $0.66 after 10 years.  
• $0.79 after 3 years of service; $1.18 after 10 years.  
• $0.54 after 3 years of service; $0.65 after 10 years.  
• $0.65 after 3 years of service; $0.66 after 10 years.  
• $0.79 after 3 years of service; $0.66 after 10 years.  
• $0.54 after 3 years of service; $0.55 after 10 years.  
• $0.67 after 1 year of service; $0.69 after 9 years.  
• $1.53 after 1 year of service; $2.02 after 9 years.  
• $0.46 after 1 year of service; $0.47 after 9 years.  
• $0.67 after 1 year of service; $0.69 after 9 years.  
• Rate also applies to Holidays.  
• $1.53 after 1 year of service; $2.02 after 9 years.  
• $0.46 after 1 year of service; $0.47 after 9 years.  
• $0.67 after 1 year of service; $0.69 after 9 years.  
• $0.46 after 3 years of service; $0.47 after 10 years.  
• $0.69 after 3 years of service; $0.70 after 10 years.  
• $1.04 after 1 year of service; $1.37 after 9 years.  
• $0.68 after 3 years of service; $0.69 after 10 years.  
• $0.82 after 3 years of service; $1.23 after 10 years.  
• $0.47 after 3 years of service; $0.47 after 10 years.  
• $0.56 after 3 years of service; $0.84 after 10 years.  
• $0.67 after 1 year of service; $0.69 after 9 years.  
• $1.53 after 1 year of service; $2.02 after 9 years.  
• $0.46 after 1 year of service; $0.47 after 9 years.  
• $1.05 after 1 year of service; $1.39 after 9 years.  
• $0.54 after 3 years of service; $0.55 after 10 years.  
• $0.66 after 3 years of service; $0.67 after 10 years.  
• $0.70 after 1 year of service; $0.72 after 9 years.  
• $1.59 after 1 year of service; $2.10 after 9 years.  
• $0.48 after 1 year of service; $0.49 after 9 years.  
• $0.67 after 1 year of service; $1.23 after 10 years.  
• $0.54 after 3 years of service; $0.55 after 10 years.
### CRAFT: ##TREE TRIMMER (LINE CLEARANCE)

**Determination:** C-TT-61-465-5-2010-1  
**Issue Date:** August 22, 2010  
**Expiration Date of Determination:** September 3, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Locality:** All localities within San Diego County.

<table>
<thead>
<tr>
<th>CRAFT/CLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension</th>
<th>Vacation and Holiday</th>
<th>Training Hours</th>
<th>Total Hourly Rate</th>
<th>Daily&lt;sup&gt;aa&lt;/sup&gt;</th>
<th>Daily&lt;sup&gt;bb&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Trimmer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainee (0-18 Months)</td>
<td>16.18</td>
<td>0.89</td>
<td>-</td>
<td>1.06</td>
<td>-</td>
<td>8</td>
<td>18.13</td>
<td>26.22</td>
</tr>
<tr>
<td>1st year Climber</td>
<td>18.26</td>
<td>0.89</td>
<td>-</td>
<td>1.19</td>
<td>-</td>
<td>8</td>
<td>20.34</td>
<td>29.47</td>
</tr>
<tr>
<td>2nd year Climber</td>
<td>20.76</td>
<td>0.89</td>
<td>-</td>
<td>1.76</td>
<td>-</td>
<td>8</td>
<td>23.41</td>
<td>33.79</td>
</tr>
<tr>
<td>Thereafter Climber</td>
<td>23.28</td>
<td>0.89</td>
<td>-</td>
<td>1.97&lt;sup&gt;cc&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>26.14</td>
<td>37.78</td>
</tr>
<tr>
<td>Groundman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td>13.18</td>
<td>0.89</td>
<td>-</td>
<td>0.86</td>
<td>-</td>
<td>8</td>
<td>14.93</td>
<td>21.52</td>
</tr>
<tr>
<td>Thereafter</td>
<td>14.23</td>
<td>0.89</td>
<td>-</td>
<td>1.20&lt;sup&gt;dd&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>16.32</td>
<td>23.435</td>
</tr>
</tbody>
</table>

### DETERMINATION: C-TT-61-465-5A-2009-1  
**Issue Date:** February 22, 2009  
**Expiration Date of Determination:** January 1, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Locality:** All localities within Imperial County.

<table>
<thead>
<tr>
<th>CRAFT/CLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension</th>
<th>Vacation and Holiday</th>
<th>Training Hours</th>
<th>Total Hourly Rate</th>
<th>Daily&lt;sup&gt;aa&lt;/sup&gt;</th>
<th>Daily&lt;sup&gt;bb&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Trimmer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year Climber</td>
<td>15.47</td>
<td>0.93</td>
<td>-</td>
<td>0.95</td>
<td>-</td>
<td>8</td>
<td>17.35</td>
<td>25.09</td>
</tr>
<tr>
<td>2nd year Climber</td>
<td>17.05</td>
<td>0.93</td>
<td>-</td>
<td>1.38</td>
<td>-</td>
<td>8</td>
<td>19.36</td>
<td>27.88</td>
</tr>
<tr>
<td>Thereafter Climber</td>
<td>17.63</td>
<td>0.93</td>
<td>-</td>
<td>1.42&lt;sup&gt;ee&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>19.98</td>
<td>28.80</td>
</tr>
<tr>
<td>Groundman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td>11.67</td>
<td>0.93</td>
<td>-</td>
<td>0.72</td>
<td>-</td>
<td>8</td>
<td>13.32</td>
<td>19.16</td>
</tr>
<tr>
<td>Thereafter</td>
<td>15.47</td>
<td>0.93</td>
<td>-</td>
<td>1.25&lt;sup&gt;ff&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>17.65</td>
<td>25.39</td>
</tr>
</tbody>
</table>

### DETERMINATION: C-TT-61-47-3-2010-1  
**Issue Date:** February 22, 2010  
**Expiration Date of Determination:** January 1, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Locality:** All localities within Inyo, Los Angeles, Mono, Orange, Riverside, San Bernardino, Santa Barbara, and Ventura Counties.

<table>
<thead>
<tr>
<th>CRAFT/CLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Health and Welfare</th>
<th>Pension</th>
<th>Vacation and Holiday</th>
<th>Training Hours</th>
<th>Total Hourly Rate</th>
<th>Daily&lt;sup&gt;aa&lt;/sup&gt;</th>
<th>Daily&lt;sup&gt;bb&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Trimmer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year Climber</td>
<td>11.85</td>
<td>3.59</td>
<td>0.18</td>
<td>0.55</td>
<td>-</td>
<td>8</td>
<td>16.17</td>
<td>22.10&lt;sup&gt;bb&lt;/sup&gt; 28.02</td>
</tr>
<tr>
<td>2nd year Climber</td>
<td>12.10</td>
<td>3.59</td>
<td>0.18</td>
<td>0.56</td>
<td>-</td>
<td>8</td>
<td>16.43</td>
<td>22.48&lt;sup&gt;bb&lt;/sup&gt; 28.53</td>
</tr>
<tr>
<td>3rd year Climber</td>
<td>12.88</td>
<td>3.59</td>
<td>0.19</td>
<td>0.59</td>
<td>-</td>
<td>8</td>
<td>17.25</td>
<td>23.69&lt;sup&gt;bb&lt;/sup&gt; 30.13</td>
</tr>
<tr>
<td>4th year Climber</td>
<td>13.39</td>
<td>3.59</td>
<td>0.20</td>
<td>0.62</td>
<td>-</td>
<td>8</td>
<td>17.80</td>
<td>24.50&lt;sup&gt;bb&lt;/sup&gt; 31.19</td>
</tr>
<tr>
<td>5th year Climber</td>
<td>14.00</td>
<td>3.59</td>
<td>0.21</td>
<td>0.65&lt;sup&gt;ii&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>18.45</td>
<td>25.45&lt;sup&gt;bb&lt;/sup&gt; 32.45</td>
</tr>
<tr>
<td>Tree Trimmer Trainee</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 (0-6 Months)</td>
<td>10.75</td>
<td>3.59</td>
<td>0.16</td>
<td>0.50</td>
<td>-</td>
<td>8</td>
<td>15.00</td>
<td>20.38&lt;sup&gt;bb&lt;/sup&gt; 25.75</td>
</tr>
<tr>
<td>Step 2 (7-18 Months)</td>
<td>11.50</td>
<td>3.59</td>
<td>0.17</td>
<td>0.53</td>
<td>-</td>
<td>8</td>
<td>15.79</td>
<td>21.54&lt;sup&gt;bb&lt;/sup&gt; 27.29</td>
</tr>
<tr>
<td>Groundman</td>
<td>10.35</td>
<td>3.59</td>
<td>0.16</td>
<td>0.48&lt;sup&gt;jj&lt;/sup&gt;</td>
<td>-</td>
<td>8</td>
<td>14.58</td>
<td>19.75&lt;sup&gt;bb&lt;/sup&gt; 24.93</td>
</tr>
</tbody>
</table>

Footnotes listed on page 2G-1  
(Recognized Holidays and Travel and Subsistence Payment footnotes listed on page 2G-1)
RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
CRAFT: # STATOR REWINDER

DETERMINATION: C-738-1412-7-2008-1
ISSUE DATE: August 22, 2008
EXPIRATION DATE OF DETERMINATION: September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

LOCALITY: All localities within the State of California.

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Rate</td>
<td>Health Pension</td>
<td>Vacation</td>
</tr>
<tr>
<td>Stator Rewinder</td>
<td>$15.20</td>
<td>$1.36</td>
<td>$2.18</td>
</tr>
<tr>
<td>Stator Rewinder Helper</td>
<td></td>
<td>$1.05</td>
<td>$1.69</td>
</tr>
<tr>
<td>(First 6 Months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stator Rewinder Helper</td>
<td></td>
<td>$1.07</td>
<td>$1.72</td>
</tr>
<tr>
<td>(After 6 Months)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

a Contributions are factored at the appropriate overtime multiplier.

b Rate applies to the first 4 daily overtime hours and the first 12 hours on Saturday. After 12 hours daily, the Sunday double-time rate applies.

c Rate applies to the first two years of employment only: for employment over two years, $.58 per hour worked; for employment over five years, $.73 per hour worked; for employment over seven years, $.88 per hour worked; for employment over fifteen years, $1.17 per hour worked; for employment over twenty years, $1.46 per hour worked; for employment over thirty years, $1.75 per hour worked.

d Rates apply to the first two years of employment only: for employment over two years, $.46 per hour worked; for employment over five years, $.57 per hour worked; for employment over seven years, $.69 per hour worked; for employment over fifteen years, $.92 per hour worked; for employment over twenty years, $1.15 per hour worked; for employment over thirty years, $1.38 per hour worked.

e Does not include any additional amount that may be required for vacation pay.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1 FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: # ELECTRICAL UTILITY LINEMAN

DETERMINATION: C-61-X-8-2008-1
ISSUE DATE: August 22, 2008
EXPIRATION DATE OF DETERMINATION: September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after ten days from the expiration date if no subsequent determination is issued.

LOCALITY: All localities within Del Norte, Modoc and Siskiyou counties.

<table>
<thead>
<tr>
<th>CLASSIFICATION (Journeyperson)</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health and Welfare</td>
<td>Pension Training and Other Payments</td>
</tr>
<tr>
<td>Lineman, Heavy Line Equipment man, Certified Lineman Welder, Pole Sprayer</td>
<td>$36.13</td>
<td>4.75</td>
<td>$5.60</td>
</tr>
<tr>
<td>Cable Splicer</td>
<td>40.47</td>
<td>4.75</td>
<td>$5.60</td>
</tr>
<tr>
<td>Line Equipment Man</td>
<td>31.07</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
<tr>
<td>Powderman, Jackhammer Man</td>
<td>27.10</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
<tr>
<td>Groundman</td>
<td>25.29</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
<tr>
<td>Pole Sprayer Trainee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First six months</td>
<td>30.96</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
<tr>
<td>Second six months</td>
<td>32.44</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
<tr>
<td>Third six months</td>
<td>33.53</td>
<td>4.75</td>
<td>$3.85</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

a In addition, an amount equal to 3% of the Basic Hourly Rate is added to the total hourly rate and overtime hourly rate for the National Employees Benefit Board.
b This amount is factored at the applicable overtime rate.
c This amount includes $0.01 for the National Labor-Management Cooperation Committee, and the remainder of the amount is for the Administrative Maintenance Fund. This amount (AMF) is factored at the applicable overtime rate
d Applies to the first 2 hours of overtime on a regular workday. All hours in excess of 10 hours will be paid at the double time rate.
e Applies to the first 8 hours on Saturday. All hours in excess of 8 hours on Saturday will be paid the Sunday and Holiday double time rate.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

Determination: C-MR-2009-1
Issue Date: August 22, 2009
Expiration date of determination: July 31, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415)703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.
Localities: All localities within Alameda, Contra Costa, Mendocino, and Solano Counties. (REF: 232-81-1)

<table>
<thead>
<tr>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$30.95</td>
<td>$5.79</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

# Saturdays in the same workweek may be worked at straight-time if job is shut down during the normal workweek due to inclement weather.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/ DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**Determination:** C-MR-2008-1A  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Amador, El Dorado, Placer, and Yuba Counties. (REF: 830-232-15)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>And Health</td>
<td>And Vacation</td>
</tr>
<tr>
<td>Amador County:</td>
<td>$20.41</td>
<td>$5.79</td>
<td>$2.80</td>
</tr>
<tr>
<td>El Dorado County:</td>
<td>$18.81</td>
<td>$5.35</td>
<td>$2.80</td>
</tr>
<tr>
<td>Placer and Yuba Counties</td>
<td>$21.11</td>
<td>$5.79</td>
<td>$3.00</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

* The credit for employer payments do not have to be computed on an annualized basis where the employer seeks credit for employer payments that are higher for public works projects than private construction performed by the same employer. The director determined that annualization would not serve the purpose of this chapter pursuant to California Labor Code Section 1773.1(d)(4).

* Saturdays in the same workweek may be worked at straight-time if job is shut down for 2 or more days during the normal workweek due to wind, rain, snow or ice, fog, frost, dew or extreme heat.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS**

PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1

FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

---

**# METAL ROOFING SYSTEMS INSTALLER**

**Determination:** C-MR-2008-1B  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008*  
Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Butte and Lassen Counties. (REF: 830-232-16)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Holiday</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$24.74</td>
<td>-</td>
<td>$8.00</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

† Rate applies to all hours work in excess of 8 hours per day and 40 hours during any one week.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS**

**# METAL ROOFING SYSTEMS INSTALLER**

**Determination:** C-MR-2008-1C  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Calaveras County. (REF: 830-166-4)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Health And Vacation And Total Hours Rate Daily Sat Holiday</td>
<td></td>
<td></td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$47.59</td>
<td>$0.45</td>
<td>8.0</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

* The credit for employer payments do not have to be computed on an annualized basis where the employer seeks credit for employer payments that are higher for public works projects than private construction performed by the same employer. The director determined that annualization would not serve the purpose of this chapter pursuant to California Labor Code Section 1773.1(d)(4).

* Rate applies to all hours work in excess of 8 hours per day and 40 hours during any one week.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2008-1D  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008  
*Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Fresno, Marin, Sacramento, San Joaquin, Sonoma, and Yolo Counties. (REF: 830-232-18)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Holiday</td>
</tr>
<tr>
<td>Fresno County:</td>
<td>$23.05</td>
<td>$3.60</td>
<td>$3.60</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>Marin and Sonoma Counties:</td>
<td>$24.65</td>
<td>$5.79</td>
</tr>
<tr>
<td>Sacramento and Yolo Counties:</td>
<td># Metal Roofing Systems Installer</td>
<td>$21.11</td>
<td>$5.79</td>
</tr>
<tr>
<td>San Joaquin County:</td>
<td># Metal Roofing Systems Installer</td>
<td>$18.81</td>
<td>$5.35</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

^ Included in straight-time hourly rate.

^ Saturdays in the same workweek may be worked at straight-time if job is shut down during the normal workweek due to inclement weather.

^ Saturdays in the same workweek may be worked at straight-time if job is shut down for 2 or more days during the normal workweek due to wind, rain, snow or ice, fog, frost, dew or extreme heat.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRSPWD](http://www.dir.ca.gov/DLRSPWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRSPWD](http://www.dir.ca.gov/DLRSPWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**Determination:** C-MR-2008-1E  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
**Localities:** All localities within Humboldt, Madera, Napa, and Shasta Counties. (REF: 830-232-17)

### Employer Payments

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Pension</th>
<th>Vacation And Holiday</th>
<th>Training</th>
<th>Other</th>
<th>Total Hourly Rate</th>
<th>Sunday/Daily Holiday Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humboldt County:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>## Metal Roofing Systems Installer</td>
<td>$16.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$2.00</td>
<td>$18.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>Madera County:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$26.75</td>
<td>$2.00</td>
<td>$2.00</td>
<td>-</td>
<td>$0.15</td>
<td>-</td>
<td>$30.90</td>
<td>$44.275$</td>
</tr>
<tr>
<td>Napa County:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>## Metal Roofing Systems Installer</td>
<td>$18.00</td>
<td>-</td>
<td>-</td>
<td>$0.35</td>
<td>-</td>
<td>-</td>
<td>$18.35</td>
<td>$27.35$</td>
</tr>
<tr>
<td>Shasta County:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>## Metal Roofing Systems Installer</td>
<td>$19.83</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$0.20</td>
<td>-</td>
<td>$20.03</td>
<td>$29.945$</td>
</tr>
</tbody>
</table>

*# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

**# Rates for apprentices are not available in the General Prevailing Wage Apprentice Schedule.**

**a Rate applies to all hours work in excess of 8 hours per day and 40 hours during any one week.**

*** There is no predetermined increase applicable to this determination.**

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1 FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2011-1F  
**Issue Date:** February 22, 2011  
**Expiration date of determination:** June 30, 2011*  
*Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after ten days after the expiration date if no subsequent determination is issued.

**Localities:** All localities within Los Angeles, Orange, Riverside and San Bernardino Counties. (REF: 166-102-1)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Health And</td>
<td>Total Health And</td>
<td>Daily</td>
</tr>
<tr>
<td></td>
<td>Hourly Rate</td>
<td>Vacation And Pension Training Other Hours Rate</td>
<td>Saturday Holiday</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$42.54$</td>
<td>$6.62$</td>
<td>$10.06$</td>
</tr>
</tbody>
</table>

*Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

*a Includes amount withheld for Working Dues.

*b Saturdays in the same workweek may be worked at straight-time if job is shut down during the normal workweek due to inclement weather.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2010-1G  
**Issue Date:** February 22, 2010  
**Expiration date of determination:** June 30, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
**Localities:** All localities within Monterey County. (REF: 166-104-10)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday Training</th>
<th>Other Hours</th>
<th>Total Hourly Rate</th>
<th>Straight-Time Daily Rate (1½ X)</th>
<th>Saturday Rate (1½ X)</th>
<th>Sunday/ Holiday Rate (2 X)</th>
</tr>
</thead>
<tbody>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$37.32</td>
<td>$10.59</td>
<td>$11.97</td>
<td>$1.66</td>
<td>$0.57</td>
<td>8.0</td>
<td>$62.11</td>
<td>$81.64</td>
<td>$101.17</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

* Includes amount withheld for Dues Check Off.

* An amount equal to 3% of wages and employee benefits (excluding training) is added for National SASMI Fund (Wage Stabilization Plan). This amount is factored into overtime hourly rate.

* Included in Straight-Time hourly rate.

* Rate applies to the first 2 daily overtime hours and the first 8 hours on Saturday only; All other time is paid at the Sunday and Holiday overtime hourly rate.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

Determination: C-MR-2011-11  
Issue Date: February 22, 2011  
Expiration date of determination: June 30, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

Localities: All localities within San Diego County. (REF: 166-206-1)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>And Health And Vacation And Welfare And Pension And Holiday And Training And Other</td>
<td>Total Hours Rate</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$34.05$</td>
<td>$6.62$</td>
<td>$9.34$</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

$ Indicates amount withheld for Working Dues.

$ Includes an amount for the Sheet Metal Occupational Health Institute Trust.

$ Includes amount for 401K Plan.

$ Includes an amount for International Training Institute.

$ Includes amounts for National Energy Management Institute (NEMI) Fund, Sheet Metal Workers’ International Scholarship Fund (SMWSF) and Industry Fund.

$ Saturdays in the same work week may be worked at straight-time if job is shut down during the normal workweek due to inclement weather.

$ Rate applies to the first 4 Daily overtime hours and the first 10 hours on Saturday; All other time is paid at the Sunday and Holiday overtime rate.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination: C-MR-2011-1J  
Issue Date: February 22, 2011  
Expiration date of determination: June 30, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
Localities: All localities within San Francisco, San Mateo and Santa Clara Counties. (REF: 166-104-1)  

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th></th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Total Hourly</td>
<td>Daily (1½ X)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vacation And Pension</td>
<td>Rate (1½ X)</td>
<td>Saturday (1½ X)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Training Other</td>
<td>Rate (2 X)</td>
<td>Holiday (2 X)</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$47.58</td>
<td>$13.18</td>
<td>$16.02</td>
<td>$1.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$0.99</td>
<td>8.0</td>
<td>$78.98</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$102.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$102.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$126.56</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

* Indicates an apprenticeable craft.  

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2011-1K  
**Issue Date:** February 22, 2011  
**Expiration date of determination:** June 30, 2011* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Santa Barbara County. (REF: 20-X-1)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$33.00</td>
<td>$7.88</td>
<td>$7.56</td>
</tr>
</tbody>
</table>

* Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

*a* Includes supplemental dues.

*b* Rate applies to the first 2 daily overtime hours and the first 8 hours on Saturday. All other time is at the Sunday/Holiday rate.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

Determination: C-MR-2011-1L
Issue Date: February 22, 2011
Expiration date of determination: June 30, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.

Localities: All localities within Siskiyou County. (REF: 23-31-1)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday And Training</th>
<th>Other</th>
<th>Total Hours</th>
<th>Straight-Time Rate</th>
<th>Overtime Hourly Rate</th>
<th>Sunday/ Holiday</th>
</tr>
</thead>
<tbody>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$30.27</td>
<td>$9.59</td>
<td>$3.92</td>
<td>$0.58</td>
<td>$2.34</td>
<td>8.0</td>
<td>$53.60</td>
<td>$68.735 $83.87</td>
<td>$83.87</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards’ website at http://www.dir.ca.gov/das/das.html

a Includes an amount for UBC Health & Safety Fund and National Apprenticeship Fund.
b Includes an amount per hour worked for Work Fees. The vacation amount is $2.40 per hour worked.
c Includes amounts for Annuity Trust Fund, Industry Advancement, and Work Preservation.
d For building construction, rate applies to the first 4 hours daily overtime. All heavy, highway and engineering construction overtime worked, Monday through Friday, rate applies to the first 4 hours daily overtime.
e Saturdays in the same work week may be worked at straight-time if job is shut down during the normal work week due to inclement weather or major mechanical breakdown.
f Rate applies to the first 8 hours for building construction and for the first 10 hours worked on heavy, highway and engineering construction.
g Time and one-half shall be paid for the first eight (8) hours worked on the four (4) days of each year selected by the Union as designated off/holidays listed in the Holiday Provision.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

2J-12
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2008-1M  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008  
*Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.*

**Localities:** All localities within Stanislaus County. (REF: 830-166-5)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$32.84b</td>
<td>$7.43</td>
<td>$7.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at http://www.dir.ca.gov/das/das.html.

b Includes amount for Vacation/Holiday and Dues Check Off.  
c Included in straight-time hourly rate.  
d Rate applies to the first 2 daily overtime hours and the first 8 hours on Saturday only; All other time is paid at the Sunday and Holiday overtime hourly rate.  
* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2010-1N  
**Issue Date:** February 22, 2010  
**Expiration date of determination:** August 31, 2010  
**Localities:** All localities within Tulare County. (REF: 232-27-1)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$27.65</td>
<td>$3.75</td>
<td>$4.15</td>
</tr>
</tbody>
</table>

# Indicates an apprenticeable craft. Effective as of July 1, 2008, the issuance and publication of the prevailing wage apprentice schedules/apprentice wage rates have been reassigned by the Department of Industrial Relations from the Division of Labor Statistics and Research to the Division of Apprenticeship Standards. To obtain any apprentice schedules/apprentice wage rates, please contact the Division of Apprenticeship Standards or refer to the Division of Apprenticeship Standards' website at [http://www.dir.ca.gov/das/das.html](http://www.dir.ca.gov/das/das.html).

* Indicates amount for Vacation/Holiday and Dues Check Off.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

# METAL ROOFING SYSTEMS INSTALLER

**Determination:** C-MR-2008-10  
**Issue Date:** August 22, 2008  
**Expiration date of determination:** September 30, 2008* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Ventura County. (REF: 830-166-6)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Total Hours</td>
<td>Rate</td>
</tr>
<tr>
<td></td>
<td>Health And Welfare</td>
<td>And</td>
<td>Vacation And Holiday</td>
</tr>
<tr>
<td># Metal Roofing Systems Installer</td>
<td>$30.29(^a)</td>
<td>$6.60</td>
<td>$5.75(^b)</td>
</tr>
</tbody>
</table>

\(^a\) Includes amount withheld for Dues Check Off.  
\(^b\) Includes an amount per hour for COLA Fund.  
\(^c\) Included in straight-time hourly rate.  
\(^d\) Rate applies to the first 4 overtime hours Monday through Friday and the first 8 hours on Saturday & Sunday. All other overtime is paid at the Double time and Holiday rate.  
\(^e\) Rate applies after 4 overtime hours Monday through Friday, after 8 hours Saturday and Sunday and all hours worked on Holidays.  

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

Determination: C-MT-261-X-265-2010-1
Issue Date: August 22, 2010
Expiration date of determination: July 31, 2011** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Division of Labor Statistics and Research for specific rates at (415) 703-4774.
Localities: All localities within Alameda, Contra Costa, Marin, Napa, Solano and Sonoma Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th></th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
<td>Total Hourly Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>And Pension</td>
<td>Holiday Training</td>
<td>Hours</td>
</tr>
<tr>
<td>Ready Mix Driver</td>
<td>$25.65</td>
<td>$8.41</td>
<td>$5.65</td>
<td>$2.25</td>
</tr>
</tbody>
</table>

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS**
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)**

**Determination:** C-MT-830-261-5-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010  
* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
**Localities:** All localities within Alpine, Amador, Calaveras, San Joaquin and Tuolumne Counties

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Total And Holiday Training</th>
<th>Other Hours</th>
<th>Sunday/ Holiday (1½ X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$20.10</td>
<td>$3.09</td>
<td>$1.005</td>
<td>8.0</td>
<td>24.195</td>
<td>$34.245</td>
</tr>
</tbody>
</table>

*The contribution applies to all hours until $535.26 is paid for the month.  
$1.39 after 3 years of service  
$1.78 after 10 years of service  
$2.16 after 20 years of service  
Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.  
* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

Issue Date:  August 22, 2009
Expiration date of determination:  June 30, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from the expiration date, if no subsequent determination is issued.
Localities: All localities within Butte, Colusa, El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba Counties.

Employer Payments

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Total Hours</th>
<th>Sunday/Saturday Holiday Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$26.50</td>
<td>$6.89a</td>
<td>$8.97b</td>
<td>8.0</td>
<td>$42.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c</td>
<td></td>
<td>$55.61</td>
</tr>
</tbody>
</table>

a Health and Welfare is applicable for workers who have worked at least eighty (80) hours in the previous calendar month. Contribution applies to all work until $1195 is paid for the month.
b An amount ($4.66) shall be paid for all hours worked up to 173 hours per month.
c $0.92 after 30 days of service with the employer
$1.43 after 1 year of service with the employer
$1.94 after 2 years of service with the employer
$2.45 after 5 years of service with the employer
$2.96 after 15 years of service with the employer
$3.47 after 25 years of service with the employer

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination: C-MT-261-624-17-2009-1  
Issue Date: February 22, 2009  
Expiration date of determination: March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

Localities: All localities within Del Norte, Humboldt and Mendocino Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td>Driver: Mixer Truck</td>
<td>$22.50</td>
<td>$4.81 a</td>
<td>$5.60</td>
</tr>
</tbody>
</table>

a The contribution applies to all hours until $833.00 is paid for the month.
b Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.

* There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination:  C-MT-830-261-4-2009-1
Issue Date:  February 22, 2009
Expiration date of determination:  March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from expiration date, if no subsequent determination is issued.
Localities:  All localities within Fresno, Madera, Mariposa, Merced and Stanislaus Counties.

Employer Payments

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday Training</th>
<th>Other</th>
<th>Total Hours</th>
<th>Sunday/Daily Hours (1½ X)</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$18.50</td>
<td>$5.44</td>
<td>$0.71</td>
<td>-</td>
<td>-</td>
<td>8.0</td>
<td>$24.65</td>
<td>$33.90</td>
</tr>
</tbody>
</table>

- The contribution applies to all hours until $943.38 is paid for the month.
- $1.42 after 1 year of service for the employer
- $1.78 after 5 years of service for the employer
- $2.13 after 15 years of service for the employer
- Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.
- There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

Determination: C-MT-830-261-2-2009-1
Issue Date: February 22, 2009
Expiration date of determination: March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

Localities: All localities within Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>Basic Hourly Rate</td>
<td>Total Hours</td>
<td>Sunday/ Daily</td>
</tr>
<tr>
<td></td>
<td>$14.80</td>
<td>$18.94</td>
<td>$26.34</td>
</tr>
<tr>
<td></td>
<td>$3.46</td>
<td>$0.68</td>
<td>$26.34</td>
</tr>
<tr>
<td></td>
<td>$0.97</td>
<td>$26.34</td>
<td>$26.34</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>$18.94</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>$26.34</td>
<td></td>
</tr>
</tbody>
</table>

a The contribution applies to all hours until $600 is paid for the month.
b $0.97 after 2 years of service
c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination: C-MT-261-36-95-2010-1  
Issue Date: February 22, 2010  
Expiration date of determination: August 28, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
Localities: All localities within Imperial and San Diego Counties.

### Employer Payments

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Pension</th>
<th>Vacation And Holiday</th>
<th>Total Training Other</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer Driver</td>
<td>$25.05</td>
<td>$4.75 a</td>
<td>$3.10 $1.25 b</td>
<td>-</td>
<td>8.0</td>
</tr>
</tbody>
</table>

a The contribution applies to all hours until $823.00 is paid for the month. 
b $1.73 after one year of service  
$2.22 after 7 years of service.  
$2.70 after 14 years of service.  
c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly. All work in excess of 12 hours daily shall be paid the Sunday/Holiday (2X) rate.

### RECOGNIZED HOLIDAYS

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

### TRAVEL AND/OR SUBSISTENCE PAYMENT

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination: C-MT-830-261-12-2009-1
Issue Date: February 22, 2009
Expiration date of determination: March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.
Localities: All localities within Inyo, Mono and San Bernardino Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Total Hours</th>
<th>Sunday/ Holiday Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$19.05</td>
<td>$6.66</td>
<td>$1.71</td>
<td>8.0</td>
<td>$38.115</td>
</tr>
</tbody>
</table>

*The contribution applies to all hours until $1155.24 is paid for the month.

b $1.54 after 7 years of service
$1.91 after 14 years of service

Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.

There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**General Prevailing Wage Determination**

**Craft:** Driver (On/Off-Hauling To/From Construction Site)

**Determination:** C-MT-261-87-119-2011-1  
**Issue Date:** February 22, 2011  
**Expiration date of determination:** January 15, 2012* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from the expiration date, if no subsequent determination is issued.  
**Localities:** All localities within Kern, Kings and Tulare Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And</td>
<td>Vacation And</td>
</tr>
<tr>
<td>Driver: Mixer Truck</td>
<td>$20.11</td>
<td>$4.89</td>
<td>$3.05</td>
</tr>
</tbody>
</table>

a The contribution applies to all hours until $847.50 is paid for the month.  
b Applies to workers who have been on payroll for thirty (30) days. After 1 year of employment, Vacation and Holiday increases to $1.08. After 2 years of employment, Vacation and Holiday increases to $1.47. After 8 years of employment, Vacation and Holiday increases to $1.86.  
c Overtime is paid at two times (2x) the basic hourly rate for work performed in excess of twelve (12) hours in any work day.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-MT-261-624-18-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010*  
Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from expiration date, if no subsequent determination is issued.

**Localities:** All localities within Lake County.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>And Holiday Training</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>8.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Driver: Mixer Truck</td>
<td>$20.60</td>
<td>$4.81</td>
<td>$6.00</td>
</tr>
</tbody>
</table>

*The contribution applies to all hours until $833.00 is paid for the month.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)**

**Determination:** C-MT-261-X-258-2009-2  
**Issue Date:** August 22, 2009  
**Expiration date of determination:** June 30, 2010  
**Localities:** All localities within Los Angeles, Orange and Ventura Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Straight-Time Hourly Rate</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Saturday/Holiday</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health</td>
<td>And</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rate</td>
<td>And</td>
</tr>
<tr>
<td>Ready Mix Driver</td>
<td>$21.25</td>
<td>$4.60</td>
<td>$3.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- New hires will be subject to employment at hourly rates that are four dollars ($4.00) less, three dollars ($3.00) less, two dollars ($2.00) less, and one dollar ($1.00) less than the straight time hourly rate for time periods of twelve (12) months each until they reach the Journeyman basic hourly rate.
- The contribution applies to all hours until $796.50 is paid for the month.
- $0.98 after 4 months of service  
- $1.39 after 1 year of service  
- $1.80 after 7 years of service  
- $2.21 after 14 years of service
- Includes $0.57 for Holidays after four (4) months, which would be deducted from the Vacation/Holiday rate if you choose to adopt the paid days off enumerated in the Holiday Provisions.
- Emergency work and breakdown on Sundays shall be paid at time and one-half (1½x) the straight time rate.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
### CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-MT-830-261-3-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010*  

Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Monterey, San Benito, San Francisco, San Mateo, Santa Clara, and Santa Cruz Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Training</th>
<th>Holiday</th>
<th>Total Hours</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$21.50</td>
<td>$9.64</td>
<td>$1.72</td>
<td>$0.99</td>
<td>-</td>
<td>-</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*This amount is factored at the applicable overtime rate.*  
b $1.41 after 2 years of service  
$1.82 after 10 years of service  
$2.23 after 20 years of service  

c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.  
* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS 
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1 
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS 

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-MT-830-261-1-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.  
**Localities:** All localities within Nevada and Sierra Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday And Training</th>
<th>Other</th>
<th>Straight-Time Total Hourly Rate</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Mixer Truck</td>
<td>$19.25</td>
<td>$2.96</td>
<td>$0.22</td>
<td>-</td>
<td>-</td>
<td>8.0</td>
<td>$22.43</td>
</tr>
</tbody>
</table>

* The contribution applies to all hours until $513.04 is paid for the month.  
  * $0.59 after 2 years of service  
  * $0.96 after 5 years of service  
  * Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.  
  * There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

2K-13
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-MT-830-261-11-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Riverside County.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare Pension Health And Holiday Training Other Hours Hourly Rate</td>
<td>Total Daily Holiday Hours Rate</td>
</tr>
<tr>
<td>Driver: Mixer Truck</td>
<td>$15.00</td>
<td>$6.33</td>
<td>$1.80</td>
</tr>
</tbody>
</table>

- a The contribution applies to all hours until $1097.30 is paid for the month.
- b $1.33 after 4 years of service
- $1.61 after 14 years of service
- $1.90 after 24 years of service

- c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.
- * There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

2K-14
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

Determination:  C-MT-830-261-6-2009-1
Issue Date:  February 22, 2009
Expiration date of determination:  March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations.  Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

Localities: All localities within San Luis Obispo County.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employment Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td>Driver: Mixer Truck</td>
<td>$19.14</td>
<td>$3.04</td>
<td>$3.42</td>
</tr>
</tbody>
</table>

*a The contribution applies to all hours until $526.19 is paid for the month.  
*b $1.40 after 2 years of service,  
$1.70 after 10 years of service.  
*c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.  
* There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)**

**Determination:** C-MT-261-186-15-2010-1  
**Issue Date:** February 22, 2010  
**Expiration date of determination:** March 27, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Santa Barbara County.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday And Training</th>
<th>Other</th>
<th>Total Hours</th>
<th>Sunday/Holiday (1½ X)*</th>
<th>Overtime Hourly Rate</th>
<th>Daily Holiday (2 X)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixer Driver</td>
<td>$21.15a</td>
<td>$4.91b</td>
<td>$3.44</td>
<td>$0.41c</td>
<td>-</td>
<td>8.0</td>
<td>$29.91</td>
<td>$40.485</td>
<td>$51.06</td>
</tr>
</tbody>
</table>

*aIncludes an amount ($0.03) for supplemental dues check off.  
bThe contribution applies to all hours until $850.00 is paid for the month.  
c$1.06 after 1 month of service  
$1.46 after 1 year of service  
$1.87 after 7 years of service  
$2.28 after 16 years of service.  
dIncludes, after one month, $0.65 for Holidays, which can be deducted from the Vacation/Holiday rate if you choose to adopt the paid days off enumerated in the Holiday Provisions.  
eRate applies to work in excess of eight (8) hours daily and forty (40) hours weekly. All work in excess of twelve (12) hours daily shall be paid the Sunday/Holiday (2X) rate.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**General Prevailing Wage Determination Made by the Director of Industrial Relations**

Pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1 for Commercial Building, Highway, Heavy Construction and Dredging Projects

**Craft: Driver (On/Off-Hauling To/From Construction Site)**

**Determination:** C-DT-830-261-7-2009-1  
**Issue Date:** February 22, 2009  
**Expiration Date of Determination:** March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for new rates after 10 days from expiration date, if no subsequent determination is issued.

**Localities:** All localities within Alameda, Contra Costa, Del Norte, Humboldt, Lassen, Modoc, San Francisco, San Mateo, Santa Clara, Shasta, Siskiyou and Trinity Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And</td>
<td>Vacation And</td>
</tr>
<tr>
<td></td>
<td>Health And Welfare</td>
<td>Pension</td>
<td>Holiday</td>
</tr>
<tr>
<td>Driver: Dump Truck</td>
<td>$22.50</td>
<td>$0.43</td>
<td>-</td>
</tr>
</tbody>
</table>

* Health and Welfare will increase from $0.00 to $1.16 after 90 days of service, which will be seen as an increase to the Total Hourly Rate as well.

| Health and Welfare will increase from $0.00 to $1.16 after 90 days of service, which will be seen as an increase to the Total Hourly Rate as well. |
| $0.78 after 90 days of service with the employer  
  $1.21 after 5 years of service with the employer  
  $1.65 after 10 years of service with the employer |
| Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly. |

**Recognized Holidays:** Holidays upon which the general prevailing hourly wage rate for holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**Travel and/or Subsistence Payment:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-DT-830-261-5-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within Alpine, Amador, Calaveras, El Dorado, Fresno, Kings, Madera, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Sierra, Stanislaus, Sutter, Tulare, Tuolumne and Yuba Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td>Driver: Dump Truck</td>
<td>$17.00</td>
<td>$3.09 a</td>
<td>$0.85 b</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a The contribution applies to all hours until $535.26 is paid for the month.

b $1.18 after 3 years of service  
$1.50 after 10 years of service  
$1.83 after 20 years of service

c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.

* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

Determination: C-DT-830-261-8-2009-1  
Issue Date: February 22, 2009  
Expiration date of determination: March 3, 2010*  
effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

Localities: All localities within Butte, Colusa, Glenn, Lake, Mendocino, Plumas and Tehama Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td>Driver: Dump Truck</td>
<td>$21.00</td>
<td>$2.81</td>
<td>$0.10</td>
</tr>
</tbody>
</table>

*The contribution applies to hours until $487.07 is paid for the month.  
0 $0.20 after 1 year of service,  
$0.50 after 2 years of service,  
Add $0.10 for every additional year of service to a maximum of $1.50 per hour for over 13 years of service.  
Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.  
* There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at http://www.dir.ca.gov/DLSR/PWD. Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at http://www.dir.ca.gov/DLRS/PWD. Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
Determination: C-DT-830-261-10-2009-1
Issue Date: February 22, 2009
Expiration date of determination: March 3, 2010* Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.
Localities: All localities within Imperial, Inyo, Los Angeles, Mono, Orange, Riverside, San Bernardino and San Diego Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>And Holiday</th>
<th>Training</th>
<th>Other</th>
<th>Total Hourly Rate</th>
<th>Sunday/ (1½ X)</th>
<th>Daily</th>
<th>(1½ X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Dump Truck</td>
<td>$17.00</td>
<td>$2.05</td>
<td>$0.085</td>
<td>$0.33</td>
<td>-</td>
<td>-</td>
<td>$19.465</td>
<td>$27.965</td>
<td>$27.965</td>
<td></td>
</tr>
</tbody>
</table>

* The contribution applies to all work up to $355.00 per month.

b $0.65 after 2 years of service
$0.98 after 5 years of service
$1.31 after 9 years of service

c Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.

There is no predetermined increase applicable to this determination.

RECOGNIZED HOLIDAYS: Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

TRAVEL AND/OR SUBSISTENCE PAYMENT: In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
GENERAL PREVAILING WAGE DETERMINATION MADE BY THE DIRECTOR OF INDUSTRIAL RELATIONS 
PURSUANT TO CALIFORNIA LABOR CODE PART 7, CHAPTER 1, ARTICLE 2, SECTIONS 1770, 1773 AND 1773.1 
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: DRIVER (ON/OFF-HAULING TO/FROM CONSTRUCTION SITE)

**Determination:** C-DT-830-261-6-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010  
*Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.*

**Localities:** All localities within Kern, Monterey, San Luis Obispo, Santa Barbara, and Ventura Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Employer Payments</th>
<th>Straight-Time</th>
<th>Overtime Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Hourly Rate</td>
<td>Health And Welfare</td>
<td>Vacation And Pension</td>
</tr>
<tr>
<td>Driver: Dump Truck</td>
<td>$16.76</td>
<td>$3.04⁴</td>
<td>$2.75</td>
</tr>
</tbody>
</table>

⁴ The contribution applies to all hours until $526.19 is paid for the month.
⁵ $1.22 after 2 years of service, $1.55 after 10 years of service.
⁶ Rate applies to work in excess of eight (8) hours daily and forty (40) hours weekly.
* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
**Determination:** C-DT-830-261-9-2009-1  
**Issue Date:** February 22, 2009  
**Expiration date of determination:** March 3, 2010*  
Effective until superseded by a new determination issued by the Director of Industrial Relations. Contact the Division of Labor Statistics and Research at (415) 703-4774 for the new rates after 10 days from the expiration date, if no subsequent determination is issued.

**Localities:** All localities within San Benito and Santa Cruz Counties.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic Hourly Rate</th>
<th>Health And Welfare</th>
<th>Vacation And Pension</th>
<th>Holiday Training</th>
<th>Other Hours</th>
<th>Straight-Time Total Hourly Rate</th>
<th>Overtime Hourly Rate</th>
<th>Sunday/ Holiday Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Dump Truck</td>
<td>$16.25</td>
<td>$9.64</td>
<td>$5.20</td>
<td>$0.56</td>
<td>$0.70</td>
<td>$0.48</td>
<td>8.0</td>
<td>$32.83</td>
</tr>
</tbody>
</table>

*a $0.875 after 1 year of service  
$1.19 after 7 years of service  
$1.50 after 19 years of service  

*b Overtime rate applies to all work exceeding eight (8) hours daily and forty (40) hours weekly.  
* There is no predetermined increase applicable to this determination.

**RECOGNIZED HOLIDAYS:** Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the Internet at [http://www.dir.ca.gov/DLSR/PWD](http://www.dir.ca.gov/DLSR/PWD). Holiday provisions for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.

**TRAVEL AND/OR SUBSISTENCE PAYMENT:** In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence requirements for the current determinations on the Internet at [http://www.dir.ca.gov/DLRS/PWD](http://www.dir.ca.gov/DLRS/PWD). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Prevailing Wage Unit at (415) 703-4774.
SECTION 80 - PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Engineer.

All Subcontractors shall be approved by the Owner prior to being utilized on the project. The Subcontractor shall submit a Subcontractor Approval Request to the Engineer fourteen (14) days prior to beginning work on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer.

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

80-02 NOTICE TO PROCEED. The notice to proceed will be issued by the Owner and shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit a coordinated construction schedule showing all work activities for the Engineer's approval at least 10 days prior to the start of work. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

The schedule shall be prepared as a network diagram in Critical Path Method (CPM), PERT, or other format, or as otherwise specified in the contract for each work area. As a minimum, it shall provide information on the sequence of work activities, start and end dates for each work area, milestone dates, and activity duration. The schedule shall reflect time for delivery of equipment that will impact the schedule as it relates to contract time. The schedule should also include overall project start and end dates.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a bi-weekly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 3 days in advance of resuming operations.

The Contractor shall not commence any construction activities prior to the date stated in the notice to proceed.

80-04 LIMITATION OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the
AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA (AOA) of the airport on an intermittent basis (intermittent opening and closing of the AIR OPERATIONS AREA), the Contractor shall maintain constant communications as hereinafter specified; immediately obey all instructions to vacate the AIR OPERATIONS AREA; immediately obey all instructions to resume work in such AIR OPERATIONS AREA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AIR OPERATIONS AREA until the satisfactory conditions are provided.

The following AIR OPERATIONS AREA cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

<table>
<thead>
<tr>
<th>Time Periods</th>
<th>Type of Communications</th>
<th>Controlling Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOA Can Be</td>
<td>Required When Working</td>
<td>in an AOA</td>
</tr>
<tr>
<td>Closed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(See the subsection titled WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS of Section 80.)

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction. See the subsection titled AVIATION SAFETY REQUIREMENTS DURING CONSTRUCTION (SAFETY PLAN) of Section 80.

80-04.1 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION. All Contractors’ operations shall be conducted in accordance with the project safety plan and the provisions set forth within the current version of Advisory Circular 150/5370-2. The safety plan included within the Contract Documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a plan that details how it proposes to comply with the requirements presented within the safety plan.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks of the safety plan measures to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the safety plan and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved safety plan unless approved in writing by the Owner or Engineer.

80-04.2 AVIATION SAFETY REQUIREMENTS DURING CONSTRUCTION (SAFETY PLAN) (See the Contract Drawings for Section 80-04.2 verbiage.)

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations and, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly.
shall, at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar or working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:
a. CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his/her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his/her weekly statement of contract time charged on the following considerations:

(1) No time shall be charged for days on which the Contractor is unable to proceed with work on the items under construction at the time with the normal work force employed on such items. Such days on which the Contractor chooses to engage in work which require the presence of an inspector will be charged against contract time. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(2) The Engineer will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The Engineer will begin charges against the contract time on the date stated in the notice to proceed.

(4) The Engineer will not make charges against the contract time after the date of final acceptance as defined in the subsection titled FINAL ACCEPTANCE of Section 50.

(5) The Contractor will be allowed 1 week in which to file a written protest setting forth his/her objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time is based on the originally estimated quantities as described in the subsection titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

b. CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and nonwork days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

c. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing
the actual amount of inclement weather exceeded which could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the contract time in such amount as the conditions justify. The extended contract time shall then be in full force and effect, the same as though it were the original contract time.

**80-08 FAILURE TO COMPLETE ON TIME.** (See the Contract Drawings for Section 80-08 verbiage.)

**80-09 DEFAULT AND TERMINATION OF CONTRACT.**

1. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons if the Contractor:
   a. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or
   b. Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or
   c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
   d. Discontinues the prosecution of the work, or
   e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
   f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
   g. Allows any final judgment to stand against him unsatisfied for a period of 10 days, or
   h. Makes an assignment for the benefit of creditors, or
   i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

2. Should the Engineer consider the Contractor in default of the contract for any reason hereinafter, he shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

3. If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

4. **Termination Of Contract:**
   a. The Owner may, by written notice, terminate this contract in whole or in part at any time, either for the Owner's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Owner.
   b. If the termination is for the convenience of the Owner, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.
c. If the termination is due to failure to fulfill the contractor's obligations, the Owner may take over the work and prosecute the same to completion by contract or otherwise. In such case, the contractor shall be liable to the Owner for any additional cost occasioned to the Owner thereby.

d. If, after notice of termination for failure to fulfill contract obligations, it is determined that the contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Owner. In such event, adjustment in the contract price shall be made as provided in paragraph b of this clause.

e. The rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

5. All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS. (See the Contract Drawings for Section 80-11 verbiage).
SPOILS DEPOSITION RELEASE FORM

To: City of Reedley, California (OWNER), and


Project: Apron Rehabilitation, Marking & Beacon

This SPOILS DEPOSITION RELEASE FORM is being forwarded to the above referenced OWNER and CONSULTANT to satisfy the Contract Documents governing the above referenced project. Pursuant to the Contract Documents, LANDOWNER has granted permission to CONTRACTOR to deposit spoils at LANDOWNER'S property located at ________________________________ (give specific location).

Further, CONTRACTOR hereby agrees to the greatest extent of the law, to release, indemnify, hold harmless, and defend the OWNER and CONSULTANT from any and all damage, liability, or cost (including reasonable attorney's fees and cost of defense) to the extent caused by or arising out of the deposition of the spoils on LANDOWNER'S property.

CONTRACTOR:    LANDOWNER:

_________________________    ____________________________
Signature                Signature

_________________________    ____________________________
Written Name & Title      Written Name & Title

_________________________    ____________________________
Company Name              Company Name

_________________________    ____________________________
Mailing Address (Street Name and Number)    Mailing Address (Street Name and Number)

_________________________    ____________________________
City, State, Zip Code      City, State, Zip Code

_________________________    ____________________________
Daytime Phone Number (Include Area Code)    Daytime Phone Number (Include Area Code)

_________________________    ____________________________
Date                      Date

END OF SECTION 80
SECTION 90 - MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Engineer, or his/her authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard may be weighed, and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60 F or will be corrected to the volume at 60 F using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton or hundredweight.

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure.
Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1 percent (0.1%) of the nominal rated capacity of the scale, but not less than 1 pound. The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of one-half of 1 percent (0.5%).

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

**90-02 SCOPE OF PAYMENT.** The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable
manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the subsection titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the “basis of payment” subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in the subsection titled OMITTED ITEMS of Section 40, the Engineer shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or nonperform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinafter provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. Extra work, performed in accordance with the subsection titled EXTRA WORK of Section 40, will be paid for at agreed prices specified in the change order or supplemental agreement authorizing the extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus an allowance for overhead and profit.

A. Agreed Price. If the extra work is to be paid under agreed prices, the prices shall be based upon the Contractor's price analysis of the cost of the work. The price analysis shall be provided by the Contractor and shall be based upon the Contractor's estimated breakdown of his/her cost for the work, including all charges based upon the items listed in this subsection below titled "Force Account". Lump sum costs for work, without accompanying detailed price analyses, will not be acceptable. Forms intended to aid the Contractor in compiling price analyses are available from the Engineer upon request.

B. Force Account.

1. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

2. Comparison of Record. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

3. Statement. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed
as follows:

a. Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.

b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

c. Quantities of materials, prices, and extensions.

d. Transportation of materials.

e. Overhead and Profit. If any of the work is performed by a subcontractor, the Contractor shall be paid the actual and reasonable cost of such subcontracted work computed as outlined in a through d above, or on such other basis as may be approved by the Owner. Subcontractor profit and overhead shall be paid as outlined in this section, plus an additional allowance of five percent (5%) of materials and direct labor to cover the Contractor's profit, superintendence, administration, insurance and other overhead. For the purposes of computing overhead and profit, only one level or tier of subcontractors will be allowed.

Overhead shall be defined to include, but not be limited to:
- premium on bonds;
- premium on insurance required by workman's compensation insurance, public liability and property damage insurance, unemployment insurance, social security tax, and other payroll taxes and such reasonable charges that are paid by the Contractor pursuant to written agreement with his/her employee;
- all salary and expenses of executive officers, supervising officers or supervising employees;
- all clerical or stenographic employees;
- all charges for minor equipment, such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc. and other miscellaneous supplies and services;
- all drafting room accessories such as paper, tracing cloth, blueprinting, etc.

Overhead and profit cost shall be computed at 20 percent of the following:
- Total Direct Labor Cost (actual hours worked multiplied by the basic hourly wage rate) plus supplemental benefits payments, payroll taxes, insurance payments and other labor related fringe benefit payments as defined in 'a' above, but not including the overtime additive payments. Overhead and profit shall not be paid on the premium portion of overtime.
- Total Cost of Materials as defined in c and d above.

Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

90-06 PARTIAL PAYMENTS. Partial payments will be made at least once each month as the work progresses. Said payments will be based upon estimates prepared by the Engineer of the value of the work performed and materials complete in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection titled PAYMENT FOR MATERIALS ON HAND of this section.

No partial payment will be made for work items lacking approved shop drawings, lacking acceptable manufacturer's material certifications, or when the amount due the Contractor since the last estimate amounts to less than five hundred dollars.
From the total of the amount determined to be payable on a partial payment, 5 percent of such total amount will be deducted and retained by the Owner until the final payment is made, except as may be provided (at the Contractor's option) in the subsection titled PAYMENT OF WITHHELD FUNDS of this section. The balance of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his/her option, as provided in the subsection titled PAYMENT OF WITHHELD FUNDS of this section, no such retainage shall be deducted.

When not less than 95 percent of the work has been completed, the Engineer may, at the Owner's discretion and with the consent of the surety, prepare an estimate from which will be retained an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final retained percentage or final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 15 calendar days from the receipt of each payment the prime contractor receives from the Sponsor. The prime contractor further agrees to pay retainage payments to each subcontractor under this prime contract no later than 15 calendar days from the receipt of retainage payment the prime contractor receives from the Sponsor. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Sponsor. This clause applies to both DBE and non-DBE subcontractors.

**90-07 PAYMENT FOR MATERIALS ON HAND.** Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in...
accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

**90-08 PAYMENT OF WITHHELD FUNDS.** At the Contractor's option, he/she may request that the Owner accept, in lieu of the percent retainage on partial payments described in the subsection titled PARTIAL PAYMENTS of this section, the Contractor's deposits in escrow. The Owner is under no obligation to accept the Contractor's request and may withhold retainage in accordance with the subsection titled PARTIAL PAYMENTS of this section. Acceptance of deposits in escrow shall be under the following conditions.

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the percent retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

e. Deposits in escrow shall be maintained for a period of time described in the subsection titled GUARANTY of this section, or the Contractor shall furnish a bond as described in the subsection titled SECURITY FOR GUARANTEE of this section.

**90-09 ACCEPTANCE AND FINAL PAYMENT.** When the contract work has been accepted in accordance with the requirements of the subsection titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of his/her objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

The payment of the final amount due under this Contract, and the adjustment and the payment of the bill rendered for work in accordance with any alterations of the same shall release the Owner from any and all claims or liabilities on account of work performed under said Contract, or any alterations thereof.

In case the execution of this Contract is delayed by action of the Owner, no claim for damages by reason of such delay shall be made or allowed. Should postponement or delay be occasioned by the precedence of other Contracts
on the line of work, which may be either let or executed before or after the execution of this Contract, no claim for
damages will be allowed; but the time for completion may be extended for a time equal to the delay or post-
ponement caused by such precedent Contracts.

90-10 CLOSEOUT DOCUMENTATION. The following documents and information shall be completed and
submitted to the Engineer prior to final payment to facilitate project closeout:

1. Weekly certified payrolls for contractor’s and each subcontractor’s work forces.
2. Manufacturer’s certifications for all items incorporated in the work.
3. All required record drawings, as-built drawings or as-constructed drawings.
5. Contractor’s Affidavit of Payment of Debts and Claims (AIA Document G706) from the Prime Contractor.
7. Contractor’s Affidavit of Payment of Debts and Claims (AIA Document G706) from each subcontractor.
8. Contractor’s Affidavit of Release of Liens (AIA Document G706A) from each subcontractor.
9. Consent of Surety to Final Payment (AIA Document G707) from the Prime Contractor.
11. DBE Participation Summary.

90-11 GUARANTEE. All equipment and materials furnished and installed under this Contract shall be guaranteed
against defects in materials and workmanship for a period of at least one year from the date of final acceptance by
the Owner. The defective materials and/or equipment shall be repaired or replaced within five days written notice
from the Engineer, at no additional cost to the Owner.

Within the guarantee period, no certificate given nor payment made under the Contract, nor partial or entire
occupancy of the premises by the Owner shall be construed as an acceptance of defective work or of improper
materials or as condoning any negligence or omission.

90-12 SECURITY FOR GUARANTEE. The Contractor shall upon final acceptance of the work, furnish a bond
to the Owner in a penal sum equal to five percent (5%) of the amount of the Contract price, executed by a surety
company authorized by the Department of Insurance of the State of California to execute such a bond in this State,
and which bond shall be approved as to form and manner of execution by the Owner’s attorney. This bond shall be
conditioned for the faithful performance by the said Contractor of the conditions and stipulations of the subsection
titled ACCEPTANCE AND FINAL PAYMENT of this section, thereof relating to maintenance and repair, for a
period of one (1) year from the date of the final acceptance of the work. In default of the filing of such bond, a sum
of money equal to said five percent (5%) may be retained out of any monies due to the Contractor and be held for
one (1) year, or until the bond above described is filed.

For Contractors who have elected to set up an escrow account, they may elect to maintain the escrow account for a
period of one (1) year from the date of final acceptance of the work in lieu of providing a bond for security of
guarantee as described above.

90-13 LIEN LAW. If, at any time before or within thirty (30) days after the work of this Contract has been
completed and accepted by the Owner, any person or persons claiming to have performed any labor or furnished any
material toward the performance or completion of this Contract shall file with the Engineer and with the financial
officer of the Owner, or other officer or person charged with the custody and disbursement of the Owner’s funds
applicable to this Contract under which the claim is made, such notice as is prescribed in the Act of Legislature of
the State of New York passed February 17, 1909, entitled an "Act in Relation to Liens", and the acts amendatory
thereof or supplementary thereto, then and in every such case the party of the first part shall retain (anything herein
contained to the contrary thereof notwithstanding) from the monies under its control and due or to grow due under
this Agreement, as much of such monies as shall be sufficient to pay, satisfy and discharge the amount in such
notice claimed to be due to the person or persons filing such lien, together with the reasonable cost of any actions
brought to enforce such claim or the lien creating by the filing of such notice. The monies so retained shall be
retained by the party of the first part until the lien thereon created by the said act and filing of said notice shall be
discharged pursuant to the provisions of said act or acts.

END OF SECTION 90
SECTION 120 - NUCLEAR GAGES

120-01 TESTING. When the specifications allow the use of a nuclear gage for acceptance testing of material, the testing shall be performed in accordance with this section. At each sampling location, the field density shall be determined in accordance with ASTM D 6938 using the Direct Transmission Method. Operation of the gage shall be in accordance with the requirements of ASTM D 6938, and of the manufacturer. The operator of the nuclear gage must show evidence of training and experience in the use of the instrument. The gage shall be field standardized daily in accordance with ASTM D 6938 prior to its use.

The gage shall have been calibrated in accordance with ASTM D 6938 within 12 months prior to its use on this contract.

The gage shall be field standardized daily in accordance with ASTM D 6938 prior to its use.

120-02 VERIFICATION TESTING. (For Items P-152 and P-154 only.) The Engineer will verify the maximum laboratory density of material placed in the field for each lot. A minimum of one test will be made for each lot of material at the site. The verification process will consist of: (1) compacting the material and determining the dry density and moisture-density in accordance with ASTM D 1557, and (2) comparing the result with the laboratory moisture-density curves for the material being placed. This verification process is commonly referred to as a "one-point Proctor". If the material does not conform to the existing moisture-density curves, the Engineer will establish the laboratory maximum density and optimum moisture content for the material in accordance with ASTM D 1557.

Additional verification tests will be made, if necessary, to properly classify all materials placed in the lot.

The percent compaction of each sampling location will be determined by dividing the field density of each sublot by the laboratory maximum density for the lot.

END OF SECTION 120
ITEM P-101 SURFACE PREPARATION

101-1 DESCRIPTION.

101-1.1 This item shall consist of preparation of existing pavement surfaces for overlays or seal coats, removal of existing pavement for full depth crack repair and other miscellaneous items. The work shall include cleaning existing pavements and routing and sealing, and repairing cracks and joints in existing pavements, and removal of existing markings, rubber and all foreign materials on existing pavements and the removal and relocation of aircraft shade hangars, the removal and replacement of the inductive loop detector and bollards and the removal and replacement of tie-down accessories (chain) as shown on the contract documents. The work shall be accomplished in accordance with these specifications and the applicable drawings.

101-2 MATERIALS.

101-2.1 All equipment shall be specified hereinafter or as approved by the Engineer. The equipment shall not cause damage to the pavement to remain in place.

101-2.2 BITUMINOUS CONCRETE PAVEMENT. Materials for bituminous concrete pavement shall be in accordance with CALTRANS Section 39 Type B, Asphalt Concrete.

101-2.3 EMULSIFIED ASPHALT. The emulsified asphalt shall conform to the requirements of ASTM D 977 or ASTM D 2397.

101-2.4 HERBICIDE. Herbicide shall be Roundup or approved equal. Herbicides shall be packaged in standard sealed containers marked with the name of the material, the name of the manufacturer, the net quantity contained therein and shall be in accordance with the provisions of the Federal and State Rules and Regulations in effect at the time of delivery.

101-2.5 TACK COAT. Tack coat shall be in accordance with Item P-603, Bituminous Tack Coat.

101-2.6 JOINT SEALER. Joint sealer shall be in accordance with Item P-605, “Joint Sealing Filler”, and shall meet the requirements of ASTM D 6690, “Joint and Crack Sealers, Hot Applied, for Concrete and Asphalt Pavements”, Type II or Type III.

101-2.7 BACKER MATERIAL. Backer material shall be in accordance with Item P-605, Joint Sealing Filler.

101-2.8 TIE-DOWN ACCESSORIES (CHAINS). Tie-down accessories (chain) shall be of the size and type indicated on the Contract Drawings.

101-2.9 BOLLARDS. Bollards shall be of the size and type indicated on the Contract Drawings.

101-2.10 INDUCTIVE LOOP DETECTORS. Inductive Loop Detectors shall be a replacement of the existing and shall be in accordance with CALTRANS Section 86.

101-3 SUBMITTALS AND CERTIFICATIONS.

101-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Submittal for emulsified asphalt meeting the requirements specified.
- Catalog data for herbicide meeting the requirements specified.
- Catalogue data for tie-downs meeting the requirements specified.
- Catalogue data for Inductive Loop Detectors meeting the requirements specified.
- Catalogue data for tie-down accessories (chains) meeting the requirements specified.
101-4 CONSTRUCTION METHODS.

101-4.1 HERBICIDE APPLICATION AND PAVEMENT CLEANING. Existing vegetation within the limits of work shall be treated with a herbicide. The herbicide shall be applied to the vegetation prior to pavement cleaning operations. Application of herbicide shall be in accordance with the manufacturer’s printed instructions and the provisions of Federal and State regulations in effect at the time of delivery. Pavement cleaning operations shall not proceed until the herbicide manufacturer’s instructions indicate that vegetation may be removed.

All pavement surfaces within the limits of work shall be cleaned. Existing pavement surfaces shall be cleaned by the use of approved mechanical sweepers or by compressed air such that all mud, dirt, dust, and other debris is removed. Ruts and depressions below the general surface that are not adequately cleaned by the use of mechanical sweepers shall be cleaned by hand brooms.

No payment will be made separately or directly for application of herbicide and pavement cleaning. Application of herbicide and pavement cleaning will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

101-4.2 PREPARATION OF EXISTING PAVEMENT. Preparation of existing pavement operations shall not proceed until the herbicide manufacturer’s instructions indicate that vegetation may be removed.

Preparation of existing pavement shall consist of the removal of all foreign substances from the pavement surfaces, as designated by the Engineer, such that 95% free of all rubber, paint, fuel spills, oil, and other foreign substances are removed. Removal may be accomplished using high-pressure water, heater scarifier (asphalt concrete only), cold milling, or sandblasting. The use of chemicals for preparation will not be permitted. Equipment, tools, and machines used in the performance of the work shall be safe and in satisfactory working condition at all times. Specific areas to be cleaned will be designated by the Engineer in the field during construction. No pavement cleaning shall proceed until so ordered by the Engineer. Water to be used for high-pressure water equipment will be provided by the Contractor at the Contractor’s expense.

In areas to be overlaid, at least 80% of existing paint shall be removed.

The method used shall not cause major damage to the pavement, or to any structures or utilities adjacent to the work. Major damage is defined as changing the properties of the pavement, removal of bitumen causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the Engineer that damage to the existing pavement is caused by an operation error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the Engineer.

No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

This specification shall not be used for removal of rubber deposits to improve skid resistance or to obliterate traffic markings where a new overlay is not to be constructed, or where a new seal coat is not applied.

Satisfactory results of pavement preparation operations will be determined by The Engineer. If satisfactory results are not obtained, the Contractor shall perform additional preparation to the extent that satisfactory results are obtained. Additional preparation shall be performed at no additional cost to the Owner.

Work shall not be performed when the temperature is less than 32 degrees F.

Prior to the start of preparation of existing pavement, the Contractor shall furnish the Engineer a detailed explanation of the procedures, methods and equipment to be used for the pavement cleaning operations.

Aircraft shade hangars shall be removed and stored onsite by the contractor at a location specified by the Resident Engineer. After the seal coat of the apron is complete and cured the contractor shall install the aircraft shade hangars at a location as specified by the resident engineer. Payment will be made per each aircraft shade hangar removed and relocated.
The existing bollards shall be removed and replaced as specified on the contract drawings. Removal and replacement of the existing bollards will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

The existing inductive loop detector shall be removed and replaced as shown on the contract drawings. Removal and replacement of the existing inductive loop detector will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

The existing tie-down accessories (chains) shall be removed and replaced as shown on the contract drawings. Removal and replacement of the existing tie-down accessories (chains) will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

**101-4.3 ROUTING AND SEALING OF EXISTING JOINTS AND CRACKS.** Routing and sealing operations shall not proceed until the herbicide manufacturer’s instructions indicate that vegetation may be removed.

Routing and sealing shall consist of the routing, cleaning and sealing of all joints and cracks which are less than 1 inch wider but greater than 1/4 inch wide, as directed by the Engineer.

Routing shall be accomplished with a commercial router that can produce a vertical sided groove with minimal edge spalling. The groove width and depth shall be as shown on the Contract Drawings. A joint or crack that is routed should have a constant width from beginning to end. The widest portion of the joint or crack to be routed shall determine the routing width for the particular joint or crack.

Routed joints and cracks shall be cleaned in accordance with the requirements of Item P-605. Routed joints and cracks shall be kept clean until the sealing operations are completed.

Routed joints and cracks shall be sealed with a joint sealer in accordance with the requirements of Item P-605. Sealing shall not proceed until the routed joints and cracks are accepted by the Engineer. To ensure that space will be available for expansion of the asphalt, the joint or crack shall not be filled completely to the surface. Joint sealing shall not be performed when the ambient air temperature is below 40 degrees F, or when the pavement temperature is below 50 degrees F, or when the pavement is wet.

Sealant which has been damaged, sunk below the surface, or has not bonded properly to the joint or crack shall be removed. The joint or crack shall be re-cleaned and re-sealed in accordance with the specifications at the Contractor’s expense.

**101-4.5 JOINT AND CRACK REPAIR.** Joint and crack repair operations shall not proceed until the herbicide manufacturer’s instructions indicate that vegetation may be removed.

Joint and crack repair shall be performed full depth or partial depth as designated on the Contract Drawings. Additional joints and cracks not shown that are 1 inch wide or greater, are spalled, or where the surface is depressed adjacent to the joints and cracks shall also be repaired when so directed by the Engineer.

Full depth repair areas shall be removed by conventional excavating equipment or by milling. The method chosen by the Contractor shall not damage the existing pavement surface remaining.

Partial depth repair areas shall be removed by milling. The milling equipment shall be a self-powered machine operating a rotary cutter or revolving cutting tool and shall be capable of milling to the depth shown on the plans. Any excessive area that is milled because the Contractor doesn’t have the appropriate machine, or areas that are damaged because of his negligence, shall not be included in the measurement for payment. Prior to removal, Contractor shall saw cut vertical faces along both sides of the joints or crack to a minimum depth of 2 inches. Removal of repair area may warrant using a deeper sawcut to avoid damage to remaining existing pavement.
Existing pavement and repair areas shall be cleaned upon completion of removal operations. The repair surface and vertical faces of the sawcuts shall be cleaned of all loose and latent material that would cause a poor bond between existing and new pavements.

For full depth repair areas, the Contractor shall compact the existing base/subbase course surface to densify loose material prior to placing bituminous concrete. The repair area shall be filled with bituminous concrete meeting the requirements of this Specification. A bituminous tack coat shall be applied to the vertical faces of the repair area in accordance with Item P-603 prior to filling. In addition, for partial depth repair areas, bituminous tack coat shall be applied to the horizontal surface. The repair area shall be filled with bituminous concrete from the bottom in successive lifts not exceeding 3 inches. The final lift shall be placed to a height above the surface elevation of the pavement such that when the asphalt is compacted, the compacted mix shall be even with, or slightly above, the existing pavement. The bituminous concrete shall then be compacted with a vibratory steel-wheel roller to the satisfaction of the Engineer. The roller shall have a minimum unsprung weight of 10 Tons. On the final lift, the loose asphalt shall be “pinched-in” from the edges of the repair area. Excess asphalt which is greater than 1/8 inch above the surface, and asphalt which is placed on top of existing pavement adjacent to the repair area, shall be removed by milling and the asphalt re-compacted to obtain a crack repair area with a surface that is flush with the adjacent pavement surface. Removal of existing pavement by excavation or milling, the application of tack coat and placement of bituminous concrete will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

101-4.6 CLEANUP. Cleanup shall be continuous throughout the surface preparation operations. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. All waste materials shall be disposed of off-site at a location approved by the Engineer. Precautions, acceptable to the Engineer, shall be taken by the Contractor to prevent waste material from entering storm sewer systems.

101-5 METHOD OF MEASUREMENT.

101-5.1 Measurement for preparation of existing pavement shall be the number of square yards of existing pavement prepared in accordance with this specification, completed and accepted by the Engineer.

NOTE: The quantity of preparation of existing pavement cannot be determined in advance of construction and no promise is given either by expression or implication that the quantity stated in the bid is in close proximity to the quantity that will be ordered in during construction.

101-5.2 Measurement for routing and sealing of existing joints and cracks shall be the number of linear feet of joints and cracks routed and sealed in accordance with this specification, completed and accepted by the Engineer.

101-5.3 Measurement for joints and crack repair shall be the number of linear feet of joints and cracks repaired in accordance with this specification, completed and accepted by the Engineer.

101-5.4 Measurement for the removal and relocation of the aircraft shade hangars shall be the number of aircraft shade hangars removed and relocated in accordance with this specification, completed and accepted by the Engineer.

101-5.5 No measurement will be made for direct payment for the removal and replacement of the bollards as the cost of removing, furnishing and installing shall be considered a subsidiary obligation in completing the various items involved.

101-5.6 No measurement will be made for direct payment for the removal and replacement of the Inductive Loop Detectors as the cost of removing, furnishing and installing shall be considered a subsidiary obligation in completing the various items involved.

101-5.7 No measurement will be made for direct payment for the removal and replacement of tie-down accessories (chains) as the cost of removing, furnishing and installing shall be considered a subsidiary obligation in completing the various items involved.

101-6 BASIS OF PAYMENT.
101-6.1 Payment will be made at the contract unit price per square yard for preparation of existing pavement completed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

101-6.2 Payment will be made at the contract unit price per linear foot for routing and sealing of existing joints and cracks completed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

101-6.3 Payment will be made at the contract unit price per linear foot for joint and crack repair completed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

101-6.4 Payment will be made at the contract unit price per each aircraft shade hangar removed and relocated completed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

101-6.5 No payment will be made separately or directly for for the removal and replacement of the bollards on any part of the work unless otherwise listed in the various payment items. All Bollards will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract price for the pay items of work involved.

101-6.6 No payment will be made separately or directly for the removal and replacement of the Inductive Loop Detectors on any part of the work unless otherwise listed in the various payment items. All Inductive Loop Detectors will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract price for the pay items of work involved.

101-6.7 No payment will be made separately or directly for the removal and replacement of the tie-down accessories (chains) on any part of the work unless otherwise listed in the various payment items. All tie-down accessories (chains) will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract price for the pay items of work involved.

Payment will be made under:

- Item P-101-6.1 - Preparation of Existing Pavement - per square yard
- Item P-101-6.2 - Routing and Sealing of Existing Joints and Cracks - per linear foot
- Item P-101-6.3 - Joint and Crack Repair - per linear foot
- Item P-101-6.4 - Aircraft Shade Hangar removed and relocated - per each

END OF ITEM P-101
ITEM P-151 CLEARING, GRUBBING AND TREE REMOVAL

151-1 DESCRIPTION.

151-1.1 This item shall consist of clearing, clearing and grubbing, tree removal, all required surveying, leveling of ground surface and the disposal of materials for all areas within the limits designated on the Contract Drawings or as required by the Engineer.

Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the Engineer is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing.

Tree removal shall consist of clearing the isolated tree, brush or group of trees and brush, removal of the stumps and roots, leveling of the ground. Trees to be removed shall be as indicated on the Contract Drawings.

151-2 SUBMITTALS AND CERTIFICATIONS.

151-2.1 Submittals of “Shop and Setting Drawings”, “Working Drawings”, “Catalogue Data” and “Certifications” for review shall be submitted in accordance with the appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Survey map of the areas to be cleared and grubbed

151-3 CONSTRUCTION METHODS.

151-3.1 GENERAL. The areas denoted on the Contract Drawings to be cleared or cleared and grubbed including wetland boundaries and wetland buffers shall be staked on the ground by a licensed land surveyor hired by the Contractor. Each stake shall be located at an interval that allows for visual inspection from one stake to the next without the use of any special equipment. A survey map shall be provided by the Contractor’s Surveyor showing the metes and bounds and all boundary stakes for the area to be cleared and grubbed. Points on the map shall be referenced to the project horizontal control. This survey map shall be approved by the Engineer prior to the Contractor commencing work on this item. Contractor’s Surveyor shall also provide a point data file in ASCII format, and a digital file of the map in DXF compatible format on a CD-ROM or disk with loading and unloading instructions.

Identification of Airport property lines for the purpose of identifying work limits shall be the responsibility of the Contractor. Where trees are to be removed off airport property, the Contractor shall provide a schedule indicating removal dates so the work can be coordinated with the property owner. The clearing and grubbing shall be done at a satisfactory distance in advance of the grading operations.

151-3.3 CLEARING AND GRUBBING. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed. Tap roots and other projections over 1-1/2 inches in diameter shall be grubbed out to a depth of at least 18 inches below the finished subgrade or slope elevation.

Any buildings and miscellaneous structures that are shown on the Contract Drawings to be removed shall be demolished or removed, and all materials there from shall be disposed of off-site. The remaining or existing foundations, wells, cesspools, and all like structures shall be destroyed by breaking out or breaking down the materials of which the foundations, wells, cesspools, etc., are built to a depth at least 2 feet below the existing surrounding ground. Any broken concrete, blocks, or other objectionable material that cannot be used in backfill shall be removed and disposed of. The holes or openings shall be backfilled with suitable on-site material obtained from grading operations and properly compacted.

All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the
density required in Item P-152, Excavation and Embankment. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

151-3.4 TREE REMOVAL. All trees designated to be removed shall be field flagged or painted by the Contractor and field verified and approved by the Engineer prior to the Contractor commencing with any work of this item. Where trees are to be removed off airport property, the Contractor shall provide a schedule indicating removal dates so the work can be coordinated with the property owner.

All trees designated to be removed shall be cut up, removed and disposed of by the Contractor in a manner specified herein unless otherwise shown on the Contract Drawings. The Contractor shall take all precautions necessary to protect from damage all homes, structures, fences, plants, utilities and appurtenances. All damages caused as a result of the Contractor’s operations shall be repaired immediately in a manner approved by the Engineer at the Contractor’s expense. In addition, the Contractor shall protect from injury all trees which are not to be removed.

All stumps shall be reduced to chips by the use of an approved chipping machine or stump grinder. Stump removal shall be at a minimum depth of one foot below existing grade. Chips shall be one-half inch maximum thickness. Chips resulting there from shall be disposed of in a satisfactory manner by the Contractor as specified herein.

151-3.5 DISPOSAL. All land cleared material shall be disposed of immediately after clearing and grubbing operations. No burning of land cleared materials shall be permitted. No separate payment will be made for disposal. Contractor shall consider the costs of disposal in the various pay items involved. The Contractor shall dispose of all land cleared materials as follows:

A. All remaining materials resulting from land clearing operations shall be disposed of off-site at an area designated by the Contractor.

Disposal shall not be made in a swamp or wetlands and shall be in accordance with all Federal, State and Local regulations. The Contractor shall submit the “Spoils Deposition Release Form” for any spoils which are transported from the project site. A copy of this form can be found in Section 80 of the General Provisions.

151-3.6 LEVELING OF GROUND SURFACE. All areas that have been cleared and grubbed shall be graded adequately to accommodate Sponsor owned mowing equipment. Areas of abrupt transition in grade which would not allow the passage of mowing equipment will not be allowed. Rocks and boulders shall be removed from the site. Boulders with a total volume in excess of 5 cubic yards or boulders with a volume in excess of 2 cubic yards projecting above the cleared ground surface may remain in place. All rocks or boulders that are essentially flush with the surrounding ground surface and will allow the safe passage of mowing equipment may remain.

151-4 METHOD OF MEASUREMENT.

151-4.1 The quantities of clearing and grubbing, including leveling of the ground surface as shown by the limits on the Contractor’s approved survey map, and as ordered by the Engineer shall be the number of square yards, measured by the computer generated area from the map, of land specifically cleared and grubbed.

151-5 BASIS OF PAYMENT.

151-5.1 Payment shall be made at the contract unit price per square yard for clearing and grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-151-5.1 - Clearing and Grubbing – per square yard

END OF ITEM P-151
ITEM P-152 EXCAVATION AND EMBANKMENT

152-1 DESCRIPTION.

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the excavation and embankment limits of the work required to construct safety areas, runways, taxeways, aprons and intermediate as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical section(s) shown on the Contract Drawings.

152-1.2 CLASSIFICATION. All material excavated shall be classified as defined below and specified in the payment items in accordance with these classifications:

A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

152-2 MATERIALS.

152-2.1 UNSUITABLE MATERIAL. Any material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope.

152-2.2 SUITABLE MATERIAL. A material whose composition is satisfactory for use in embankment construction is designated as a suitable material. The moisture content has no bearing upon such designation, however, the moisture content of a material may be such that its use will require extensive manipulation. It is the Contractor's responsibility to determine the economics of using, or disposing and replacing, such materials. Materials which are defined to be suitable by this specification but determined by the Contractor to be un-economical for use shall be disposed of and replaced with other material at no additional cost to the Owner. In general, any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or man made origin, including mixtures thereof, are considered as suitable materials. Presence of oversize particles in the otherwise suitable material will not render the material unsuitable. In the event the Contractor determines that removal of the oversize material is uneconomical, he will be allowed to dispose of and replace with suitable material meeting the specification requirements at no additional cost to the Owner.

152-3 SUBMITTALS AND CERTIFICATIONS.

152-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- None required.

152-4 CONSTRUCTION METHODS.

152-4.1 GENERAL. Before beginning excavation, grading, and embankment operations in any area, the area shall be completely cleared and grubbed in accordance with Item P-151 if required.

The suitability of material to be placed in embankments shall be subject to approval by the Engineer. All unsuitable material shall be disposed of in waste areas shown on the Contract Drawings. All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the Contract Drawings or approved by the Engineer.

When the Contractor's excavating operations encounter artifacts of historical or archeological significance, the operations shall be temporarily discontinued. At the direction of the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

This project includes the construction of airport pavements. Airport pavements differ significantly from the construction of highway pavements and other traffic pavement applications. In some cases, the aircraft for which the pavement is being built may be lighter than many commonly available pieces of construction and hauling equipment. Construction equipment, methods and means for
construction of pavements on this project are the responsibility of the Contractor. However the Contractor should be aware that common methods, means and equipment selections that may be appropriate for other pavements in the same local area as this project may not be appropriate for the construction of pavements under this Contract. The Contractor's special attention is called to the fact that it is his responsibility to select proper equipment, means and methods to meet the requirements of the specifications.

A subsurface investigation program was conducted as a part of the design process for this project. The Contractor's special attention is called to the fact that subgrade soils under pavements are expected to be medium dense to very dense, clayey sands, silty sands, type SM and SC-SM. The Contractor shall take these factors into consideration when selecting equipment, means and methods of excavation, hauling, placement and compaction for the construction of this project, specifically when considering compaction of subgrade soils and granular courses in the pavement section, as well as hauling equipment that will operate in pavement areas throughout the construction process. The Contractor shall exert proper control over the lift thickness and moisture content during construction. Should the equipment, means and methods adversely affect subgrade soils and/or previously constructed pavement sections, the Contractor shall reconstruct and repair all damaged areas at no additional cost to the Owner and with no adjustment to time for completion of construction. It is the Contractor's responsibility to make field investigations of subgrade soils prior to bidding if, in the opinion of the Contractor, he requires additional information in order to make prebid determinations of the equipment, means and methods to be used during construction.

Those areas outside of the pavement areas in which the top layer of soil material has become compacted, by hauling or other activities of the Contractor, shall be scarified and disked to a depth of 4 inches in order to loosen and pulverize the soil.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such facilities or structures which may result from any of the Contractor's operations during the period of the Contract.

Method of measurement for excavation, as described later in this specification, relies on design cross sections for computation of neat line design quantities. Prior to disturbing original grade, Contractor shall verify the accuracy of existing elevations by verifying spot elevations at the same locations where original field survey data was obtained in accordance with Item M-150, SURVEY & STAKEOUT.

The quantity stated in the bid is based in part on the depths of existing pavement to be excavated. If the depths shown on the plans differ from those removed, the Engineer will use the actual depths removed to re-calculate the neat line Unclassified Excavation quantity. The average depth of pavement excavation including subbase used in the computation of quantities for this project was 9 inches.

152-4.2 EXCAVATION. No excavation shall be started until the work has been staked out by the Contractor and the Contractor has agreed that the original ground lines shown on the original topographic mapping and design cross sections are accurate. All suitable excavated material shall be used in the formation of embankment, subgrade or for other purposes shown on the Contract Drawings. All unsuitable material shall be disposed of as shown or specified.

When the volume of suitable materials to be excavated exceeds that required to construct the embankments to the grades indicated, the excess shall be used to grade the areas of ultimate development or disposed of as directed. When the volume of excavation is not sufficient for constructing the fill to the grades indicated, the deficiency shall be obtained from borrow areas.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work. The Contractor shall use pumps and/or otherwise dewater as necessary to maintain the work area.

A. Selective Grading. When selective grading is indicated on the Contract Drawings, the more suitable material as designated by the Engineer shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until the area is prepared for placement. The select material shall then be placed and compacted as indicated at no additional cost to the Owner.

B. Undercutting. Undercutting shall be performed only when directed by the Engineer as follows:
In Excavated Areas Under Proposed Pavement: Rock, shale, hardpan, loose rock, boulders, or other materials unsatisfactory for subgrades under proposed pavement (runways, taxiways, aprons, roads, shoulders), shall be excavated to a minimum depth of 12 inches, or to the depth directed by the Engineer, below the subgrade elevation. Muck, peat, matted roots or other yielding materials unsuitable for subgrade, shall be removed to the depth directed by the Engineer.

In Embankment Areas Under Proposed Pavement: Muck, peat, matted roots or other yielding materials unsuitable for embankment foundation, shall be removed to the depths directed by the Engineer.

In Excavated Areas Within Runway Safety Areas and Areas to be Turfed: Rock, shale, hardpan, loose rock, boulders or other materials unsatisfactory for subgrades beneath topsoil shall be removed to a minimum depth of 12 inches below final grade, or to the depth specified by the Engineer. Muck, peat, matted roots or other yielding materials shall be removed to the depth directed by the Engineer.

Undercut areas under proposed pavement, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the engineer.

Undercut material shall be considered unclassified excavation. Materials removed during undercutting which are unsuitable for the formation of embankments shall be placed in spoil areas.

Undercut areas under proposed pavement shall be backfilled and thoroughly compacted with select on-site material as directed by the Resident Engineer. No payment will be made for backfilling the undercut area with suitable on-site material as it is considered embankment. Where rock cuts are made and backfilled with selected material, any pockets created in the rock surface shall be shaped to drain freely, or as directed by the Engineer.

Areas outside proposed pavement which are directed by the Engineer to be undercut, shall be backfilled with suitable on-site material obtained from grading operations and compacted in accordance with paragraph 152-4.6. The necessary backfilling shall constitute a part of the embankment and will not be paid for separately. If suitable on site material is not available, borrow material shall be utilized.

C. **Overbreak.** Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and his/her decision shall be final. All overbreak shall be graded and compacted or removed by the Contractor and disposed of as directed; however, payment will not be made for the removal and disposal of overbreak that the Engineer determines as avoidable or for the material which is used to backfill the overbreak areas. Unavoidable overbreak will be classified and paid for as “Unclassified Excavation.” Backfilling of overbreak, both avoidable and unavoidable, shall comply with the requirements for undercutting.

D. **Removal of Utilities.** The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by someone other than the Contractor, e.g., the utility unless otherwise shown on the Contract Drawings. All existing foundations shall be excavated for at least 2 feet below the top of subgrade or as indicated on the Contract Drawings, and the material disposed of as directed. All foundations thus excavated shall be backfilled with suitable material and compacted as specified herein.

Where removal of utilities are shown to be the contractor’s responsibility, the work shall be coordinated with the utility owner. The cost for removal and disposal of utilities and related structures shall be considered incidental to the work involved, unless paid for otherwise.

E. **Compaction Requirements for Excavations.** It shall be the Contractor's responsibility to properly compact all material in accordance with these Specifications and as shown on the Contract Drawings, and to correct any deficiencies resulting from insufficient or improper compaction of such materials. Compaction operations shall continue until the area is compacted to the depths and percent of maximum density stated below in accordance with ASTM D-1557. If natural densities are not as required, Contractor shall compact subgrade from the surface to the densities required. If compaction from the surface is not possible, Contractor shall remove and replace subgrade to the required densities. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3.

Subgrades Under Flexible Pavements
### Cohesive Soils

<table>
<thead>
<tr>
<th>Depth</th>
<th>% Compaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 4&quot;</td>
<td>95%</td>
</tr>
<tr>
<td>4-8&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>8-12&quot;</td>
<td>85%</td>
</tr>
<tr>
<td>12-15&quot;</td>
<td>80%</td>
</tr>
</tbody>
</table>

### Non-Cohesive Soils

<table>
<thead>
<tr>
<th>Depth</th>
<th>% Compaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 6&quot;</td>
<td>100%</td>
</tr>
<tr>
<td>6-9&quot;</td>
<td>95%</td>
</tr>
<tr>
<td>9-18&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>18-24&quot;</td>
<td>85%</td>
</tr>
</tbody>
</table>

### Subgrades Under Rigid Pavements

<table>
<thead>
<tr>
<th>Cohesive Soils</th>
<th>Non-Cohesive Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>% Compaction</td>
</tr>
<tr>
<td>Top 6&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>6-24&quot;</td>
<td>95%</td>
</tr>
</tbody>
</table>

### All Other Areas (i.e., below pipes, duct banks, manholes, etc.)

<table>
<thead>
<tr>
<th>Cohesive Soils</th>
<th>Non-Cohesive Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>% Compaction</td>
</tr>
<tr>
<td>Below Cut 6&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Below Cut 6&quot;</td>
<td>95%</td>
</tr>
</tbody>
</table>

All backfill over pipes, duct banks, etc. shall be compacted in accordance with paragraph 152-4.6.

When removal, manipulation and replacement of suitable materials in order to obtain the required depth of density is ordered by the Engineer, payment for such will be paid for as unclassified excavation.

When density tests are ordered more than twelve inches below subgrade, Contractor shall dig pits in the subgrade at the locations and to the depths requested. After completion of testing, Contractor shall backfill and compact the subgrade as specified.

Density tests will be taken by the Engineer for every 10,000 square feet of completed subgrade. Failing tests shall be paid for by the Contractor. The finished grading operations, conforming to the typical cross section, shall be completed and maintained at least 1,000 feet ahead of the paving operations or as directed by the Engineer. If a nuclear gage is used for density determination, two random readings shall be made for each 10,000 square feet.

The in-place field density shall be determined in accordance with ASTM D 1556 (Sand Cone Method), D 2167 (Rubber Balloon Method), or D 6938 (Nuclear Method). If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

If a nuclear gage is used, it shall have been calibrated in accordance with ASTM D 6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily prior to its use on this contract.

In cuts, all loose or protruding rocks on the back slopes shall be barred loose or otherwise removed to line of finished grade of slope. All cut-and-fill slopes shall be uniformly dressed to the slope, cross section, and alignment shown on the Contract Drawings or as directed by the Engineer.

Blasting will be permitted only when proper precautions are taken for the safety of all persons, the work, and the property. All damage done to the work or property shall be repaired at the Contractor’s expense. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall conform to all state and local regulations and explosive manufacturers’ instructions, with applicable approved permits reviewed by the Engineer. Any approval given, however, will not relieve the Contractor of his/her responsibility in blasting operations.

Where blasting is approved, the Contractor shall employ a vibration consultant, approved by the Engineer, to advise on explosive charge weights per delay and to analyze records from seismograph recordings. The seismograph shall be capable of producing a permanent record of the three components of the motion in terms of particle velocity, and in addition shall be capable of internal...
dynamic calibration.

In each distinct blasting area, where pertinent factors affecting blast vibrations and their effects in the area remain the same, the Contractor shall submit a blasting plan of the initial blasts to the Engineer for approval. This plan must consist of hole size, depth, spacing, burden, type of explosives, type of delay sequence, maximum amount of explosive on any one delay period, depth of rock, and depth of overburden if any. The maximum explosive charge weights per delay included in the plan shall not be increased without the approval of the Engineer.

The Contractor shall keep a record of each blast fired—its date, time and location; the amount of explosives used, maximum explosive charge weight per delay period, and, where necessary, seismograph records identified by instrument number and location.

These records shall be made available to the Engineer on a monthly basis or in tabulated form at other times as required.

152-4.3 BORROW EXCAVATION. Borrow area(s) within the airport property, if any, are indicated on the Contract Drawings. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed.

When borrow sources are outside the boundaries of the airport property, it shall be the Contractor's responsibility to locate and obtain the supply, subject to the approval of the Engineer. The borrow source shall be dedicated to this project. The Contractor shall submit a plan showing dimensions and grades of borrow source, both existing and proposed. The Contractor shall notify the Engineer, at least 15 days prior to beginning the excavation, so necessary measurements and tests can be made. All topsoil shall be stripped from the borrow pit by the Contractor and stockpiled prior to excavation. Stockpiled topsoil shall be used in restoration of the borrow pit. All unsuitable material shall be removed and disposed of by the Contractor. No payment will be made for stripping topsoil or excavating and disposing of unsuitable material from the borrow area. All borrow pits shall be opened up to expose the vertical face of various strata of acceptable material to enable obtaining a uniform product. Borrow pits shall be excavated to regular lines to permit accurate measurements, and they shall be drained and left in a neat, presentable condition with all slopes dressed uniformly.

152-4.4 DRAINAGE EXCAVATION. Drainage excavation shall consist of excavating for drainage ditches such as intercepting; inlet or outlet, for temporary levee construction; or for any other type as designed or as shown on the Contract Drawings. The work shall be performed in the proper sequence with the other construction. All satisfactory material shall be placed in fills; unsuitable material shall be placed in waste areas or as directed. Intercepting ditches shall be constructed prior to starting adjacent excavation operations. All necessary work shall be performed to secure a finish true to line, elevation, and cross section.

The Contractor shall maintain ditches constructed on the project to the required cross section and shall keep them free of debris or obstructions until the project is accepted.

152-4.5 PREPARATION OF EMBANKMENT AREA. All sod shall be removed from the subgrade and from area beneath future pavement, regardless of the height of embankment. Where an embankment is to be constructed to a height of 4 feet or less, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing or scarifying to a minimum depth of 6 inches. This area shall then be compacted as indicated in paragraph 152-4.6. When the height of fill is greater than 4 feet, sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

Where embankments are to be placed on natural slopes steeper than 3 horizontal to 1 vertical, horizontal benches shall be constructed as shown on the Contract Drawings.

No direct payment shall be made for preparation of embankment area. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-4.6 FORMATION OF EMBANKMENTS. Embankments shall be formed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross section or as directed. Materials such as brush, hedge, roots, stumps, grass, other organic matter, and other deleterious material shall not be incorporated or buried in the embankment.
Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory conditions of the field. The Contractor shall slope and compact the embankment to provide proper surface drainage.

The material in the layer shall be within +/-2 percent of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve a uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be required when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Natural drying may be accelerated by blending in a dry material or manipulation alone to increase the rate of evaporation. Sprinkling of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken by the Engineer for each 1,000 cubic yards of material placed per layer, or other appropriate frequencies as determined by the Engineer. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content in order to achieve the correct embankment density. There will be no additional compensation to the contractor and no adjustment to time for completion of construction.

Rolling operations shall be continued until the embankment is compacted to the depths and percent of maximum density stated below in accordance with ASTM D 1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3.

<table>
<thead>
<tr>
<th>Subgrades Under Flexible Pavements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesive Soils</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Top 4”</td>
</tr>
<tr>
<td>Below 4”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subgrades Under Rigid Pavements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesive Soils</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>All Fill</td>
</tr>
<tr>
<td>Below 6”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Other Embankments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesive Soils</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Top 3”</td>
</tr>
<tr>
<td>Below 3”</td>
</tr>
</tbody>
</table>

* On all areas outside of pavement area, no compaction will be required on the top 3 inches of topsoil.

It shall be the Contractor's responsibility to properly place and compact all materials for this project and to correct any deficiencies resulting from insufficient or improper compaction of such materials throughout the Contract period.

Density tests will be taken by the Engineer for every 10,000 square feet of completed subgrade for each lift which is required to be compacted. Failing tests shall be paid for by the Contractor. The finished grading operations, conforming to the typical cross section, shall be completed and maintained at least 1,000 feet ahead of the paving operations or as directed by the Engineer. If a nuclear gage is used for density determination, two random readings shall be made for each 10,000 square feet.

The in-place field density shall be determined in accordance with ASTM D 1556 (Sand Cone Method), D 2167 (Rubber Balloon Method), or D 6938 (Nuclear Method). If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.
If a nuclear gage is used, it shall have been calibrated in accordance with ASTM D 6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily prior to its use on this contract.

Compaction areas shall be kept separate, and no layer shall be covered by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route his/her equipment at all times, both when loaded and when empty, over the layers as they are placed provided the equipment does not damage the embankment under future pavement areas. Contractor and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, layer placement shall begin in the deepest portion of the fill. As placement progresses, layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches in their greatest dimensions will not be allowed in the top 6 inches of fill. Rock fill shall be brought up in layers as specified or as directed and every effort shall be exerted to fill the voids with the finer material forming a dense, compact mass. Rock or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated by the Engineer.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment when directed in layers not exceeding 2 feet in thickness. Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of rock. These type lifts shall not be constructed within 4 feet of the finished subgrade, nor closer than 10 feet horizontally from finished embankment slopes. Density requirements will not apply to portions of embankments constructed of materials which cannot be tested in accordance with specified methods.

Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material.

There will be no separate measurement or payment for compacted embankment, and all costs incidental to placing it in layers, compacting, disk ing, watering, mixing, sloping, and other necessary operations for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-4.7 FINISHING AND PROTECTION OF SUBGRADE. After the subgrade has been substantially completed the full width shall be conditioned by removing any soft or other unstable material that will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to grade with suitable select on-site material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the Contract Drawings.

Grading and sealing of the subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. He/she shall limit hauling over the finished subgrade to that which is essential for construction purposes. All ruts or rough places that develop in a completed subgrade shall be smoothed and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer. The subgrade shall be checked for fine grade prior to approval. To check the subgrade for fine grade, the Contractor shall pin and stringline the subgrade with a 50 foot grid along straight sections of typical grade. In transition areas and curved sections, Contractor shall pin and stringline the subgrade with a 25 foot grid. Alternate methods of checking the fine grade may be used only when authorized by the Engineer.

152-4.8 HAUL. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be fully repaired at the Contractor's expense.

TS P-152-7
Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-4.9 TOLERANCES. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 16-foot straightedge applied parallel and at right angles to the centerline or expected direction of paving operations, it shall not show any deviation in excess of 1/2 inch, and shall not be more than 0.05 foot from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting by sprinkling and rolling to specified densities.

All turf areas within the grading limits shall be graded to the lines and grades shown on the Contract Drawings or as directed by the Engineer. In turf areas, the surface shall be within 0.10-foot of proposed grade as established by grade hubs or pins. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping. All turf areas shall be graded such that they are free draining regardless of the tolerance.

152-4.10 REMOVAL OF WATER. Removal of water, if encountered, shall be in accordance with the Removal of Water section of the General Provisions. Performance of the work described in this section will not be paid directly, but shall be considered as a subsidiary obligation of the Contractor and included in the Contract price for the pay items of work involved.

152-4.11 SPOIL. Excess topsoil stripped from the site which is not utilized in the finished work shall be spoiled off site.

All other granular material which is suitable for embankment shall be spoiled at the locations shown on the Contract Drawings, unless otherwise directed.

All other material which is not suitable for embankment shall be spoiled off-site.

For any material spoiled on airport property, Contractor shall submit a plan of the spoil area to the Engineer. No spoil shall be placed until the plan is acceptable to the Engineer. The plan shall include proposed dimensions and grades of the completed spoil areas. The plan shall provide for drainage of the spoil area which is consistent with existing drainage patterns of the surrounding areas. Prior to placing spoil in on-site locations, Contractor shall strip topsoil from limits of spoil area. Spoil shall be placed in accordance with the Formation of Embankments section of this specification. Upon completion of spoil operations, Contractor shall cover the spoil area with previously stripped topsoil. Contractor shall grade, seed and mulch the spoil area. Grading shall be such that the final turfed spoil area is smooth and with side slopes no greater than 25%. Spoil area shall be maintainable with Owner's mowing equipment. The surface elevation of spoil areas shall not extend above the surface elevation of adjacent usable areas of the Airport, unless approved by the Engineer.

For any material spoiled off airport property, the Contractor shall submit a "Spoil Deposition and Release" to the Engineer. A sample form is contained in Specific Airport Operating Requirements of these Specifications and shall be acceptable to the Engineer prior to removing material from the project.

No direct payment will be made for spoiling operations. The cost of spoiling material on site including stripping, grading, topsoiling, seeding & mulching the spoil area, or of hauling excess material off-site, shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

152-5 METHOD OF MEASUREMENT. Prior to determination of final quantities, the Engineer will field verify that the Contractor has met grading tolerances by means of field cross sections. Field cross sections will be taken randomly at intervals not exceeding 500 feet, however, a minimum of three sections will be taken for each baseline or centerline.

If the final grades are in tolerance and acceptable to the Engineer and Owner, then no adjustments will be made to the neat line quantities.

If the final grades are not in tolerance, but the deviation is acceptable to the Engineer and Owner, then adjustments will be made to the neat line quantities based on a final topographic survey or final cross sections.
If the final grades are not in tolerance and are not acceptable to the Engineer and Owner, then the Contractor shall regrade the areas that are out of tolerance. Upon completion of regrading operations, Engineer will field verify that the Contractor has met grading tolerances as stated above.

152-5.1 Measurement for unclassified excavation shall be the number of cubic yards excavated from its original position based on the calculation of neat line quantities. The neat line quantities were measured by computing the volume based on the average end areas of design cross sections within the payment limits shown on the Contract Drawings. The neat line quantities will be modified to account for authorized additional work. Measurement shall not include the quantity of material excavated without authorization beyond the excavation and embankment limits or the quantity of material used for purposes other than those directed.

The existing grade surface was established by topographic mapping or field cross sections taken for design purposes. The theoretical ground surface before topsoil is placed is the surface which is at the bottom of proposed topsoil. The theoretical ground surface after topsoil is stripped is the surface created after topsoil is stripped off the existing grade surface and is based on the average depth of topsoil to be stripped used by the Engineer for design purposes. The theoretical ground surface after existing pavement is removed is the surface created after existing pavement is excavated and is based on the average depth of pavement to be excavated established by the Engineer for design purposes. After completion of all excavation operations and prior to the placing of base or subbase material, the final excavation will be field verified by the Engineer.

Where finished grade is lower than existing grade, the upper and lower surfaces of the design cross sections or DTM’s are those bounded by:
- existing grade and the theoretical ground surface before topsoil is placed.
- existing grade and the theoretical ground surface after topsoil is stripped.
- existing grade and proposed pavement subgrade.
- the theoretical ground surface after pavement excavation and the theoretical ground surface before topsoil is placed.
- the theoretical ground surface after pavement excavation and proposed pavement subgrade.

Where finished grade is higher than existing grade, the upper and lower surfaces of the cross section or DTM’s are those bounded by:
- existing grade and the theoretical ground surface after topsoil is stripped.
- existing grade and proposed pavement subgrade.
- the theoretical ground surface after pavement excavation and proposed pavement subgrade.

When the depth of topsoil stripped differs from that used to calculate design quantities, the Engineer will use an agreed upon depth and calculate new neat line quantities for unclassified excavation. The new neat line quantities will be used for payment purposes.

When the depth of pavement excavation differs from that used to calculate design quantities, the Engineer will use an agreed upon depth and calculate new neat line quantities for unclassified excavation. The new neat line quantities will be used for payment purposes.

Topographic mapping or cross sectioning for the exclusive purpose of determining quantities for payment will be employed only where work is ordered outside of excavation and embankment limits. When required, original and final field cross sections will be taken by the Engineer at intervals not exceeding 100 feet.

152-6 BASIS OF PAYMENT.

152-6.1 For unclassified excavation, payment will be made at the Contract unit price per cubic yard for material in its original position. No payment will be made for rehandling of stockpiled materials. This price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the item.

Payment will be made under:

Item P-152-6.1 - Unclassified Excavation - per cubic yard

TESTING REQUIREMENTS
<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D 698</td>
<td>Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-pound Rammer and 12-inch Drop</td>
</tr>
<tr>
<td>ASTM D 1556</td>
<td>Test for Density of Soil In-Place by the Sand Cone Method</td>
</tr>
<tr>
<td>ASTM D 1557</td>
<td>Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using a 10-pound Rammer and 18-inch Drop</td>
</tr>
<tr>
<td>ASTM D 1883</td>
<td>Test Method for Bearing Ratio of Laboratory Compacted Soils (CBR).</td>
</tr>
<tr>
<td>ASTM D 2167</td>
<td>Test for Density of Soil In-Place by the Rubber Balloon Method</td>
</tr>
<tr>
<td>ASTM D 6938</td>
<td>In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)</td>
</tr>
<tr>
<td>ASTM E-329</td>
<td>Use in the Evaluation of Testing and Inspection Agencies Used in Construction</td>
</tr>
</tbody>
</table>

**MATERIAL REQUIREMENTS**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D 2487</td>
<td>Test Method for Classification of Soils for Engineering Purposes</td>
</tr>
</tbody>
</table>

END OF ITEM P-152
ITEM P-156 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

156-1 DESCRIPTION.

156-1.1 This item shall consist of the installation and maintenance of temporary and permanent control measures, and the removal and restoration of temporary control measures to control air and water pollution, soil erosion and siltation as shown on the Contract Drawings. Control measures shall be maintained throughout the life of this contract or until final stabilization as determined by the Engineer.

The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

156-2 MATERIALS.

156-2.1 SILT FENCE. Silt fence shall consist of fabric, wood posts and wire fence. Fabric shall be synthetic filtering fabric recommended by the manufacturer for use as a silt fence and shall have the following properties:

<table>
<thead>
<tr>
<th>PHYSICAL PROPERTY</th>
<th>REQUIREMENT</th>
<th>TEST METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grab Tensile Strength</td>
<td>90 lbs. (Min)</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>Grab Elongation</td>
<td>50 % (Max)</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>Ultraviolet</td>
<td>70 % (Min)</td>
<td>ASTM D 4355</td>
</tr>
<tr>
<td>Permittivity</td>
<td>0.01 Sec.-1 (Min)</td>
<td>ASTM D 4491</td>
</tr>
<tr>
<td>Apparent Opening Size</td>
<td>#50 to #100 U.S. Std. Sieve</td>
<td>ASTM D 4751</td>
</tr>
</tbody>
</table>

Wood posts shall be of sound quality hardwood with minimum dimensions of 2 inches by 2 inches by 36 inches long.

Wire fence shall be 14 gauge minimum with maximum 6 inch mesh opening.

156-2.2 FILTER FABRIC. The filter fabric shall conform to the physical properties listed below. All property values, except apparent opening size, represent the minimum average roll value in the weaker principal direction.

<table>
<thead>
<tr>
<th>PHYSICAL PROPERTY</th>
<th>REQUIREMENT</th>
<th>TEST METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survivability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grab Strength</td>
<td>160 lbs. min.</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>55 lbs. min.</td>
<td>ASTM D 4533</td>
</tr>
<tr>
<td>Puncture Strength</td>
<td>55 lbs. min.</td>
<td>ASTM D 4833</td>
</tr>
<tr>
<td>Permittivity</td>
<td>0.2 sec⁻¹ (Min)</td>
<td>ASTM D 4491</td>
</tr>
<tr>
<td>Apparent Opening Size</td>
<td>No. 60 U.S. Std. Sieve (Max.)</td>
<td>ASTM D 4751</td>
</tr>
</tbody>
</table>

156-2.3 CRUSHED STONE OR AGGREGATE BASE COURSE. Crushed stone or aggregate base course shall conform to the requirements of CALTRANS Section 26 Aggregate Bases, Class II.

156-2.4 BITUMINOUS PAVEMENT. Materials for bituminous concrete pavement shall meet be in accordance with CALTRANS Section 39 Asphalt Concrete Type B.

156-2.5 STRAW BALES. Bales of straw shall be free from noxious weeds or grasses and shall be securely bound by twine or wire.
156-3 SUBMITTALS AND CERTIFICATIONS.

156-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalog data and certification showing that materials to be supplied meet the requirements specified.

156-4 CONSTRUCTION REQUIREMENTS.

156-4.1 GENERAL. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The Engineer will be responsible for reviewing the soil erosion and siltation control practices for compliance to the extent that construction practices, construction operations, and construction work are involved.

156-4.2 SCHEDULE & PLAN. Prior to the start of construction, the Contractor shall submit schedules for accomplishing temporary and permanent erosion control work, as are applicable for clearing and grubbing; grading; construction; paving; and structures at watercourses.

The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Several methods of controlling dust and other air pollutants include:

- Exposing the minimum area of erodible earth.
- Applying temporary mulch with or without seeding.
- Using water sprinkler trucks.
- Using covered haul trucks.
- Using dust palliatives or penetration asphalt on haul roads.
- Using plastic sheet coverings.

Work shall not be started until the erosion control schedules, plan for controlling dust, and plan for disposal of waste materials have been accepted by the Engineer.

156-4.3 AUTHORITY OF ENGINEER. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment.

156-4.4 CONSTRUCTION DETAILS. The Contractor shall incorporate all permanent and temporary erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. The Contractor shall incorporate all permanent and temporary erosion control features into the project at the earliest practicable time, at the locations designated on the Contract Drawings and as otherwise directed by the Engineer. The Contractor shall install and maintain the appropriate erosion control features in accordance with the details shown on the Contract Drawings. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures shall be implemented by the Contractor to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, temporary erosion control measures will be required between successive construction stages.

The Contractor shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress,
commensurate with the Contractor’s capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

Whenever construction equipment must cross watercourses at frequent intervals, and such crossings will adversely affect the sediment levels, temporary structures should be provided.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto.

The Contractor is responsible for preventing soil erosion and siltation, and for correcting the effects of soil erosion and siltation. Soil erosion and siltation control features shall be maintained by the Contractor in a manner acceptable to the Owner and Engineer until final stabilization of the disturbed areas. Final stabilization is generally defined as when all soil disturbing activities have been completed and a uniform perennial vegetative cover with a density of 80% for the area has been established. However, removal of soil erosion and siltation control features shall not relieve the Contractor from his obligation to prevent soil erosion and siltation, nor to correct the effects of soil erosion and siltation. Upon removal of temporary erosion and sediment control features, the Contractor shall restore all disturbed areas to a condition equal to or better than original. There will be no separate payment made for restoration of surfaces. The Contractor shall consider the cost of restoration as a subsidiary obligation of performing the work and shall include the costs of restoration in the various pay items involved.

In the event that temporary erosion, siltation and pollution control measures are required due to the Contractor’s negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or are ordered by the Engineer, such work shall be performed by the Contractor at his/her own expense.

Measures performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor with costs included in the contract prices bid for the items to which they apply.

Temporary structural measures which are ordered that are not covered by contract pay items will be paid for in accordance with Section 90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK.

If the Contractor fails to implement erosion and sediment control practices as required by this Specification and maintain these features in accordance with this Specification, the Owner shall correct the adverse conditions by any means deemed appropriate and shall deduct the cost of the corrective actions from any monies due the Contractor.

Where major nonconformance with the requirements of this Specification is noted by the Engineer and compliance is not obtained by the Contractor, all contract work may be stopped by direct order of the Engineer.

156-5 METHOD OF MEASUREMENT.

156-5.1 Measures and practices required for compliance with this specification for which there is no other pay item shall be measured on a lump sum basis. Measures and practices shall include, but not be limited to, air pollution prevention, water pollution prevention, temporary seeding, temporary mulching, construction road stabilization, dust control, protecting vegetation, and erosion and sediment control practices required due to the contractor’s means and methods of construction.

156-6 BASIS OF PAYMENT.

156-6.1 Payment will be made at the lump sum bid price for compliance with pollution, erosion, and siltation control. The lump sum price bid shall include the cost of all labor, material, equipment and all incidentals necessary to complete this item. Partial payments may be made at the discretion of the Engineer as the work progresses, based on contract time or percent work complete.
Payment will be made under:

Item P-156-6.1  Compliance with Pollution, Erosion, and Siltation Control – per lump sum

END OF ITEM P-156
ITEM P-603 BITUMINOUS TACK COAT

603-1 DESCRIPTION.

603-1.1 This item shall consist of preparing and treating a bituminous or concrete surface with bituminous material in accordance with these specifications and in conformity to the lines shown on the Contract Drawings.

603-2 MATERIALS.

603-2.1 BITUMINOUS MATERIALS. The bituminous material shall be emulsified asphalt and shall conform to the requirements of Table 1.

603-2.1 BITUMINOUS MATERIALS. The bituminous material shall be emulsified asphalt and shall conform to the requirements of Table 1. The type, grade, controlling specification, and application temperature of bituminous material to be used shall be approved by the Engineer.

<table>
<thead>
<tr>
<th>Type and Grade</th>
<th>Specification</th>
<th>Application Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emulsified Asphalt</td>
<td>ASTM D 977</td>
<td>75 – 130 degrees F</td>
</tr>
<tr>
<td>SS-1, SS-1h</td>
<td>ASTM D 2397</td>
<td>75 – 130 degrees F</td>
</tr>
</tbody>
</table>

603-3 SUBMITTALS AND CERTIFICATIONS.

603-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Submittal for bituminous material identifying material.

- The Contractor shall furnish the vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the Project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of material received for use on the Project.

603-4 CONSTRUCTION METHODS.

603-4.1 WEATHER LIMITATIONS. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is above 60 degrees F. The temperature requirements may be waived, but only when so directed by the Engineer.

603-4.2 EQUIPMENT. The Contractor shall provide equipment for heating and applying the bituminous material.

The distributor shall be designed, equipped, maintained, and operated so that bituminous material at even heat may be applied uniformly on variable widths of surface at the specified rate. The allowable variation from the specified rate shall not exceed 10 percent. Distributor equipment shall include a tachometer, pressure gages, volume-measuring devices or a calibrated tank, and a thermometer for measuring temperatures of tank contents. The distributor shall be self-powered and shall be equipped with a power unit for the pump and full circulation spray bars adjustable laterally and vertically.

If the distributor is not equipped with an operable quick shut off valve, the tack operations shall be started and stopped on building paper. The Contractor shall remove building paper prior to asphalt concrete lay down operations at no additional expense to the owner.
A power broom and/or blower shall be provided for any required cleaning of the surface to be treated.

**603-4.3 APPLICATION OF BITUMINOUS MATERIAL.** Immediately before applying the tack coat, the full width of surface to be treated shall be swept with a power broom and/or airblast to remove all loose dirt and other objectionable material.

Emulsified asphalt shall be diluted by the addition of water when directed by the Engineer and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before any of the overlying mixture is placed on the tacked surface.

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Application Rate (Gal/Yd²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hot Mix Asphalt</td>
<td>0.031 - 0.040</td>
</tr>
<tr>
<td>Milled Surfaces</td>
<td>0.046 - 0.055</td>
</tr>
<tr>
<td>Existing Hot Mix Asphalt</td>
<td>0.046 - 0.055</td>
</tr>
<tr>
<td>Portland Cement Concrete</td>
<td>0.037 - 0.066</td>
</tr>
<tr>
<td>Vertical Surfaces (curbs, Concrete Drainage structures and appurtenances)</td>
<td>0.059 - 0.070</td>
</tr>
</tbody>
</table>

The bituminous material including vehicle or solvent shall be uniformly applied with a bituminous distributor at the rates specified. The application rate and method of application shall be approved by the Engineer prior to application.

Following the application, the tack coat shall be allowed to cure without being disturbed for such period of time as may be necessary to permit drying out and setting of the tack coat. This period shall be determined by the Engineer. The surface shall then be maintained by the Contractor until the next course has been placed. Suitable precautions shall be taken by the Contractor to protect the surface against damage during this interval.

**603-4.4 FREIGHT AND WEIGH BILLS.** Before the final estimate, the Contractor shall file with the Engineer receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the bituminous materials actually used in the construction covered by this Contract. The Contractor shall not remove bituminous material from the tank car or storage tank until the initial outage and temperature measurements have been taken by the Engineer, nor shall the car or tank be released until the final outage has been taken by the Engineer. Copies of freight bills and weigh bills shall be furnished to the Engineer during the progress of the work.

**603-5 METHOD OF MEASUREMENT.**

**603-5.1** The bituminous material for tack coat shall be measured by the gallon. Volume shall be corrected to the volume at 60 degrees F in accordance with Table IV-3 of The Asphalt Institute’s Manual MS-6 for emulsified asphalt. Water added to emulsify asphalt will not be measured for payment.
<table>
<thead>
<tr>
<th>°C</th>
<th>°F</th>
<th>M</th>
<th>°C</th>
<th>°F</th>
<th>M</th>
<th>°C</th>
<th>°F</th>
<th>M</th>
<th>°C</th>
<th>°F</th>
<th>M</th>
<th>°C</th>
<th>°F</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>50</td>
<td>1.00250</td>
<td>20.0</td>
<td>68</td>
<td>0.99800</td>
<td>30.0</td>
<td>86</td>
<td>0.99350</td>
<td>40.0</td>
<td>104</td>
<td>0.98900</td>
<td>50.0</td>
<td>122</td>
<td>0.98450</td>
</tr>
<tr>
<td>10.6</td>
<td>51</td>
<td>1.00225</td>
<td>20.6</td>
<td>69</td>
<td>0.99775</td>
<td>30.6</td>
<td>87</td>
<td>0.99325</td>
<td>40.6</td>
<td>105</td>
<td>0.98875</td>
<td>50.6</td>
<td>123</td>
<td>0.98425</td>
</tr>
<tr>
<td>11.1</td>
<td>52</td>
<td>1.00200</td>
<td>21.1</td>
<td>70</td>
<td>0.99750</td>
<td>31.1</td>
<td>88</td>
<td>0.99300</td>
<td>41.1</td>
<td>106</td>
<td>0.98850</td>
<td>51.1</td>
<td>124</td>
<td>0.98400</td>
</tr>
<tr>
<td>11.7</td>
<td>53</td>
<td>1.00175</td>
<td>21.7</td>
<td>71</td>
<td>0.99725</td>
<td>31.7</td>
<td>89</td>
<td>0.99275</td>
<td>41.7</td>
<td>107</td>
<td>0.98825</td>
<td>51.7</td>
<td>125</td>
<td>0.98375</td>
</tr>
<tr>
<td>12.2</td>
<td>54</td>
<td>1.00150</td>
<td>22.2</td>
<td>72</td>
<td>0.99700</td>
<td>32.2</td>
<td>90</td>
<td>0.99250</td>
<td>42.2</td>
<td>108</td>
<td>0.98800</td>
<td>52.2</td>
<td>126</td>
<td>0.98350</td>
</tr>
<tr>
<td>12.8</td>
<td>55</td>
<td>1.00125</td>
<td>22.8</td>
<td>73</td>
<td>0.99675</td>
<td>32.8</td>
<td>91</td>
<td>0.99225</td>
<td>42.8</td>
<td>109</td>
<td>0.98775</td>
<td>52.8</td>
<td>127</td>
<td>0.98325</td>
</tr>
<tr>
<td>13.3</td>
<td>56</td>
<td>1.00100</td>
<td>23.3</td>
<td>74</td>
<td>0.99650</td>
<td>33.3</td>
<td>92</td>
<td>0.99200</td>
<td>43.3</td>
<td>110</td>
<td>0.98750</td>
<td>53.3</td>
<td>128</td>
<td>0.98300</td>
</tr>
<tr>
<td>13.9</td>
<td>57</td>
<td>1.00075</td>
<td>23.9</td>
<td>75</td>
<td>0.99625</td>
<td>33.9</td>
<td>93</td>
<td>0.99175</td>
<td>43.9</td>
<td>111</td>
<td>0.98725</td>
<td>53.9</td>
<td>129</td>
<td>0.98275</td>
</tr>
<tr>
<td>14.4</td>
<td>58</td>
<td>1.00050</td>
<td>24.4</td>
<td>76</td>
<td>0.99600</td>
<td>34.4</td>
<td>94</td>
<td>0.99150</td>
<td>44.4</td>
<td>112</td>
<td>0.98700</td>
<td>54.4</td>
<td>130</td>
<td>0.98250</td>
</tr>
<tr>
<td>15.0</td>
<td>59</td>
<td>1.00025</td>
<td>25.0</td>
<td>77</td>
<td>0.99575</td>
<td>35.0</td>
<td>95</td>
<td>0.99125</td>
<td>45.0</td>
<td>113</td>
<td>0.98675</td>
<td>55.0</td>
<td>131</td>
<td>0.98225</td>
</tr>
<tr>
<td>15.6</td>
<td>60</td>
<td>1.00000</td>
<td>25.6</td>
<td>78</td>
<td>0.99550</td>
<td>35.6</td>
<td>96</td>
<td>0.99100</td>
<td>45.6</td>
<td>114</td>
<td>0.98650</td>
<td>55.6</td>
<td>132</td>
<td>0.98200</td>
</tr>
<tr>
<td>16.1</td>
<td>61</td>
<td>0.99975</td>
<td>26.1</td>
<td>79</td>
<td>0.99525</td>
<td>36.1</td>
<td>97</td>
<td>0.99075</td>
<td>46.1</td>
<td>115</td>
<td>0.98625</td>
<td>56.1</td>
<td>133</td>
<td>0.98175</td>
</tr>
<tr>
<td>16.7</td>
<td>62</td>
<td>0.99950</td>
<td>26.7</td>
<td>80</td>
<td>0.99500</td>
<td>36.7</td>
<td>98</td>
<td>0.99050</td>
<td>46.7</td>
<td>116</td>
<td>0.98600</td>
<td>56.7</td>
<td>134</td>
<td>0.98150</td>
</tr>
<tr>
<td>17.2</td>
<td>63</td>
<td>0.99925</td>
<td>27.2</td>
<td>81</td>
<td>0.99475</td>
<td>37.2</td>
<td>99</td>
<td>0.99025</td>
<td>47.2</td>
<td>117</td>
<td>0.98575</td>
<td>57.2</td>
<td>135</td>
<td>0.98125</td>
</tr>
<tr>
<td>17.8</td>
<td>64</td>
<td>0.99900</td>
<td>27.8</td>
<td>82</td>
<td>0.99450</td>
<td>37.8</td>
<td>100</td>
<td>0.99000</td>
<td>47.8</td>
<td>118</td>
<td>0.98550</td>
<td>57.8</td>
<td>136</td>
<td>0.98100</td>
</tr>
<tr>
<td>18.3</td>
<td>65</td>
<td>0.99875</td>
<td>28.3</td>
<td>83</td>
<td>0.99425</td>
<td>38.3</td>
<td>101</td>
<td>0.98975</td>
<td>48.3</td>
<td>119</td>
<td>0.98525</td>
<td>58.3</td>
<td>137</td>
<td>0.98075</td>
</tr>
<tr>
<td>18.9</td>
<td>66</td>
<td>0.99850</td>
<td>28.9</td>
<td>84</td>
<td>0.99400</td>
<td>38.9</td>
<td>102</td>
<td>0.98950</td>
<td>48.9</td>
<td>120</td>
<td>0.98500</td>
<td>58.9</td>
<td>138</td>
<td>0.98050</td>
</tr>
<tr>
<td>19.4</td>
<td>67</td>
<td>0.99825</td>
<td>29.4</td>
<td>85</td>
<td>0.99375</td>
<td>39.4</td>
<td>103</td>
<td>0.98925</td>
<td>49.4</td>
<td>121</td>
<td>0.98475</td>
<td>59.4</td>
<td>139</td>
<td>0.98025</td>
</tr>
<tr>
<td>°C</td>
<td>°F</td>
<td>*M</td>
<td>°C</td>
<td>°F</td>
<td>*M</td>
<td>°C</td>
<td>°F</td>
<td>*M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60.0</td>
<td>140</td>
<td>0.98000</td>
<td>68.3</td>
<td>155</td>
<td>0.97625</td>
<td>76.7</td>
<td>170</td>
<td>0.97250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60.6</td>
<td>141</td>
<td>0.97975</td>
<td>68.9</td>
<td>156</td>
<td>0.97600</td>
<td>77.2</td>
<td>171</td>
<td>0.97225</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.1</td>
<td>142</td>
<td>0.97950</td>
<td>69.4</td>
<td>157</td>
<td>0.97575</td>
<td>77.8</td>
<td>172</td>
<td>0.97200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.7</td>
<td>143</td>
<td>0.97925</td>
<td>70.0</td>
<td>158</td>
<td>0.97550</td>
<td>78.3</td>
<td>173</td>
<td>0.97175</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62.2</td>
<td>144</td>
<td>0.97900</td>
<td>70.6</td>
<td>159</td>
<td>0.97525</td>
<td>78.9</td>
<td>174</td>
<td>0.97150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62.8</td>
<td>145</td>
<td>0.97875</td>
<td>71.1</td>
<td>160</td>
<td>0.97500</td>
<td>79.4</td>
<td>175</td>
<td>0.97125</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63.3</td>
<td>146</td>
<td>0.97850</td>
<td>71.7</td>
<td>161</td>
<td>0.97475</td>
<td>80.0</td>
<td>176</td>
<td>0.97100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63.9</td>
<td>147</td>
<td>0.97825</td>
<td>72.2</td>
<td>162</td>
<td>0.97450</td>
<td>80.6</td>
<td>177</td>
<td>0.97075</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64.4</td>
<td>148</td>
<td>0.97800</td>
<td>72.8</td>
<td>163</td>
<td>0.97425</td>
<td>81.1</td>
<td>178</td>
<td>0.97050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65.0</td>
<td>149</td>
<td>0.97775</td>
<td>73.3</td>
<td>164</td>
<td>0.97400</td>
<td>81.7</td>
<td>179</td>
<td>0.97025</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65.6</td>
<td>150</td>
<td>0.97750</td>
<td>73.9</td>
<td>165</td>
<td>0.97375</td>
<td>82.2</td>
<td>180</td>
<td>0.97000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66.1</td>
<td>151</td>
<td>0.97725</td>
<td>74.4</td>
<td>166</td>
<td>0.97350</td>
<td>82.8</td>
<td>181</td>
<td>0.96975</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66.7</td>
<td>152</td>
<td>0.97700</td>
<td>75.0</td>
<td>167</td>
<td>0.97325</td>
<td>83.3</td>
<td>182</td>
<td>0.96950</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67.2</td>
<td>153</td>
<td>0.97675</td>
<td>75.6</td>
<td>168</td>
<td>0.97300</td>
<td>83.9</td>
<td>183</td>
<td>0.96925</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67.8</td>
<td>154</td>
<td>0.97650</td>
<td>76.1</td>
<td>169</td>
<td>0.97275</td>
<td>84.4</td>
<td>184</td>
<td>0.96900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

°C = Observed Temperature in Degrees Celsius.
°F = Temperature in Degrees Fahrenheit.
*M = Multiplier for correcting volumes to the basis of 15.6 °C (60°F).
603-6 BASIS OF PAYMENT.

603-6.1 Payment shall be made at the contract unit price per gallon of bituminous material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-6.1 - Bituminous Tack Coat—per gallon

MATERIAL REQUIREMENTS

ASTM D977 Emulsified Asphalt
ASTM D2397 Cationic Emulsified Asphalt

Asphalt Institute Manual MS-6 Table IV-3 Temperature-Volume Corrections for Emulsified Asphalts

END OF ITEM P-603
ITEM P-605 JOINT SEALING FILLER

605-1 DESCRIPTION.

605-1.1 This item shall consist of sawcutting joints, providing and installing a resilient and adhesive joint sealing filler capable of effectively sealing joints and cracks in pavements, in accordance with the specifications and the Contract Drawings, or as directed by the Engineer.

605-2 MATERIALS.

605-2.1 JOINT SEALERS. Joint sealing materials shall meet the requirements of one or more of the following types as indicated on the Contract Drawings:

- FED SPEC SS-S-200E(2) Sealants, Joint, Two-Component, Jet-Blast Resistant, Cold Applied.
- ASTM D-1854 Jet Fuel Resistant Concrete Joint Sealer, Hot Applied Elastic Type
- ASTM D-3569 Joint Sealant, Hot Applied, Elastomeric, Jet Fuel Resistant Type, for Portland Cement Concrete Pavements
- ASTM D-3581 Joint Sealant, Hot Applied, Jet Fuel Resistant Type, for Portland Cement Concrete and Tar Concrete Pavements
- ASTM D-6690 Type II or III Joint Sealants, Hot Applied, for Concrete and Asphalt Pavements

Each lot or batch of sealing compound shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the compound meets the requirements of this specification.

605-2.2 BACKER MATERIAL. Backer material shall meet the requirements of ASTM D 5249. Type 1 and 2 backer material may be used for hot-applied sealants. Type 1, 2 and 3 backer material may be used for cold-applied sealants. Unless otherwise shown, backer material shall be 25% to 35% larger in width or diameter than the joint width being sealed.

Type 1 and Type 3 backer materials are round rods and are intended for use primarily where there is a reservoir, either already existing or formed, such as a contraction joint, where the rod will limit the sealant depth and prevent the sealant from bonding to the bottom of the joint reservoir.

Type 2 backer material is a sheet or strip material of various thicknesses either laminated or skived and are intended primarily for use where there is an opening the full depth of the pavement, such as an expansion joint for which it is desirable to have a filler material completely fill the opening and prevent or minimize the accumulation of water or incompressible materials below the sealant.

605-3 SUBMITTALS AND CERTIFICATIONS.

605-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalog Data showing that the joint sealer meets the requirements specified.
- Catalog data showing that backer material meets the requirements specified.

605-4 CONSTRUCTION METHODS.

605-4.1 TIME OF APPLICATION. Joints shall be sealed as soon as the concrete has cured the required amount of time. No traffic will be allowed on pavements (including construction vehicles) until the joints have been sealed in accordance with this Specification. The pavement temperature shall be above 40 degrees F at the time of the installation of the preformed joint seal or 50 degrees F at the time of installation of poured joint sealing material.

605-4.2 PREPARATION OF JOINTS.

A. **Sawing.** All joints shall be sawed in accordance with specifications and details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

B. **Sealing.** Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, and other foreign material. Cleaning shall be accomplished by sandblasting. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more that 3 inches from it. Upon completion of cleaning, the joints shall be blown out with compressed air free of oil and water. Only air compressors with operable oil and water traps shall be used to prepare the joints for sealing. The joint faces shall be surface dry when the seal is applied.

Cleaning shall not damage the joint face or the pavement surface. If the Engineer determines that damage to the joint face or pavement surface occurs, then the Contractor shall revise their cleaning methods.

In areas where existing joint material is in poor condition, it shall be completely removed. Existing joint sealer in sound condition may remain in place, if so ordered by the Engineer, however, if joint sealer other than originally used is specified, all existing joint sealer shall be removed.

605-4.3 INSTALLATION OF SEALANTS. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer before sealing is allowed. Sealants shall be placed in accordance with the following requirements:

A. **Hot Poured Sealants.** The joint sealant shall be applied uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids. A backing material shall be placed as shown on the Contract Drawings and shall be both non-reactive and non-adhesive to the concrete or the sealant material. The heating kettle shall be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation shall be provided. The sealant shall not be heated to more than 20 degrees F below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer's shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint shall be provided. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures, shall be removed immediately.

Backer material in the bottom of the joint to be sealed is required to control the depth of the sealant, to achieve the desired shape factor and to support the sealant against indentation and sag. Backer material shall be compatible with the sealant, shall not adhere to the sealant, shall be compressible without extruding the sealant and shall recover to maintain contact with the joint faces when the joint is open.

B. **Cold Applied Sealants.** Cold applied joint sealing compound shall be applied by means of pressure equipment that will force the sealing material to the bottom of the joint and completely fill the joint without spilling the material on the surface of the pavement. A backing material shall be placed as shown on the Contract Drawings and shall be non-reactive and non-adhesive to the concrete or the sealant material. Sealant that does not bond to the concrete surface of the joint walls, contains voids, or fails to set to a tack-free condition will be rejected and replaced by the Contractor at no additional cost. Before sealing the joints, the Contractor shall demonstrate that the equipment and procedures for preparing, mixing, and placing the sealant will produce a satisfactory joint seal. This shall include the preparation of two small
batches and the application of the resulting material. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures, shall be removed immediately.

Backer material in the bottom of the joint to be sealed is required to control the depth of the sealant, to achieve the desired shape factor and to support the sealant against indentation and sag. Backer materials shall be compatible with the sealant, shall not adhere to the sealant, shall be compressible without extruding the sealant and shall recover to maintain contact with the joint faces when the joint is open.

**605-5 METHOD OF MEASUREMENT.**

**605-5.1** No separate measurement for payment shall be made for joint and crack sealing. Joint and crack sealing shall be considered necessary and incidental to the work of this Contract.

**605-6 BASIS OF PAYMENT.**

**605-6.1** No payment will be made separately or directly for joint and crack sealing. Joint and crack sealing shall be considered necessary and incidental to the work of this Contract and the costs shall be included in the various pay items involved.

**MATERIAL REQUIREMENTS**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D 1854</td>
<td>Jet-Fuel-Resistant Concrete Joint Sealer, Hot-Applied Elastic Type</td>
</tr>
<tr>
<td>ASTM D 3569</td>
<td>Joint Sealant, Hot-Applied, Elastometric, Jet-Fuel-Resistant Type, for Portland Cement Concrete Pavements</td>
</tr>
<tr>
<td>ASTM D 3581</td>
<td>Joint Sealant, Hot-Applied, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements</td>
</tr>
<tr>
<td>ASTM D 5893</td>
<td>Standard Specifications for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements</td>
</tr>
<tr>
<td>ASTM D 6690</td>
<td>Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements</td>
</tr>
<tr>
<td>FED SPEC SS-S-200E(2)</td>
<td>Sealants, Joint, Two-Component, Jet-Blast Resistant, Cold Applied</td>
</tr>
</tbody>
</table>

END OF ITEM P-605
ITEM P-612 FIELD OFFICE

612-1 DESCRIPTION.

612-1.1 This item shall consist of providing, furnishing and maintaining an Engineer’s Field Office for the exclusive use of and occupancy by the Engineer. It shall be the responsibility of the Contractor to install and maintain the Engineer’s Field Office in compliance with all applicable building, safety, and health regulations and laws.

612-2 FIELD OFFICE.

612-2.1 FURNISHING EXISTING FACILITIES AND BUILDINGS. The Contractor shall pay the City of Reedley a fee of $2,000 in exchange for space provided by the Owner in the Terminal Building.

612-2.2 GENERAL.

Equipment, furnishings and all appurtenances shall be onsite, installed and operational at least 7 days prior to commencement of construction, and shall remain in place for a period of 30 days after the date of final acceptance of the project.

The office shall be cleaned at least once weekly, and at other times as directed by the Engineer.

The field office and site shall be maintained in good condition and appearance by the Contractor for the designated period, after which the field office, utilities and appurtenances shall be removed and the site restored to a condition equal to or better than original condition. The Contractor shall be responsible, until use and occupancy of the field office is relinquished by the Engineer, for any and all damage, direct or indirect, of whatever nature, occurring to the property of the Owner and Engineer, including other employees of the Engineer assigned to the field office, which is kept in the field office. Property shall only be those items used by appropriate personnel in the performance of project related work activities.

612-3 FIELD OFFICE EQUIPMENT (TO BE PROVIDED BY CONTRACTOR).

612-3.1 COLOR PRINTER/COPIER/SCANNER. The Contractor shall provide a desk top type multi-function Printer/Copier/Scanner machine.

The printer/copier portion of the machine shall be a color photocopier capable of copying from and to 8-1/2 x 11 inch, 8-1/2 x 14 inch and 11 x 17 inch paper.

The scanner shall be capable of scanning up to 11x17 inch paper.

The Contractor shall also provide a supply of each size paper and each color ink cartridge. The Contractor shall replenish the supplies when required by the Engineer.

612-3.2 WATER COOLER. The Contractor shall provide a water cooler able to produce both hot and cold drinking water and the associated water service by a water provider.

612-3.19 FIRST AID KIT. The Contractor shall provide a first aid kit properly stocked with appropriate first aid supplies.

612-3.20 FIRE EXTINGUISHERS. The Contractor shall provide one fire extinguisher per room. The fire extinguisher shall be a non-toxic dry chemical, fire extinguisher meeting Underwriters Laboratories, Inc., approval for Class A, Class B and Class C fires with a minimum rating of 2A:10B:10C.

612-3.21 THERMOMETER. The Contractor shall provide a minimum-maximum Fahrenheit thermometer.
612-4 METHOD OF MEASUREMENT.

612-4.1 Payment will be made at the lump sum price bid for the field office.

612-5 BASIS OF PAYMENT.

612-5.1 The lump sum price bid shall include the cost of all labor, material, equipment, utility charges and all incidentals necessary to complete this item. Partial payments may be made at the discretion of the Engineer as the work progresses, based on contract time or percent work complete.

Payment will be made under:

- Item P-612-5.1 - Field Office - per lump sum

END OF ITEM P-612
ITEM P-620  RUNWAY AND TAXIWAY PAINTING

620-1  DESCRIPTION.

620-1.1  This item shall consist of the painting of numbers, markings, and stripes, and the removal of existing markings on the surface of pavements in accordance with these specifications and at the locations shown on the Contract Drawings, or as directed by the Engineer.

620-2  MATERIALS.

620-2.1  MATERIALS ACCEPTANCE.  The Contractor shall furnish manufacturer's certified test reports for materials shipped to the project.  The certified test reports shall include a statement that the materials meet the specification requirements.  The reports can be used for material acceptance or the Engineer may perform verification testing.  The reports shall not be interpreted as a basis for payment.  The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site.

620-2.2  PAINT.  Paint shall be Waterborne and shall meet the requirements of Federal Specification TT-P-1952E, Type I or Type II.

Colors shall be in accordance with Federal Standard No 595 as follows:

<table>
<thead>
<tr>
<th>Color</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>37925</td>
</tr>
<tr>
<td>Yellow</td>
<td>33538, or 33655</td>
</tr>
<tr>
<td>Red</td>
<td>31136</td>
</tr>
<tr>
<td>Black</td>
<td>37038</td>
</tr>
<tr>
<td>Pink</td>
<td>1 part Red No. 31136, 2 parts White No. 37925</td>
</tr>
</tbody>
</table>

Paint for permanent pavement markings shall be used with reflective media, unless otherwise shown or specified.

Paint for temporary markings shall contain reflective media, unless otherwise shown or specified.

Black paint used to outline pavement markings shall not contain reflective media.

620-2.3  REFLECTIVE MEDIA.  Reflective media shall be glass beads meeting the requirements of Federal Specification TT-B-1325, Type I, gradation A, Type III, or Type IV.  Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

620-3  SUBMITTALS AND CERTIFICATIONS.

620-3.1  Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions.  Submittals and Certifications required are as follows:

- Manufacturer's certified test reports showing that paint meets the requirements specified.
- Manufacturer's certified test reports showing that reflective media meets the requirements specified.

620-4  CONSTRUCTION METHODS.

620-4.1  WEATHER LIMITATIONS.  The painting shall be performed only when the surface is dry and when the surface temperature is above 45 degrees F and rising and the pavement surface temperature is at least 5 degrees F above the dew point and when the weather is not foggy or windy.  The suitability of the weather will be determined by the Engineer.  Markings shall not be applied when the pavement temperature is greater than that recommended by the manufacturer.

620-4.2  EQUIPMENT.  All equipment for the work shall be approved by the Engineer and shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing
machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall apply markings of uniform cross sections and clear-cut edges without running or spattering and without over spray.

**620-4.3 PREPARATION OF SURFACE.** Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other foreign material that would reduce the bond between the paint and the pavement. The area to be painted shall be cleaned by sweeping and blowing or by other methods as required to remove all dirt, laitance, and loose materials without damage to the pavement surface. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the Engineer.

Paint shall not be applied to Portland cement concrete pavement until the areas to be painted are clean of curing material. Sandblasting or high-pressure water shall be used to remove curing materials.

No direct payment for the work of this section will be made. All preparation of surfaces shall be considered a necessary and incidental part of the work and the costs shall be included in the various pay items involved.

**620-4.4 LAYOUT OF MARKINGS.** On those sections of pavement where no previously applied markings are available to serve as a guide, the proposed markings shall be laid out in advance of the paint application.

**620-4.5 REMOVAL OF EXISTING MARKINGS.** Existing markings which are shown to be removed, and existing markings that do not conform to proposed markings shall be removed by sandblasting or vacuum blasting, such that 95% of all paint is removed to the satisfaction of the Owner and Engineer. After removal of markings on bituminous asphalt pavements, Contractor shall apply a pavement sealer to the area. pavement sealer shall be applied in accordance with the manufacturer’s recommendations. Black paint shall not be used to cover markings.

No direct payment for the work of this section will be made. All marking removal shall be considered a necessary and incidental part of the work and the costs shall be included in the various pay items involved.

**620-4.6 APPLICATION.** Contractors shall apply reflective media to the paint. There shall be no measurement for payment for providing reflective media. The costs for providing the materials shall be considered incidental to the work and shall be included in the pay items involved.

Paint shall be applied at the locations and to the dimensions and spacing shown on the Contract Drawings. Paint shall not be applied until the layout and condition of the surface has been approved by the Engineer. The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet and marking dimensions and spacings shall be within the following tolerances:

<table>
<thead>
<tr>
<th>Dimension and Spacing</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 inches or less</td>
<td>+/- 1/2 inch</td>
</tr>
<tr>
<td>greater than 36 inches to 6 feet</td>
<td>+/- 1 inch</td>
</tr>
<tr>
<td>greater than 6 feet to 60 feet</td>
<td>+/- 2 inches</td>
</tr>
<tr>
<td>greater than 60 feet</td>
<td>+/- 3 inches</td>
</tr>
</tbody>
</table>

All paint delivered to the job site must be accompanied by the manufacturer's certification. The paint shall be delivered in sealed containers clearly labeled by the manufacturer. The reports shall not be interpreted as a basis for final acceptance. The Contractor shall notify the Engineer upon arrival of a shipment of paint to the job site.

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted. A period of time in accordance with the manufacturer’s recommendation shall elapse between placement of a bituminous surface course or seal coat and application of the paint.
TABLE 1. APPLICATION RATES FOR PAINT AND GLASS BEADS

<table>
<thead>
<tr>
<th>Paint Type</th>
<th>Paint Coverage for Permanent Markings (s.f./gal.)</th>
<th>Glass Beads, Type I, Gradation A (lbs./gal. of paint)</th>
<th>Glass Beads, Type III (lbs./gal. of paint)</th>
<th>Glass Beads, Type IV (lbs./gal. of paint)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterborne</td>
<td>115 (max.)</td>
<td>7 (min.)</td>
<td>10 (min.)</td>
<td>N/A</td>
</tr>
<tr>
<td>Waterborne</td>
<td>90 (max.)</td>
<td>N/A</td>
<td>N/A</td>
<td>8 (min.)</td>
</tr>
</tbody>
</table>

Paint used for temporary markings shall be waterborne and shall contain reflective media, unless otherwise shown or specified. The application rate for temporary markings shall be 230 square feet per gallon, maximum when using Type I or Type III glass beads, and shall be 180 square feet per gallon, maximum when using Type IV glass beads.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate(s) shown in Table 1. Glass beads shall not be applied to black paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made.

All emptied containers shall be returned to the paint storage area for checking by the Engineer. The containers shall not be removed from the airport or destroyed until authorized by the Engineer.

620-4.7 REMOVAL OF TEMPORARY MARKINGS. Temporary markings shall be removed in accordance with Section 4.5, Removal of Existing Markings, of this specification. No direct payment will be made for this item. The costs of removal of temporary markings shall be included in Item M-100, Maintenance and Protection of Traffic.

620-4.8 PROTECTION AND CLEANUP. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose or unadhered reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

620-5 METHOD OF MEASUREMENT.

620-5.1 The quantity of runway and taxiway markings with waterborne paint to be paid for shall be the number of square feet of paint complete in place (including reflective media), all performed in accordance with the specifications and accepted by the Engineer.

620-6 BASIS OF PAYMENT.

620-6.1 Payment shall be made at the Contract unit price per square foot for runway and taxiway painting, waterborne paint. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

- Item P-620-6.1 - Runway and Taxiway Painting, Waterborne Paint - per square foot
TESTING REQUIREMENTS

ASTM C 371  Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM C 146  Chemical Analysis of Glass Sand
ASTM D 711  No-Pick-Up Time of Traffic Paint

MATERIAL REQUIREMENTS

FED SPEC TT-B-1325C  Beads (Glass Spheres) Retroreflective
Fed. Spec. TT-P-110  Paint, Traffic Black (Nonreflectorized)
FED SPEC TT-P-1952D  Paint, Traffic and Airfield Marking, Waterborne
Fed. Spec. R-P-355d  Pitch, Coal Tar Emulsion (Coating for Bituminous Pavements)
FED STD 595  Colors used in Government Procurement

END OF ITEM P-620
ITEM P-626  EMULSIFIED ASPHALT SLURRY SEAL TYPE I SURFACE TREATMENT

626-1 DESCRIPTION.

626-1.1 This item shall consist of a mixture of emulsified asphalt, mineral aggregate, and water properly proportioned, mixed, and spread on an asphalt prepared underlying course or existing wearing course in accordance with these specifications and shall conform to the dimensions shown on the Contract Drawings or as directed by the Engineer.

626-2 MATERIALS.

626-2.1 AGGREGATE. The aggregate shall consist of sound and durable manufactured sand, slag, crusher fines, crushed stone, or a combination thereof. The aggregate shall be clean and free from vegetable matter, dirt, and other deleterious substances. The aggregate shall have a sand equivalent of not less than 45% when tested in accordance with ASTM D 2419. The aggregate shall show a loss of not more than 35% when tested in accordance with ASTM C 131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium soundness loss shall not exceed 20% after 5 cycles when tested in accordance with ASTM C 88. Aggregate shall be 100% crushed.

The combined aggregate shall conform to the gradation shown in Table 1 when tested in accordance with ASTM C 136 and ASTM C 117.

### TABLE 1. GRADATION OF AGGREGATES.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percentage By Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
</tr>
<tr>
<td>3/8 inches</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>100</td>
</tr>
<tr>
<td>No. 8</td>
<td>90-100</td>
</tr>
<tr>
<td>No. 16</td>
<td>65-90</td>
</tr>
<tr>
<td>No. 30</td>
<td>40-65</td>
</tr>
<tr>
<td>No. 50</td>
<td>25-42</td>
</tr>
<tr>
<td>No. 100</td>
<td>15-30</td>
</tr>
<tr>
<td>No. 200</td>
<td>10-20</td>
</tr>
<tr>
<td>Residual Asphalt Content, Percent Dry Weight of Aggregate</td>
<td>10-16</td>
</tr>
</tbody>
</table>

The job mix formula (mix design) shall be run using aggregate within the gradation band for the desired type shown in Table 1. Once the mix design has been submitted and approved, the aggregate used on the project shall not vary by more than the tolerances shown in Table 2. At no time shall the aggregate used go out of the gradation bands in Table 1.

The aggregate will be accepted at the job location or stockpile. The stockpile will be accepted based on five gradation test samples in accordance with ASTM D 75. If the average of the five tests is within the gradation tolerances, then the materials will be accepted. If the tests show the material to be out of tolerance, the Contractor will be given the choice either to remove the material or blend other aggregates with the stockpile material to bring it into specification. Materials used in blending shall meet the quality tests before blending and shall be blended in a manner to produce a consistent gradation. This blending may require a new mix design.

Screening shall be required at the project stockpile site if there are any problems created by having oversize materials in the mix.

Precautions shall be taken to prevent segregation of the aggregate in storing and handling. The stockpile shall be kept in areas that drain readily.
A. **Aggregate Tolerance.** Once the mix design has been accepted, the aggregate gradation used on the project may vary from the aggregate gradation used in the mix design on each sieve by the percentages shown in Table 2. If the project aggregate fails to remain within this tolerance, a new mix design will be required by the Engineer at the expense of the Contractor.

**TABLE 2**

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Tolerance, percent by weight, passing sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in.</td>
<td>+/- 0%</td>
</tr>
<tr>
<td>No. 4</td>
<td>+/- 2%</td>
</tr>
<tr>
<td>No. 8</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>No. 16</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>No. 30</td>
<td>+/- 5%</td>
</tr>
<tr>
<td>No. 50</td>
<td>+/- 4%</td>
</tr>
<tr>
<td>No. 100</td>
<td>+/- 3%</td>
</tr>
<tr>
<td>No. 200</td>
<td>+/- 2%</td>
</tr>
<tr>
<td>Residual Asphalt, percent dry Weight of aggregate</td>
<td>+/- 1%</td>
</tr>
</tbody>
</table>

**626-2.2 MINERAL FILLER.** If mineral filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of ASTM D 242 and shall be used in the amounts required by the mix design. The mineral filler shall be considered as part of the aggregate.

**626-2.3 EMULSIFIED ASPHALT.** The emulsified asphalt shall conform to the requirements of ASTM D 977 or D 2397 and shall be SS, CSS, CQS, or QS type emulsions.

**626-2.4 WATER.** All water used in making the slurry shall be potable and free from harmful soluble salts and chemicals.

**626-3 SUBMITTALS AND CERTIFICATIONS.**

**626-3.1** Submittals of "Shop and Setting Drawings," "Working Drawings," "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and certifications required are as follows:

- Submittal for aggregate meeting the requirements specified.
- Gradation sieve analysis for aggregate.
- Submittal for emulsified asphalt meeting the requirements specified.
- Emulsified asphalt slurry seal Job Mix Formula.
- Evidence of experience from Laboratory developing the Job Mix Formula.

**626-4 COMPOSITION AND APPLICATION.**

**626-4.1 COMPOSITION.** The slurry seal shall consist of a mixture of emulsified asphalt, mineral aggregate, and water.

**626-4.2 JOB MIX FORMULA.** No slurry seal for payment shall be placed until a mix design has been approved by the Engineer. The mix design shall be developed by a laboratory with experience in designing slurry seal mixes and a signed copy shall be submitted in writing by the Contractor to the Engineer upon submission of the Job Mix Formula.

The laboratory report (mix design) shall indicate the proportions of aggregates, mineral filler (min. and max.), water (min. and max.) and asphalt emulsion based on the dry aggregate weight. It shall also report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effects). The mix design shall be in effect until modified in writing by the Engineer. Should a change in sources of materials be made, a new mix design shall be established before the new material is used.
The Contractor shall submit to the Engineer for approval a complete mix design on the materials proposed for use, prepared and certified by an approved laboratory. Compatibility of the aggregate, emulsion, mineral filler, and other additives shall be verified by the mix design. The mix design shall be made with the same aggregate and grade of emulsified asphalt that the Contractor will provide on the project. At a minimum the required tests and values needed are as follows:

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISSA TB-100</td>
<td>Wet Track Abrasion Loss 50 g/ft² Max</td>
</tr>
<tr>
<td>One Hour Soak</td>
<td></td>
</tr>
<tr>
<td>ISSA TB-115</td>
<td>Determination of Slurry Seal Compatibility Pass</td>
</tr>
</tbody>
</table>

**626-4.3 APPLICATION RATE.** Unless otherwise specified, the slurry seal shall be applied at the application rates shown in Table 3 for that gradation of material used.

**TABLE 3. APPLICATION RATES**

<table>
<thead>
<tr>
<th></th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds of mixture per square yard</td>
<td>8 – 12</td>
<td>12 – 20</td>
<td>18 – 30</td>
<td>10 – 16</td>
</tr>
</tbody>
</table>

The rate of application shall not vary more than +/- 2 pounds per square yard.

**626-4.4 TEST SECTIONS.** Test sections shall be placed prior to the start of the slurry seal work in the presence of the Engineer. The test area will be designated by the Engineer and will be located on the existing pavement. Test strips shall be made by each machine after calibration. Samples of the slurry seal may be taken and the mix consistency verified by using ISSA TB-106 Slurry Seal Consistency test. In addition, the proportions of the individual materials may be verified by the Engineer by using the calibration information provided after machine calibration. If any test does not meet specification requirements, additional tests shall be made at the expense of the Contractor, until an acceptable test strip is placed.

**626-5 CONSTRUCTION METHODS.**

**626-5.1 WEATHER LIMITATIONS.** The slurry seal shall not be applied if either the pavement or air temperature is below 50 degrees F and falling but may be applied when both pavement and air temperature are above 45 degrees F and rising. No slurry seal shall be applied when there is danger that the finished product will freeze before 24 hours. The mixture shall not be applied when weather conditions prolong opening to traffic beyond a reasonable time. The slurry seal shall not be applied when it is raining or when rain is imminent.

**626-5.2 EQUIPMENT AND TOOLS.** The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of this work.

**A. Slurry Mixing Equipment.** The machine shall be specifically designed and manufactured to lay slurry seal. The material shall be mixed by a self-propelled slurry seal mixing machine of either truck mounted or continuous run design. Either type machine shall be able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, and water to a revolving mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for materials to maintain an adequate supply to the proportioning controls.

If continuous run equipment is used, the machine shall be equipped to allow the operator to have full control of the forward and reverse speed of the machine during application of the slurry seal, with a self-loading device, with opposite side driver stations, all part of original equipment manufacturer design.

The aggregate shall be pre-wetted immediately prior to mixing with the emulsion. The mixing unit of the mixing chamber shall be capable of thoroughly blending all ingredients. No excessive mixing shall be
permitted. The mixing machine shall be equipped with a fines feeder that provides an accurate metering device or method to introduce a predetermined proportion of mineral filler into the mixer at the same time and location that the aggregate is fed into the mixer.

The mixing machine shall be equipped with a water pressure system and fog-type spray bar adequate for complete fogging of the surface with an application of 0.05 to 0.10 gallon per square yard preceding the spreading equipment.

Sufficient machine storage capacity to mix properly and apply a minimum of 5 tons of the slurry shall be provided. Proportioning devices shall be calibrated prior to placing the slurry seal.

B. **Slurry Spreading Equipment.** The mixture shall be spread uniformly by means of a conventional surfacing spreader box attached to the mixer and equipped to agitate and spread the material evenly throughout the box. A front seal shall be provided to insure no loss of the mixture at the surface contact point. The rear seal shall act as the final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry. A burlap drag or other approved screed may be attached to the rear of the spreader box to provide a uniform mat.

C. **Auxiliary Equipment.** Other tools or equipment such as brushes, hand squeegees, hose equipment, tank trucks, water distributors and flushers, power blowers, barricades, etc., shall be provided as required.

D. **Roller.** The roller, if required, shall be a self-propelled pneumatic-tired roller capable of exerting a contact pressure during rolling of 50 pounds per square inch. It shall be equipped with a water spray system, to be used if the slurry is picking up on the tires during rolling.

E. **Tack Coat and Distributor.** Normally a tack coat is not required unless the surface to be covered is extremely dry and raveled or is concrete or brick. If required, the tack coat should consist of one part emulsified asphalt and three parts water. The emulsified asphalt may be the same as that used in the mix. Pressure distributors used for application of the diluted asphalt emulsion tack coat shall be self-propelled, equipped with pneumatic tires, and capable of uniformly applying 0.05 to 0.15 gallon per square yard of the diluted emulsion over the required width of application. Distributors shall be equipped with tachometers, pressure gages, and volume-measuring devices. The tack coat shall be applied at least 2 hours before the slurry seal but within the same day.

626-5.3 **EQUIPMENT CALIBRATION.** Each slurry mixing unit to be used on the project shall be calibrated in the presence of the Engineer prior to construction. Previous calibration documentation covering the exact materials to be used may be accepted by the Engineer provided they were made during the calendar year. The documentation shall include an individual calibration of each material at various settings, which can be related to the machine's metering devices. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

626-5.4 **PREPARATION OF EXISTING SURFACE.** Prior to placing the tack coat and slurry seal coat, the surface shall be cleaned of rubber, paint, fuel spills, grease, oil, dust, dirt, other loose foreign matter, or any type of objectionable surface film in accordance with Item P-101, Surface Preparation. Any standard cleaning method will be acceptable except that water flushing will not be permitted in areas where considerable cracks are present in the pavement surface.

Cracks and other unsatisfactory areas shown on the Contract Drawings shall be repaired in accordance with Item P-101, Surface Preparation prior to application of the slurry seal.

626-5.5 **APPLICATION OF SLURRY SEAL COAT.** The surface shall be pre-wet by fogging ahead of the slurry spreader box. Water used in pre-wetting the surface shall be applied at such a rate that the entire surface is damp with no apparent flowing water in front of the slurry spreader box. The slurry mixture shall be of the desired consistency when deposited on the surface, and no additional elements shall be added. Total time of mixing shall not exceed 2 minutes. A sufficient amount of slurry shall be carried in all parts of the spreader box at all times so
that complete coverage of all surface voids and cracks is obtained. Care shall be taken not to overload the spreader box that shall be towed at a slow and uniform rate not to exceed 5 miles per hour. No lumping, balling, or unmixed aggregate shall be permitted. No segregation of the emulsion and fines from the coarse aggregate will be permitted. If the coarse aggregate settles to the bottom of the mix, the slurry shall be removed from the pavement surface. A sufficient amount of slurry shall be fed into the box to keep a full supply against the full width of the spreader box. The mixture shall not be permitted to overflow the sides of the spreader box. No breaking of the emulsion will be allowed in the spreader box. The finished surface shall have no more than four tear or drag marks greater than 1/2 inch wide and 4 inches long in any 12 foot by 22 foot section. It shall have no tear or drag marks greater than 1 inch wide and 3 inches long.

The finished surface shall have no transverse ripples of 1/4 inch or more in depth, as measured with a 10-foot straight edge laid upon the surface.

Adjacent lanes shall be lapped at the edges a minimum of 2 inches with a maximum of 4 inches to provide complete sealing at the overlap. Construction longitudinal and transverse joints shall be neat and uniform without buildup, uncovered areas, or unsightly appearance. All joints shall have no more than 1/4 inch difference in elevation when measured across with a 10 foot straight edge.

Contractor shall roll the slurry seal using a pneumatic tired roller. The surface shall be subjected to two full passes of the roller. Rolling shall begin as the slurry mixture will support the roller without causing damage to the surface.

The fresh slurry seal application shall be protected by barricades and markers and permitted to dry for 4 to 24 hours, depending on weather conditions. Any damage to uncured slurry shall be repaired at the expense of the Contractor.

In areas where the spreader box cannot be used, the slurry shall be applied by means of a hand squeegee. Upon completion of the work, the seal coat shall have no holes, bare spots, or cracks through which liquids or foreign matter could penetrate to the underlying pavement. The finished surface shall present a uniform and skid resistant texture satisfactory to the Engineer. All wasted and unused material and all debris shall be removed from the site prior to final acceptance.

Upon completion of the project, the Contractor shall sweep the finished surface with a conventional power rotary broom, to remove any potential loose material from the surface. The material removed by sweeping shall be disposed of in a manner satisfactory to the Engineer.

626-5.6 EMULSION MATERIAL (CONTRACTORS RESPONSIBILITY). The Contractor shall provide a statement as to the source of the emulsion to the Engineer. The statement must be submitted and approval shall be obtained before using such material. The Contractor shall submit to the Engineer a manufacturer's certified report for each consignment of the emulsion. The manufacturer's certified report shall not be interpreted as a basis for final acceptance. All such reports shall be subject to verification by testing samples of the emulsion as received for use on the project.

626-6 METHOD OF MEASUREMENT.

626-6.1 The quantity of emulsified asphalt slurry seal surface treatment shall be the actual number of square yards as shown on the Contract Drawings and as measured in the field. One measurement shall be made at the completion of the surface treatment. No measurement shall be made for the tack coat application.

626-7 BASIS OF PAYMENT.

626-7.1 Payment will be made at the Contract unit price per square yard for emulsified asphalt slurry seal surface treatment. This price shall be full compensation for furnishing all materials, for preparing, mixing and applying these materials and for all labor, equipment, tools and incidentals necessary to complete the item.

Payment will be made under:

Item P-626-7.1 - Emulsified Asphalt Slurry Seal Surface Treatment Type I - per square yard
## TESTING REQUIREMENTS

| ASTM C 88 | Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |
| ASTM C 117 | Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing |
| ASTM C 128 | Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate |
| ASTM C 131 | Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C 136 | Sieve or Screen Analysis of Fine and Coarse Aggregates |
| ASTM D 75 | Sampling Aggregates |
| ASTM D 2419 | Sand Equivalent Value of Soils and Fine Aggregate |
| ISSA A 105 | Recommended Performance Guidelines |
| ISSA TB-100 | Wet Track Abrasion Loss |
| ISSA TB-106 | Slurry Seal Consistency |
| ISSA TB 111 | Outline Guide Design Procedure for Slurry Seal |
| ISSA TB-115 | Determination of Slurry Seal Compatibility |

## MATERIAL REQUIREMENTS

| ASTM D 242 | Mineral Filler for Bituminous Paving Mixtures |
| ASTM D 977 | Emulsified Asphalt |
| ASTM D 2397 | Cationic Emulsified Asphalt |

END OF ITEM P-626
ITEM D-710  STABILIZATION FABRIC

710-1 DESCRIPTION.

710-1.1 This item shall consist of ground stabilization fabric furnished and installed in accordance with this specification and in accordance with the manufacturer's recommendations.

710-2 MATERIALS. Stabilization fabric shall be a non-woven or woven geotextile. Stabilization fabric shall have the following properties based on “minimum average roll values”:

<table>
<thead>
<tr>
<th>Physical Properties</th>
<th>Test Method</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grab Strength</td>
<td>(ASTM D4632)</td>
<td>180 pounds (Min.)</td>
</tr>
<tr>
<td>Grab Elongation</td>
<td>(ASTM D4632)</td>
<td>50 percent (Max.)</td>
</tr>
<tr>
<td>Puncture Strength</td>
<td>(ASTM D4833)</td>
<td>75 pounds (Min.)</td>
</tr>
<tr>
<td>Trapezoid Tear Strength</td>
<td>(ASTM D4533)</td>
<td>75 pounds (Min.)</td>
</tr>
</tbody>
</table>

710-3 SUBMITTALS AND CERTIFICATIONS.

710-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data” and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalog data showing that the stabilization fabric meets the requirements specified.

710-4 CONSTRUCTION METHODS.

710-4.1 Stabilization fabric shall be installed in accordance with the details shown on the Contract Drawings and in accordance with the manufacturer's recommendations. Contractor shall protect fabric from exposure to sunlight during transportation and storage. After placement, the stabilization fabric shall not be left exposed for more than two weeks. Traffic or construction equipment shall not operate directly on the stabilization fabric. Seams on adjacent rolls shall be overlapped a minimum of 2 feet. Stabilization fabric which becomes torn or damaged shall be replaced or patched. The patch shall extend three feet beyond the perimeter of the torn or damaged area.

Stabilization fabric used for overlapped material, material wasted for cutouts and replacement material for damaged fabric will not be included in measurement for payment.

710-5 METHOD OF MEASUREMENT.

710-5.1 No measurement will be made for direct payment of stabilization fabric, as the cost of furnishing and installing shall be considered as a subsidiary obligation in the completion of work.

710-6 BASIS OF PAYMENT.

710-6.1 No payment will be made separately or directly for this item on any part of the work unless otherwise listed in the various pay items. All fabric will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract price for the pay items of work involved.

END OF ITEM D-710
ITEM L-101 AIRPORT ROTATING BEACONS

101-1 DESCRIPTION.

101-1.1 This item shall consist of the complete removal of the existing beacon, beacon tower, tower foundation, and electrical wiring to the existing beacon, and installation of a new airport rotating beacon, a new tower, and tower foundation furnished and installed in accordance with this specification at the location shown on the Contract Drawings and conforming to the design and dimensions shown in the Contract Drawings. This work shall include the mounting, leveling, wiring, installation of lightning protection, painting, servicing, excavation, concrete foundation, backfill, site restoration, testing of the beacon, and all materials and incidentals necessary to place the beacon in operating condition as a completed unit to the satisfaction of the engineer.

101-2 EQUIPMENT AND MATERIALS.

101-2.1 GENERAL.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer.

C. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

101-2.2 BEACON. The beacon shall be L-801, Class 2 meeting the requirements of AC 150/5345-12, Specification for Airport and Heliport Beacons. The beacon shall be equipped with a photo control sensor to activate the beacon light conditions, as described in section 4.10 of this specification.

101-2.3 PANEL BOARDS AND BREAKERS. Panel boards and breakers shall conform to the requirements of Fed. Spec. W-P-115.

101-2.4 WEATHERPROOF CABINETS. The weatherproof cabinets shall conform to National Electrical Manufacturers Association Standards and shall be constructed of steel not less than No. 16 USS gauge and shall be of NEMA 3R construction unless otherwise shown.

101-2.5 WIRE. Wire in conduit rated up to 5,000 volts shall be single or multiple conductor copper wire, 600 volts or 5,000 volts cross linked polyethylene insulation, non-shielded. Multiple conductor cable shall have an overall jacket. Cables shall be suitable for use in Airport lighting and control circuits in conduits, duct, aerial and direct burial applications at conductor temperatures not exceeding 90EC wet or dry. Lighting cable shall meet these or exceed the requirements of Insulated Cable Engineers Association, Inc., Publication ICEA 5-66-524/NEMA WC/7-1971. Physical and electrical properties of insulation of 600 volt rated cable shall be per Paragraph 3.6 of ICEA and 5000 volt rated cable per Paragraphs 3.7 and 7.6.4 of ICEA. Conductors shall be class B stranded annealed uncoated copper per Part 2 of ICEA.

Cable type, size, number of conductors and service voltage shall be specified in the Contract Drawings and/or proposal.

101-2.6 CONDUIT. Conduit shall be in accordance with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

101-2.7 ELECTRICAL METALLIC TUBING (EMT). Conduits shall conform to ANSI standard C803. Fittings, connections and couplings shall be specifically approved for use with EMT.
101-2.8 PAINT.

A. Priming paint for ungalvanized metal surfaces shall be a high solids alkyd primer conforming to TT-P-664D.

B. Priming paint for galvanized metal surfaces shall be zinc dust-zinc oxide primer paint conforming to MIL-DTL-24441/19B. If necessary, add not more than 1/2 pint of turpentine to each gallon.

C. Orange paint for the body and the finish coats on metal surfaces shall consist of a ready-mixed non-fading paint meeting the requirements of Federal Specification TT-E-489. The color shall be in accordance with Federal Standard 595, Aviation Gloss Orange Number 12197.

D. White paint for body and finish coats on metal surfaces shall be ready-mixed paint conforming to the Master Painter's Institute, Reference #9, Exterior Alkyd, Gloss, VOC Range E2

101-2.9 OBSTRUCTION LIGHTS. Obstruction lights shall be in accordance with Item L-119, Airport Obstruction Lights.

101-2.10 BOOSTER TRANSFORMER. Item Not Used

101-2.11 AIRPORT BEACON TOWER. Airport beacon tower shall be in accordance with Item L-103, Airport Beacon Towers.

101-3 SUBMITTALS AND CERTIFICATIONS.

101-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalogue Data showing that the beacon meets the requirements specified.
- Catalogue Data and shop drawings showing that the cabinet meets the requirements specified.
- Catalogue Data showing that wire meets the requirements specified.
- Catalogue Data showing that conduit meets the requirements specified.
- Catalogue Data showing that electrical metal tubing meets the requirements specified.
- Catalogue Data showing that booster transformers meet the requirements specified.
- Catalogue Data showing that paint meets the requirements specified.

101-4 CONSTRUCTION METHODS.

101-4.1. PLACING THE BEACON. The beacon shall be mounted on a beacon tower/pole, platform, or building roof as shown in the Contract Drawings.

101-4.2 HOISTING AND MOUNTING. The beacon shall be hoisted to the mounting platform by using suitable slings and hoisting tackle. Before fastening the beacon to the mounting platform, the mounting holes shall be checked for correct spacing. Beacon base or mounting legs shall not be strained or forced out of position to fit incorrect spacing of mounting holes. The beacon base shall be raised first, set in position, and bolted in place. The drum shall then be raised and assembled to the base.

101-4.3 LEVELING. After the beacon has been mounted in place, it shall be accurately leveled following manufacturer's instructions. The leveling shall be checked in the presence of the Engineer and shall be to the Engineer's satisfaction.

101-4.4 SERVICING. Before placing the beacon in operation, the Contractor shall check the manufacturer's manual for proper servicing requirements. Follow the manufacturer's servicing requirements for each size beacon.

101-4.5 BEAM ADJUSTMENT. After the beacon has been mounted and leveled, the angle of the beams shall be adjusted. The beam adjustments shall be made at night so that results can be readily observed. The beams shall be adjusted high enough above the horizon so that the beam sweep is not blocked by any natural or manmade object,
except that, in no case shall the angle of the beams be less than 2 degrees above horizontal. After initial operation, the Contractor shall re-adjust the beam angle when requested by the Owner.

101-4.6 BEACON MOUNTING PLATFORM. Where the beacon is to be mounted at a location other than the beacon tower and where a special mounting platform is required, the construction of this mounting platform and any necessary lightning protection equipment shall be in accordance with the details shown in the Contract Drawings.

101-4.7 WIRING. The Contractor shall furnish all necessary labor and materials and shall make complete above ground electrical connections in accordance with the wiring diagram furnished with the Contract Drawings. The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electric Code.

Copies of the National Electric Code may be obtained from the National Fire Protection Associations, Inc., One Batterymarch Park, Quincy, Massachusetts 02269.

If underground cable for the power feed from the electric building to the beacon site and duct for this cable installation is required, the cable, ground rods and duct shall be installed in accordance with and paid for as described in Item L-108, Underground Cable for Airports, and Item L-110, Airport Underground Electrical Duct Banks and Conduit.

Unless otherwise specified, the Contractor shall connect the tell-tale relay mechanism in the beacon to energize the tower obstruction light circuit when failure of the beacon service (primary) lamp occurs.

If lightning protection is specified in the Contract Drawings or proposal as a part of this item, it shall be installed in accordance with the section titled Lightning Protection in Item L-103, Airport Beacon Towers.

101-4.8 CONDUIT. All exposed wiring shall be run in 3/4 inch galvanized rigid steel conduit. No conduit shall be installed on top of a beacon platform floor. All conduit shall be installed to provide for drainage. If mounted on a steel beacon tower, the conduit shall be fastened to the tower members with “wraplock” straps, clamps, or approved fasteners, spaced approximately 5 feet apart.

101-4.9 BOOSTER TRANSFORMER. Item not used

101-4.10 PHOTOELECTRIC CONTROL. If shown in the Contract Drawings or specified in job specifications, the Contractor shall furnish and install an automatic control switch at the location indicated in the Contract Drawings. The switch shall be a photoelectric type. It shall be a standard commercially available unit that will energize when the northern sky illuminance falls below 60 footcandles but before reaching a level of 35 footcandles. The photoelectric switch should de-energize when the northern sky illuminance rises to a level of not more than 60 footcandles. It shall be installed, connected, and adjusted in accordance with the manufacturer's instructions.

101-4.11 OBSTRUCTION LIGHTS. Unless otherwise specified, the Contractor shall install on the top of the beacon tower/pole or mounting platform one dual L-810 LED obstruction lights. These lights shall be mounted on conduit extensions to a height of not less than 4 inches above the top of the beacon. They shall be connected in series into the tell-tale circuit with the necessary relay and wiring connections.

101-4.12 PAINTING. Steel mounting platforms shall be given one priming coat of corrosion-inhibiting primer before erection and one body and one finish coat of aviation-orange paint after erection. All equipment installed under this contract and exposed to the weather shall be given one body and one finish coat of aviation-orange or white paint as required. This shall include beacon (except glass surfaces), beacon base, breaker cabinet, all conduit, and transformer cases. It shall not include air terminals or obstruction light globes.

The paint shall be applied uniformly in the proper consistency by skilled painters. The finished paint shall be free from sags, holidays, and smears. Each coat of paint shall be given ample time to dry and harden before the next coat of paint is applied. A minimum of 4 days shall be allowed for drying on metal surfaces. Painting shall not be done in cold, damp, foggy, dusty, or frosty atmospheres, or when air temperature is below 40º F, nor started when the weather forecast indicates such conditions for the day.
All surfaces shall be cleaned before painting. The surfaces shall be dry and free from scale, grease, rust, dust, and dirt when paint is applied. The ready-mixed paint shall be thinned for the priming and body coats in accordance with the manufacturer’s recommendations. In the absence of such recommendations, the following shall apply:

A. Body coats. – add 1/2 pint of turpentine to each gallon of ready-mixed paint for body coats.

B. Finish coats. The ready-mixed paint shall be used as it comes from the container for finish coats.

101-4.13 TESTING. The installation shall be fully tested in operation as a completed unit prior to acceptance. These tests shall include operation of the lamp-changer operation and taking megger and voltage readings. The insulation resistance to ground of the beacon supply circuit shall be not less than 50 megohms. Testing equipment shall be furnished by the Contractor. Tests shall be conducted in the presence of the Engineer and shall be to the Engineer’s satisfaction.

101-4.14 RESTORATION. Restoration of the site shall be as specified in Item L-103.

101-5 METHOD OF MEASUREMENT.

101-5.1 Measurement for the airport rotating beacon shall be on a lump sum basis. The lump sum shall include the complete removal of the existing beacon, beacon tower, tower foundation and electrical wiring to the existing beacon, and installation of a new airport rotating beacon, a new tower, and new tower foundation, conduit and wiring installed as a completed unit in place, accepted, and ready for operation.

101-6 BASIS OF PAYMENT.

101-6.1 Payment will be made on a lump sum basis for the airport rotating beacon. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item. Partial Payment may be made as the work progresses, at the discretion of the Engineer.

Payment will be made under:

Item L-101-6.1 - Airport Rotating Beacon – per lump sum

MATERIAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 150/5345-7</td>
<td>Specification for L-824 Underground Cable for Airport Lighting Circuits</td>
</tr>
<tr>
<td>AC 150/5345-12</td>
<td>Specification for Airport and Heliport Beacons</td>
</tr>
<tr>
<td>FED SPEC J-C-30</td>
<td>Cable and Wire, Electrical (Power, Fixed Installation) (cancelled; replaced by A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation))</td>
</tr>
<tr>
<td>TT-D-651</td>
<td>Drier; Paint, Liquid.</td>
</tr>
<tr>
<td>TT-L-215</td>
<td>Linseed Oil, Raw, (for Use In Organic Coatings).</td>
</tr>
<tr>
<td>TT-R-191</td>
<td>Red Lead, Dry and Paste In Oil.</td>
</tr>
<tr>
<td>TT-T-801</td>
<td>Turpentine; Gum Spirits, Steam Distilled, Sulphate Wood, and Destructively Distilled.</td>
</tr>
<tr>
<td>FED SPEC TT-E-489</td>
<td>Enamel, Alkyd, Gloss, Low VOC Content</td>
</tr>
<tr>
<td>FED SPEC TT-P-664D</td>
<td>Primer Coating, Alkyd, Corrosion-Inhibiting, Lead and</td>
</tr>
</tbody>
</table>
Chromate Free, VOC-Compliant

FED SPEC W-P-115  Panel, Power Distribution
FED STD 595  Colors Used in Government Procurement
MIL-P-24441/19B  Paint, Epoxy-Polyamide, Zinc Primer, Formula 159, Type III
Underwriters Laboratories Standard 6  Rigid Metal Conduit
Underwriters Laboratories Standard 514  Fittings for Conduit and Outlet Boxes
Underwriters Laboratories Standard 1242  Intermediate Metal Conduit
NFPA-70  National Electric Code
NFPA-780  Standard for the Installation of Lightning Protection Systems
Master Painter’s Institute

END OF ITEM L-101
ITEM L-103 AIRPORT BEACON TOWERS

103-1 DESCRIPTION.

103-1.1 This item shall consist of furnishing and installing an airport beacon tower and foundation of the type shown in the Contract Drawings, in accordance with these specifications. This work shall include the clearing of the site, construction of the foundation, erection of the tower, installation of lightning protection, painting, installation of the gravel access road turn around and re-grading of existing gravel access road and all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the Engineer.

103-2 EQUIPMENT AND MATERIALS.

103-2.1 GENERAL.

A. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer.

B. Materials supplied and/or installed that do not materially comply with these specifications shall be removed when directed by the Engineer, and replaced with materials which do comply with these specifications, at the sole cost of the Contractor.

103-2.2 TOWER. The beacon tower shall be tip-down pole type constructed of tubular steel and shall conform to the requirements of Advisory Circular (AC) 150/5340-30, Design and Installation Details for Airport Visual Aids, Chapter 6.

103-2.3 LIGHTNING PROTECTION. Lightning protection shall comply with NFPA-780, Standard for the Installation of Lightning Protection Systems. All materials shall comply with Class II requirements regardless of tower height. Ground rods and underground cables shall be in accordance with Item L-108, Underground Cable for Airports.

103-2.4 SAFETY SWITCHES. Safety switches shall be UL listed of size, type and quantity as shown on the Contract Drawings. Contractor shall supply a padlock and 2 keys for each disconnect provided.

103-2.5 CONCRETE. Concrete shall be in accordance with the California State Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 90. Unless otherwise shown on the Contract Drawings, the concrete shall be Class 1, with a maximum permissible slump of 3 1/2 inches. Cement shall be Portland Cement Type I.

103-2.6 LANDSCAPE FABRIC. Landscape fabric shall be non-woven conforming to the requirements of AASHTO M 288, latest edition, Class 2. All property values listed below, except apparent opening size, represent the minimum average roll value in the weaker principal direction. Landscape fabric shall have the following physical properties:

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Requirement</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survivability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grab Strength</td>
<td>160 lbs. min. to 250 lbs. max.</td>
<td>ASTM D 4632</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>55 lbs. min. to 90 lbs. max.</td>
<td>ASTM D 4533</td>
</tr>
<tr>
<td>Puncture Strength</td>
<td>55 lbs. min. to 90 lbs. max.</td>
<td>ASTM D 4833</td>
</tr>
<tr>
<td>Permittivity</td>
<td>0.1 sec⁻¹ (Min)</td>
<td>ASTM D 4491</td>
</tr>
<tr>
<td>Apparent Opening Size</td>
<td>No. 70 U.S. Std. Sieve (Max.)</td>
<td>ASTM D 4751</td>
</tr>
</tbody>
</table>

103-2.7 CRUSHED STONE. Crushed stone shall conform to the requirements of CALTRANS Section 26, Aggregate Bases, Class II.
103-2.8 PAINT.

A. Priming paint for ungalvanized metal surfaces shall be a high solids alkyd primer conforming to TT-P-664D.

B. Priming paint for galvanized steel towers shall be zinc dust-zinc oxide primer paint conforming to MIL-DTL-24441/19B. If necessary, add no more than 1/2 pint of turpentine to each gallon.

C. Orange paint for the body and finished coats on metal surfaces shall consist of a ready-mixed non-fading paint meeting the requirements of Fed. Spec. TT-E-489. The color shall be in accordance with Federal Standard 595, Aviation Gloss Orange Number 12197.

D. White paint for steel tower shall be ready-mixed paint conforming to the Master Painter’s Institute, Reference #9, Exterior Alkyd, Gloss, VOC Range E2.

103-3 SUBMITTALS AND CERTIFICATIONS.

103-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalogue Data showing that paint meets the requirements specified.
- Catalogue Data and shop drawings showing that the tower meets the requirements specified.
- Catalogue Data showing that the lightning protection components meet the requirements specified.
- Catalogue Data showing that the safety switch meets requirements specified.
- Concrete Mix Design.
- Gradation sieve analysis crushed stone meets the requirements specified.

103-4 CONSTRUCTION METHODS.

103-4.1 CLEARING AND GRADING. The site on which the beacon tower is to be erected shall be cleared and leveled. All trees and brush shall be removed from the area within a distance of 25 feet from the tower or as called for in the Contract Drawings. Stumps shall be removed to a depth of 18 inches below finished grade and the excavation filled with earth and tamped. The ground near the tower shall be leveled to permit the operation of mowing machines. The leveling shall extend at least 2 feet outside the tower legs. All debris removed from the tower site shall be disposed of by the Contractor to the satisfaction of the Engineer and in accordance with Federal, state, or local regulations.

103-4.2 EXCAVATION AND FILL. The top 6 inches of soil shall be removed and stockpiled separately for later placement. Excavation for the new tower footings shall be carried to a minimum of 4 inches below the footing depth. The excess excavation below the footing depth shall then be backfilled with gravel or crushed stone and compacted to the required level. The remainder of the backfill shall be of excavated earth placed in layers not to exceed 6 inches. Each layer shall be thoroughly compacted by tamping. Excavated material shall be used to back fill areas which are excavated to remove the existing tower foundation. The top 6 inches of back fill shall consist of the previously stockpiled material.

The tower foundation shown on the Contract Drawings was designed for a Halibrite tip-down beacon pole 55-feet in height. Modifications to the foundation may be required upon review of the tower selected by the Contractor. The Contractor shall consider any additional costs of excavation, concrete, reinforcement, select fill and backfill as a subsidiary cost of the particular tower selected. No direct payment will be made for the costs of the additional foundation and associated work.

103-4.3 ERECTION. Detail erection drawings furnished by the manufacturer shall be strictly followed during construction. All towers shall be erected in sections from the ground up unless otherwise specified. In final assembly, all bolts and fastenings shall be installed, and the structure shall be plumb, true, square, and level. Nuts shall be taken up to a firm bearing after which the bolts shall, if necessary, be cut to proper length to protrude three full threads. Approved locknuts shall be placed on each bolt over the regular nut. Ladder bolts shall be inserted with the head to the outer face of the tower. Diagonal, leg, and handrail bolts shall be installed with nuts on the
outer face of the tower, unless otherwise specified. Bent parts shall be straightened before erection without damage to the protective coating. Surfaces abraded or bared of protective coating shall be painted with the proper priming paint as specified in these specifications.

The Contractor shall install the ladder on the side of the tower adjacent to the driveway or most accessible approach to the tower unless otherwise shown or directed by the Owner.

Tubular beacon towers shall be erected in accordance with the manufacturer's recommendations. The safety cable shall be located on the side of the tower adjacent to the driveway or most accessible approach to the tower.

103-4.4 LIGHTNING PROTECTION. The Contractor shall furnish and install an air terminal, down conductor, and at least one ground plate or rod for each beacon tower or as indicated in the Contract Drawings. The air terminal shall be installed at the top of the tower with the tip of the rod extending not less than 6 inches above the top of the beacon.

Down-conductor cables shall be securely fastened to the surface of the tower leg at 5-foot intervals with suitable bronze fasteners having bronze or non-corrosive metal bolts. Sharp turns or bends in the down conductor will not be permitted.

All connections of cable to cable, cable to air terminals, and cable to ground plates or rods shall be made with solderless connectors or non-corrosive metal approved by the engineer and shall be of substantial construction.

The down-conductor cable shall be securely attached to ground rods or plates placed at least 2 feet away from the tower foundations. The ground rod shall be driven into the ground so that the top is at least 6 inches below grade. The down-conductor shall be firmly attached to the ground plate or rod by means of a ground connector or clamp. Plates shall be embedded in the area of permanent moisture.

The complete lightning protection installation shall be accomplished to the satisfaction of the Engineer. The resistance to ground of any part of the lightning protection system shall not exceed 25 ohms.

103-4.5 PAINTING. Painting may be performed either in the shop or in the field after erection. The Contractor shall furnish all materials and labor for painting the beacon tower in the field. The color scheme for the steel tower shall be as shown in the Contract Drawings.

All tower parts placed below ground level or within 12 inches above ground level shall be given two coats of approved bituminous paint.

The paint shall be applied uniformly in the proper consistency by skilled painters. The finished paint shall be free from sags, holidays, and smears. Division lines between colors shall be sharply defined. Each coat of paint shall be given ample time to dry and harden before the next coat is applied. A minimum of 4 days shall be allowed for drying on metal surfaces. Painting shall not be done in cold, damp, foggy, dusty, or frosty atmospheres, or when air temperature is below 40º F, nor started when the weather forecast indicates such conditions for the day.

All surfaces shall be cleaned before painting. The surfaces shall be dry and free from scale, grease, rust, dust, and dirt when paint is applied.

The number of coats of paint applied shall be in accordance with the following instructions:

A. **Steel Towers, Galvanized.** One priming coat of zinc dust-zinc oxide primer and one body and one finish coat of white or orange paint (as required by the color scheme).

B. **Steel Towers, Not Galvanized.** One priming coat of corrosion-inhibiting primer and one body and one finish coat of white or orange paint (as required by the color scheme).

The above specified orange and white ready-mixed paints shall be thinned for the body coats in accordance with the manufacturer's recommendations. In the absence of such recommendations, the following shall apply:
A. **Body Coats.** Add not more than 1/2 pint of turpentine to each gallon of ready-mixed paint for body coats.

B. **Finish Coats.** The ready-mixed paint shall be used as it comes from the container for finish coats.

Paint on “shop painted” materials which is damaged shall be repaired by the Contractor at his own expense.

**103-5 METHOD OF MEASUREMENT.**

**103-5.1** No separate measurement for payment shall be made for airport beacon tower, foundation, gravel access road turn around and re-grading of existing gravel access road and all incidentals.

**103-6 BASIS OF PAYMENT.**

**103-6.1** No payment will be made separately or directly for airport beacon tower, foundation, gravel access road turn around and re-grading of existing gravel access road and all incidentals. Airport beacon tower shall be considered necessary to the work of this Contract and the costs shall be included in the pay items involved.

**MATERIAL REQUIREMENTS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 150/5340-30</td>
<td>Design and Installation Details for Airport Visual Aids</td>
</tr>
<tr>
<td>FED SPEC TT-E-489</td>
<td>Enamel, Alkyd, Gloss, Low VOC Content</td>
</tr>
<tr>
<td>FED STD 595</td>
<td>Colors Used in Government Procurement</td>
</tr>
<tr>
<td>MIL-DTL-24441/19B</td>
<td>Paint, Epoxy-Polyamide, Zinc Primer, Formula 159, Type III</td>
</tr>
<tr>
<td>NFPA-780</td>
<td>Standard for the Installation of Lightning Protection Systems</td>
</tr>
<tr>
<td>Master Painter’s Institute</td>
<td></td>
</tr>
</tbody>
</table>

**END OF ITEM L-103**
ITEM L-108 UNDERGROUND CABLE FOR AIRPORTS

108-1 DESCRIPTION.

108-1.1 This item shall consist of underground cable furnished and installed in accordance with this specification at the locations and in accordance with the design, dimensions and details shown on the Contract Drawings. This item shall include the excavation and backfill of the trench, restoration of surfaces, the installation of cables, wires, safety grounds and counterpoise wires in trenches, duct banks or conduits, and the removal of cables in duct banks and conduits which are abandoned under this project. It shall include splicing, cable marking and testing and all incidentals necessary to install the cables, wires, safety grounds, and counterpoise wires in operating condition as completed units to the satisfaction of the Engineer. This item shall not include the installation of the duct or conduit.

108-2 EQUIPMENT AND MATERIALS.

108-2.1 GENERAL.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer’s certification of compliance with the applicable specification when requested by the Engineer.

C. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

108-2.2 CABLE. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall be Type C, copper, 7 strand, single conductor cable with 5,000 volt cross-linked polyethylene insulation and shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Federal Specification J-C-30 and shall be type THWN-2.

Cable type, size, number of conductors and service voltage shall be as specified on the Contract Drawings.

108-2.3 CONTROL CABLE. If control cable is required, a THWN cable with multi-stranded copper conductors, 300 volt, double jacket, direct burial cable shall be used unless otherwise specified. Cable size and number of conductors shall be as specified in the Contract Drawings and/or proposal.

108-2.4 BARE COPPER WIRE (COUNTERPOISE). Item Not Used

108-2.5 GROUND RODS. Item Not Used

108-2.6 CABLE CONNECTIONS. In-line connections of underground primary shall be of the type called for on the Contract Drawings, or shall be one of the types listed below. No separate payment will be made for cable connections.

A. The Cast Splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by Minnesota Mining and Manufacturing Company, “Scotchcast” Kit No. 82--B, or as manufactured by Hysol Corporation, “Hyseal Epoxy Splice” Kit No. E1135, or equivalent, for potting the splice is acceptable. This means of splicing is the only type approved for control cable.
B. **The Field Attached Plug-in Splice.**  Figure 3 of AC 150/5345-26, Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits, is acceptable for field attachment to single conductor cable. It shall be the Contractor’s responsibility to determine the outside diameter of the cable to be spliced and to furnish appropriately sized connector kits and/or adapters and heat shrink tubing with integral sealant.

C. **The Factory Molded Plug-in Splice.**  Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

D. In all the above cases, connections of cable conductors shall be made using crimp connectors utilizing a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made in accordance with the manufacturer’s recommendations and listings.

E. All connections of counterpoise, safety ground conductors and ground rods shall be made by the exothermic process or approved equivalent, except the base can ground clamp connector shall be used for attachment to the base can. All exothermic connections shall be made in accordance with the manufacturer’s recommendations and listings.

**108-2.7 SPICER QUALIFICATIONS.**  Every airfield lighting cable splicer shall be qualified in making cable splices and terminations on cables rated above 5,000 volts AC. Upon request, the Contractor shall submit to the Engineer proof of the qualifications of each proposed cable splicer for the cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three years continuous experience in terminating/splicing medium voltage cable.

**108-2.8 CABLE IDENTIFICATION TAGS.**  Cable identification tags shall by made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the Contract Drawings.

**108-2.9 TAPE.**  Rubber, or synthetic rubber tape shall meet the requirements of ASTM D 4388. Rubber tape shall be Scotch 130C linerless rubber splicing tape, 2 inch wide, as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent. Plastic tape shall be Scotch Electrical Tape Scotch 88, 1-1/2 inch wide, as manufactured by the Minnesota Mining and Manufacturing Company, or shall meet the requirements of Mil Spec. MIL-I-24391 or Fed. Spec. A-A-55809.

**108-2.10 HEAT SHRINK TUBING.**  Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

**108-2.11 ELECTRICAL COATING.**  Scotchkote shall be as manufactured by Minnesota Mining and Manufacturing Company, or approved equivalent.

**108-2.12 EXISTING CIRCUITS.**  Whenever the scope of work requires connection to an existing circuit, the circuit’s insulation resistance shall be tested in the presence of the Engineer. The test shall be performed in accordance with this item and prior to any activity affecting the respective circuit. The Contractor shall record the results on forms acceptable to the engineer. When the work affecting the circuit is complete, the circuit’s insulation resistance shall be checked again, in the presence of the Engineer. The Contractor shall record the results on forms acceptable to the engineer. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

**108-3 SUBMITTALS AND CERTIFICATIONS.**
108-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalogue data showing that each type of cable meets the requirements specified.
- Catalogue data showing that control cable meets the requirements specified.
- Catalogue data showing that cable connections meet the requirements specified.
- Submittal for Bedding showing that the gradation sieve analysis meets the requirements specified.
- Catalogue data showing that ID tags meet the requirements specified.

108-4 CONSTRUCTION METHODS.

108-4.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated on the Contract Drawings. Unless otherwise shown on the Contract Drawings, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Wherever possible, cable shall be run without splices, from connection to connection.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections, unless otherwise authorized in writing by the Engineer or shown on the Contract Drawings.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed no more than 1000 feet apart, unless otherwise shown on the Contract Drawings. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed or at least once in each access point where L-823 connectors are not installed.

Provide not less than 3 feet of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot vertically above the top of the access structure. This requirement also applies where primary cable passes through empty base cans, junction and access structures to allow for future connections, or as designated by the Engineer.

Each cable installed in electrical manholes and pullboxes shall be routed at least one complete loop around the interior wall of the structure prior to exiting.

108-4.2 INSTALLATION OF CABLE IN DUCT BANKS OR CONDUITS. This item includes the installation of the cable in existing and new duct banks or conduit as described below. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be in accordance with the latest National Electric Code, or the code of the local agency or authority having jurisdiction.

New duct banks or conduits shall be installed as a separate item in accordance with Item L-110, Airport Underground Electrical Duct Banks and Conduit.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the Contract Drawings, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. The Contractor shall check duct routes prior to construction to obtain assurance that the ducts are open and available. The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank, prior to installation of cable to insure that the duct bank or conduit is open, continuous and clear of debris. An iron-shod mandrel, not more than 1/4-inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, etc. interiors IMMEDIATELY prior to pulling cable. Once cleaned and swabbed the base cans and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc. is incidental...
to the pay item of the item being cleaned. All conduits/ducts left open which become dirty or obstructed for any reason after initial cleaning shall be re-cleaned at the Contractor’s expense. All accessible points shall be kept closed when not installing cable. The Contractor shall notify the Engineer of any blockage in the existing ducts. The cable shall be installed in a manner to prevent harmful stretching of the conductor, injury to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall be governed by cable manufacturer’s recommendations. A non-hardening lubricant recommended for the type of cable being installed shall be used where pulling lubricant is required.

The manufacturer’s minimum bend radius or the NEC requirements whichever is more restrictive shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer’s minimum installation temperature. At the Contractor’s option, the Contractor may submit a plan, for review by the Engineer, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer’s minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or utilize other appropriate means to prevent abrasion to the cable jacket.

108-4.3 INSTALLATION OF DIRECT-BURIED CABLE IN TRENCHES. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable(s) shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable(s) shall not be unreeled and pulled into the trench from one end. Slack cable, sufficient to provide strain relief, shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3-inch vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, handholes, pullboxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch in size. The cable circuit identification shall match the circuits noted on the construction Contract Drawings. The direction of primary cables at light units shall be identified by color coding as follows; when facing the light unit with your back towards the pavement, cable to the left is coded red and cable to the right is coded blue, this applies to the stake-mounted lights and base-mounted lights where the base has only one entrance.

A. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches below finished grade, except as follows:

1. When off the airport or crossing under a roadway or driveway, the minimum depth shall be 18 inches below subbase, unless otherwise specified.

2. Minimum cable depth when crossing under a railroad track shall be 42 inches unless otherwise specified.

3. Low voltage cables shall be placed a minimum of 12 inches from high voltage cables.

Dewatering necessary for cable installation is incidental and the cost shall be included in the unit prices bid for the various items of work involved.
The Contractor shall excavate all cable trenches to a width not less than 6 inches. Unless otherwise specified on the Contract Drawings, all cables of similar voltage, in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required cable depth and it shall be replaced with Bedding. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. The cost of all excavation regardless of type of material encountered, shall be included in the unit prices bid for the various items of work involved.

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor’s responsibility to locate existing utilities within the work area prior to excavation. Where existing active cable(s) cross proposed installations, the Contractor shall insure that these cable(s) are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the Contract Drawings. Installation of new cable where such crossings must occur shall proceed as follows:

1. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

2. Trenching, etc., in cable areas shall then proceed, with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event of damage to existing utilities or cables, the Engineer and airport authorities are to be notified immediately. The Contractor shall repair all damage, as directed by the Engineer, immediately and at the Contractor’s expense.

B. Backfilling. Cable trench shall be backfilled with Bedding.

The first layer shall be 3 inches deep and shall not be compacted.

Prior to placing the second layer, the Contractor shall install the cables. The second layer shall be 3 inches deep and shall be thoroughly tamped and compacted to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Engineer.

The third layer shall be 6 inches deep and shall be thoroughly tamped and compacted to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Engineer.

The fourth layer shall be 6 inches deep, unless otherwise shown on the Contract Drawings and shall be thoroughly tamped and compacted to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Engineer.

Prior to placing topsoil, the Contractor shall install 6 inch wide plastic detectable underground electrical warning (caution) tape. The warning tape shall be installed in the trench above all direct buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the Engineer. Unless otherwise shown, the warning tape shall be installed prior to placing topsoil. One warning tape shall be installed for every 3 cables, or increment thereof, installed in a common trench.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site.

C. Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site.
Areas disturbed by the Contractor’s operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details of the Contract Drawings.

Where trenches are excavated outside of the general limits of excavation and embankment, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for cable and trenching.

Where trenches are excavated within the general limits of excavation and embankment, restoration of the area will not be necessary as payment for turf or pavement will be included in the various pay items of work involved.

The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance.

108-4.4 SPLICING. Connections of the type shown on the Contract Drawings shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

A. Cast Splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured in accordance with manufacturer's instructions and to the satisfaction of the Engineer.

B. Field-attached Plug-in Splices. These shall be assembled in accordance with manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. In all cases the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint.

C. Factory-Molded Plug-in Splices. These shall be made by plugging directly into mating connectors. In all cases, the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint.

108-4.5 BARE COUNTERPOISE WIRE INSTALLATION FOR LIGHTNING PROTECTION AND GROUNDING. If shown on the Contract Drawings or included in the job specifications, bare copper counterpoise wire shall be installed for lightning protection of underground cables, duct banks and conduit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external grounding system. The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the Contract Drawings but not more than 500 feet apart around the entire circuit. The counterpoise system shall be routed around lights, signs, etc., maintaining a minimum clearance of 9 inches from all cables wires and foundations. Counterpoise wire shall be installed at least 9 inches below finished grade in un-paved areas, unless otherwise shown. Counterpoise wire installed in paved areas shall be placed at the depths shown on the Contract Drawings. Counterpoise wire shall not be installed in conduit.

Counterpoise wire shall be installed continuously above the conduit, unless otherwise shown on the Contract Drawings. Counterpoise wires shall be installed above multiple conduits for airfield lighting cables, with the intent being to provide a complete cone of protection over the cables. When multiple conduits for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete cone of protection measured 22-1/2 degrees each side of vertical. One counterpoise wire shall be installed for every 2 conduits, or increment thereof, installed in a common trench. Payment will be made for each counterpoise wire installed in a cable or conduit trench and shall include the counterpoise wire, ground rods and exothermic connections.

108-4.7 EXOTHERMIC BONDING. Bonding of counterpoise wire shall be by the exothermic welding process. Only personnel experienced in and regularly engaged in this type of work shall make these connections.
Contractor shall demonstrate to the satisfaction of the Engineer, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

A. All slag shall be removed from welds.

B. For welds at light fixture base cans, all galvanized coated surface areas and "melt" areas, both inside and outside of base cans, damaged by exothermic bond process shall be restored by coating with a liquid cold-galvanizing compound conforming to U.S. Navy galvanized repair coating meeting Mil. Spec. MIL-P-21035. Surfaces to be coated shall be prepared and compound applied in accordance with manufacturer's recommendations.

C. All buried copper and weld material at weld connections shall be thoroughly coated with coal tar bitumastic material to prevent surface exposure to corrosive soil or moisture.

108-4.8 TESTING. Testing shall be performed on all existing and new lighting circuits that are in the area of work. Testing shall be in accordance with the Maintenance of Airport Lighting subsection of the Work Area, Storage Area, and Sequence of Operations section of the General Provisions.

108-4.9 RECORD DRAWINGS. The Contractor shall submit to the Engineer at the completion of the project, detailed, dimensioned as-built records and wiring diagrams of the circuitry installed under this contract, prior to payment of the final estimate.

108-5 METHOD OF MEASUREMENT.

108-5.1 Cable and wire installed in a duct bank or conduit, shall be measured by the number of linear feet of cable or wire installed, ready for operation, and accepted as satisfactory. Measurement shall be made along the centerline of the trench, conduit, or duct bank between light units or structures. Separate measurement shall be made for each cable or wire installed in cable trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack installed in trenches, light units, or junction cans. However, cable and wire installed in electrical manholes or pullboxes shall be measured as the actual number of linear feet of cable or wire installed within the manhole or pullbox. Installation of cable or wire within the payment limits of base mounted lights, junction cans and navigational aids is a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the Contract price for the pay items involved.

Cable and wire slack is considered incidental to this item and is included in the contractor’s unit price. No separate measurement or payment will be made for cable or counterpoise slack.

108-6 BASIS OF PAYMENT.

108-6.1 Payment will be made at the contract unit price for cable or wire installed in trench, duct bank or conduit and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- Item L-108-6.1 - No. 10 AWG, THWN Cable - per linear foot
- Item L-108-6.1 - No. 6 AWG Ground - per linear foot

MATERIAL REQUIREMENTS

- AC 150/5345-7 Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
- AC 150/5345-26 Specification for L-823 Plug and Receptacle Cable Connectors
<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FED SPEC J-C-30</td>
<td>Cable and Wire, Electrical Power, Fixed Installation (cancelled; replaced by A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation))</td>
</tr>
<tr>
<td>FED SPEC A-A-55809</td>
<td>Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic</td>
</tr>
<tr>
<td>ASTM B 3</td>
<td>Soft or Annealed Copper Wire</td>
</tr>
<tr>
<td>ASTM B-8</td>
<td>Concentric-Lay-Stranded Copper Conductor, Hard, Medium-Hard or Soft</td>
</tr>
<tr>
<td>ASTM D 4388</td>
<td>Rubber tapes, Nonmetallic Semi-conducting and Electrically Insulating</td>
</tr>
</tbody>
</table>

**REFERENCE DOCUMENTS**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFPA No. 70</td>
<td>National Electrical Code (NEC)</td>
</tr>
<tr>
<td>MIL-S-23586C</td>
<td>Sealing Compound, Electrical, Silicone Rubber</td>
</tr>
</tbody>
</table>

Building Industry Consulting Service International (BICSI)

END OF ITEM L-108
ITEM L-109  AIRPORT ELECTRIC BUILDING EQUIPMENT

109-1 DESCRIPTION.

109-1.1 This item shall consist of furnishing and installing all electric building and terminal building equipment, wiring, electrical buses, cable, conduit terminal and maintenance building outdoor lighting and grounding systems as shown on the Contract Drawings or specified herein. This item shall also include the painting of equipment and conduit; the marking and labeling of equipment and the labeling or tagging of wire; the testing of the installation; all necessary building permits and inspections; and the furnishing of all incidentals necessary to place the equipment in operating condition as a completed unit to the satisfaction of the Engineer.

109-2 EQUIPMENT AND MATERIALS.

109-2.1 GENERAL.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer’s certification of compliance with the applicable specification when requested by the Engineer.

C. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

109-2.2 FAA-APPROVED EQUIPMENT.

A. Airport lighting equipment and materials covered by Federal Aviation Administration Specifications shall be certified in accordance with Advisory Circular 150/5345-53, Airport Lighting Equipment Certification Program, latest edition. Certain items of airport lighting equipment installed in electric buildings are covered by individual Federal Aviation Administration equipment specifications. The specifications are listed below:


2. AC 150/5345-5, Specification for L-847 Circuit Selector Switch, 5000 volt, 20 ampere.

3. AC 150/5345-10, Specification for L-828 Constant Current Regulators. Some Constant Current Regulators (CCR), in particular ones with Silicone Controlled Rectifier (SCR) design, emit electromagnetic interference (EMI) that may degrade the performance of other air navigational equipment, such as computers, radars, instrument landing systems, radio receivers, very high frequency omnidirectional radio ranges, etc. The Contractor shall ensure that EMI from new CCR’s will not degrade navigational signals, and that the new CCR’s are compatible with existing electrical equipment.

4. AC 150/5345-13, Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits.


B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer’s certification of compliance with the applicable specification.

109-2.3 OTHER ELECTRICAL EQUIPMENT. Constant-current regulators, distribution transformers, oil switches, cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by Federal Aviation Administration equipment specifications shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers or the National
Electrical Manufacturers Association. When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the proposal and Contract Drawings.

109-2.4 CABLE. Airfield lighting cable and safety ground shall be in accordance with Item L-108 Underground Cable for Airports.

109-2.5 BUILDING POWER WIRING. For ratings up to 600 volts, thermoplastic wire conforming to Federal Specification J-C-30, Type THWN/THHN shall be used. The wires shall be 12 AWG minimum, copper of the type, size, and number of conductors and voltage shown in the Contract Drawings or in the proposal. Cable rated for 5KV shall be copper stranded, shielded, 90EC conductor temperature, 100 percent insulation level and have EPR insulation.

109-2.6 CONTROL WIRING. Wire size shall be 12 AWG minimum unless otherwise specified in the Contract Drawings and shall be THWN/THHN copper, stranded and insulated for 600 volts.

109-2.7 CIRCUIT BREAKERS. Circuit breakers shall be of the bolt-on type, molded case, thermal magnetic indicating handle operated of common trip type. Rating to be visible from front of breaker either on handle or trip unit. All branch breakers are to have a minimum 10,000 Amps RMS Symmetrical Interrupting Capacity short circuit rating with Amp ratings as shown on the Contract Drawings. Breakers shall be UL listed.

109-2.8 RIGID STEEL CONDUIT. Rigid galvanized steel conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standard 6, 514B, and 1242.

109-2.9 PVC COATED RIGID GALVANIZED STEEL. Conduit shall be rigid steel conduit as specified above. Coating shall be 0.040-inch PVC factory applied, meeting NEMA Standard No. RN1-1980 (Type 40). Fittings shall have same treatment.

109-2.10 LIQUID-TIGHT FLEXIBLE CONDUIT. Liquid-tight flexible metal conduit shall be zinc coated steel conforming to the requirements of Federal Specification WW-C-566. The liquid-tight flexible metal conduit shall have a PVC jacket. Fittings and conduit bodies shall conform to ANSI/NEMA FB 1. The liquid-tight flexible metal conduit shall have the same inside diameter as the rigid steel or PVC conduit.

109-2.11 ELECTRICAL METALLIC TUBING (EMT). Conduits shall conform to ANSI Standard C80.3. Fittings, connections and couplings shall be specifically approved for use with EMT.

109-2.12 GROUNDING SYSTEM. Ground rods shall be copper-clad steel, unless otherwise noted. The ground rods shall be of the length and diameter specified on the Contract Drawings, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

The system neutral shall be bonded as per the National Electrical Code, latest edition. A complete "green" wire ground system to be installed bonding all cabinets, enclosures and raceways to the same. Conductor size shall be in accordance with the National Electrical Code.

109-2.13 PHOTO CONTROL. Per AC 70/7460-1G, shall conform to FAA requirements of 35 footcandle turn-on and 58 footcandle turn-off.

109-2.14 CONTACTOR. Contactors shall be defined purpose lighting contactors sized as required for circuits shown or required.

109-2.15 PILOT CONTROL RELAYS. The pilot control relays shall be configured as shown and meet the requirements of AC 150/5345-13A.

109-2.16 DOUBLE HALOGEN FLOOD LIGHT. The double halogen flood light shall include a motion sensor and shall be mounted on the terminal building, location to be verified by contractor with the resident engineer.
109-3 SUBMITTALS AND CERTIFICATIONS.

109-3.1 SUBMITTALS. Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions.

Each particular item of manufacture shall be submitted for approval with Catalogue Data and certifications showing that the material meets the requirements specified. Items which connect, interact or otherwise interface with one another shall be submitted concurrently for review and coordination.

109-4 INSTALLATION OF EQUIPMENT IN ELECTRIC BUILDING.

109-4.1 GENERAL. The Contractor shall furnish, install, and connect all equipment, equipment accessories, conduit, cables, wires, buses, grounds, and support necessary to insure a complete and operable electrical distribution center for the airport lighting system as specified herein and shown in the Contract Drawings.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction.

109-4.2 POWER SUPPLY EQUIPMENT. Power supply equipment shall be furnished and installed at the location shown in the Contract Drawings or as directed by the Engineer. The power supply equipment shall be set on steel "H" sections, "I" beams, channels, or concrete blocks to provide a minimum space of 1-1/2 inches between the equipment and the floor. The equipment shall be placed so as not to obstruct the oil-sampling plugs of the oil-filled units; and name-plates shall, so far as possible, not be obscured.

109-4.3 SWITCHES AND PANELS. Oil switches, fused cutouts, relays, panels, panel boards, and other similar items shall be furnished and installed at the location shown in the Contract Drawings or as directed by the Engineer. Wall or ceiling mounted items shall be attached to the wall or ceiling with galvanized bolts of not less than 3/8-inch diameter engaging metal expansion shields or anchors in masonry or concrete vaults.

109-4.4 DUCT AND CONDUIT. The Contractor shall furnish and install square-type exposed metallic ducts with hinged covers for the control circuits in the electric building. These shall be mounted along the walls behind all floor-mounted equipment and immediately below all wall-mounted equipment. The hinged covers shall be placed to open from the front side with the hinges at the front bottom.

Wall brackets for square ducts shall be installed at all joints 2 feet or more apart with intermediate brackets as specified. Conduit shall be used between square ducts and equipment or between different items of equipment when the equipment is designed for conduit connection. When the equipment is not designed for conduit connection, conductors shall enter the square-type control duct through insulating bushings in the duct or on the conduit risers.

Conduit types and sizes shall be as detailed on the Contract Drawings. Conduits shall be run in neat, straight parallel lines and shall be installed flush against walls and ceilings.

All interior dry areas shall be EMT conduit unless otherwise shown. Connections between wireways and regulators shall use flexible liquid tight conduit.

109-4.5 CABLE ENTRANCE AND HIGH-VOLTAGE BUS SYSTEM. Incoming underground cable from field circuits and supply circuits will be installed outside the walls of the electric building as a separate item under Item L-108, Underground Cable for Airports. The Contractor installing the electric building equipment shall bring the cables from the trench or duct through the entrance conduits into the building and make the necessary electrical connections.

109-4.6 WIRING AND CONNECTIONS. The Contractor shall make all necessary electrical connections in the electric building in accordance with the wiring diagrams furnished and as directed by the Engineer. In wiring to the terminal blocks, the Contractor shall leave sufficient extra length on each control lead to make future changes in
connections at the terminal block. This shall be accomplished by running each control lead the longest way around the box to the proper terminal. Leads shall be neatly laced in place.

109-4.7 MARKING AND LABELING. All equipment, control wires, terminal blocks, etc., shall be tagged, marked, or labeled as specified below:

A. Wire Identification. The Contractor shall furnish and install self-sticking wire labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks. Wire labels, if used, shall be of the self-sticking preprinted type and of the manufacturer's recommended size for the wire involved. Identification -markings designated in the Contract Drawings shall be followed. Tags, if used, shall be of fiber not less than 3/4-inch in diameter and not less than 1/32-inch thick. Identification markings designated in the Contract Drawings shall be stamped on tags by means of small tool dies. Each tag shall be securely tied to the proper wire by a nonmetallic cord.

B. Labels. The Contractor shall stencil identifying labels on the cases of regulators, breakers, and distribution and control relay cases with white oil paint as designated by the Engineer. The letters and numerals shall be not less than 1 inch in height and shall be of proportionate width. The Contractor shall also mark the correct circuit designations in accordance with the wiring diagram on the terminal marking strips, which are a part of each terminal block.

109-4.8 AIRFIELD LIGHTING CONTROL OPERATION. Airfield lighting control shall be as shown on the Contract Drawings. The installation shall be fully tested as a completed unit prior to acceptance. Testing shall include the operation of each control not less than 10 times. Lighting systems on constant current regulators shall be tested on all steps. All tests shall be performed in the presence of the Engineer.

109-4.9 AIRPORT SHUTDOWNS. The airport shall be notified at least 48 hours prior to any power interruptions. Service must be maintained to the existing electric building and airfield. Power outages shall not occur during inclement weather.

109-4.10 TESTING OF CONTROL CONDUCTORS BETWEEN PILOT AUXILIARY RELAY PANELS AND L-821 CONTROL PANEL. When all wires and cables are in place, but before final connections have been made, a high potential test voltage shall be applied and maintained for a period of one minute between all conductors in the same enclosure and between each conductor and ground.

The test voltage shall not be less than 1,000 volts in excess of the rated circuit voltage or it shall be 1,500 volts, whichever is greater.

109-4.11 RECORD DRAWINGS. Submit one copy of drawings depicting the control wiring for the airfield lighting circuits. Identify and show all wired terminals. Include the wiring of each control panel as well as the interconnecting wiring. Interconnecting wiring shall show the tagged numbers as installed and colors if applicable.

109-5 METHOD OF MEASUREMENT.

109-5.1 Measurement for the various building equipment installations will be made per item installed. Equipment installations shall consist of all equipment installed, connected, tested, and accepted as completed units ready for operation.

109-6 BASIS OF PAYMENT.

109-6.1 Payment will be made per item installed bases for the various building equipment installations completed and accepted. These prices shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete these items.

Payment will be made under:

Item L-109-6.1 - Airport Electric Building Equipment – Allowance
**MATERIAL REQUIREMENTS**

<table>
<thead>
<tr>
<th>Specification Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 150/5345-3</td>
<td>Specification for L-821 Panels for Remote Control of Airport Lighting</td>
</tr>
<tr>
<td>AC 150/5345-5</td>
<td>Circuit Selector Switch</td>
</tr>
<tr>
<td>AC 150/5345-7</td>
<td>Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits</td>
</tr>
<tr>
<td>AC 150/5345-10</td>
<td>Specification for Constant Current Regulators and Regulator Monitors</td>
</tr>
<tr>
<td>AC 150/5345-13A</td>
<td>Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits</td>
</tr>
<tr>
<td>FED SPEC J-C-30</td>
<td>Cable and Wire, Electrical (Power, Fixed Installation) (cancelled; replaced by AA-59544 Cable and Wire, Electrical (Power, Fixed Installation))</td>
</tr>
</tbody>
</table>

END OF ITEM L-109
ITEM L-110  AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

110-1 DESCRIPTION.

110-1.1 This item shall consist of underground electrical ducts or conduit installed in accordance with this Specification at the locations and in accordance with the dimensions, designs and details shown in the Contract Drawings. This item shall include the installation of all underground electrical ducts or underground conduits. It shall also include all excavation, trenching, sheeting, bracing, dewatering, backfilling, concrete encasement, mandrelling, installation of drag lines, duct markers, capping and the testing of the installation as a completed duct system ready for installation of cables, to the satisfaction of the Engineer. This item shall include removal of existing conduit and duct banks. This item shall also include removal of pavement and turf, restoration of pavements and turf and any special backfill required.

This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

110-2 EQUIPMENT AND MATERIALS.

110-2.1 GENERAL.

A. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

B. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

110-2.2 RIGID STEEL CONDUIT. Rigid galvanized steel conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriter's Laboratories Standard 6, 514B, and 1242.

110-2.3 PVC COATED RIGID GALVANIZED STEEL. Conduit shall be rigid galvanized steel conduit as specified above. Coating shall be 0.04-inch in PVC factory applied, meeting NEMA Standard No. RN1. Fittings shall have same treatment.

110-2.4 PLASTIC CONDUIT. Plastic conduit and fittings shall conform to the requirements of Fed. Spec. W-C-1094, Underwriters Laboratories Standards UL-651 and Article 347 of the current National Electrical Code shall be one of the following, as shown on the Contract Drawings:

A. Type I–Schedule 40 PVC suitable for underground use either direct-buried or encased in concrete.
B. Type II–Schedule 40 PVC suitable for either above ground or underground use.

The type of adhesive shall be as recommended by the conduit/fitting manufacturer.

110-2.5 FLEXIBLE CONDUIT. Flexible conduit shall be liquid-tight non-metallic conforming to the requirements of NEC 356 and UL 1660. Fittings shall conform to UL 514B. Flexible conduit shall have the same inside diameter as the rigid steel or PVC conduit.

110-2.6 FITTINGS. Conduit fittings shall provide liquid tight connections. Fittings inside diameter shall be the same as the rigid conduit.

110-2.7 SPLIT CONDUIT. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.8 CONDUIT SPACERS. Conduit spacers shall be prefabricated interlocking units manufactured for the
intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.9 CONCRETE. Concrete shall conform to the requirements of CALTRANS Section 90, Portland Cement Concrete.

Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 90, unless otherwise shown on the Contract Drawings, the concrete shall be Class 1, with a maximum permissible slump of 3-1/2 inches. Cement shall be Portland Cement Type I or Type II.

110-2.10 CONCRETE BONDING AGENT. Concrete bonding agent shall conform to the requirements of ASTM C 881. Concrete bonding agent shall be Type V, Grade 2 and unpigmented. Concrete bonding agent shall be Class A, B, or C, depending on the temperature of the concrete surface to which the agent will be applied.

110-2.11 REINFORCING STEEL. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

110-2.12 FLOWABLE BACKFILL. Not Used

110-2.13 DETECTABLE WARNING TAPE Plastic, detectable, color as noted magnetic tape shall be polyethylene film with a metallized foil core and shall be 6 inches wide. Detectable tape is incidental to the respective bid item.

110-2.14 BEDDING. Bedding shall meet the requirements of ASTM C 33, fine aggregate for concrete. Gradation shall be in accordance with the table below:

<table>
<thead>
<tr>
<th>Sieve Designations</th>
<th>Percentage By Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 Inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8</td>
<td>80-100</td>
</tr>
<tr>
<td>No. 16</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 30</td>
<td>25-60</td>
</tr>
<tr>
<td>No. 50</td>
<td>5-30</td>
</tr>
<tr>
<td>No. 100</td>
<td>0-10</td>
</tr>
</tbody>
</table>

110-2.15 BACKFILL. Backfill shall be suitable on-site material obtained from the trench excavation, unless otherwise shown on the Contract Drawings.

110-2.16 LINING. Lining shall conform to the requirements of CALTRANS Section 26, Aggregate Bases, Class II. No separate measurement for payment shall be made for lining. Lining shall be considered necessary and incidental to the work of this item and the costs shall be included in the various pay items involved.

110-2.17 COUNTERPOISE WIRE. Counterpoise wire shall meet the requirements of Item L-108, Underground Cable For Airports.

110-2.18 GROUND RODS. Ground Rods shall meet the requirements of Item L-108, Underground Cable For Airports.

110-2.19 CONCRETE GROUTING MATERIAL. This material shall have a maximum initial setting time of one hour. Compressive strength shall be a minimum of 2,000 psi after one day and 5,000 psi after 28 days. The material shall be able to withstand 25 cycles of freeze-thaw (10% NaCl) with a maximum loss of 4%. The material may exhibit expansion at no more than 0.40% and shrinkage of no more than 0.05% such that no cracks are produced. The bond strength shall be a minimum of 200 psi after 5 days air cure without the use of a special
bonding agent. The material shall exhibit no appreciable heat of hydration. The color of the repair after it cures will be of substantially the same color as the item being repaired.

110-3 SUBMITTALS AND CERTIFICATIONS.

110-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalogue Data for Rigid Steel Conduit meeting the requirements specified.
- Catalogue Data for PVC Coated Rigid Steel Conduit meeting the requirements specified.
- Catalogue Data for flexible conduit meeting the requirements specified.
- Catalogue Data for plastic conduit meeting the requirements specified.
- Catalogue Data for conduit spacers meeting the requirements specified.
- Concrete Mix Design.
- Certification that Reinforcing Steel meets the requirements specified.
- Catalogue Data for detectable warning tape meeting the requirements specified.
- Gradation sieve analysis Bedding meets the requirements specified.
- Submittal for concrete grouting material meeting the requirements specified.
- Detailed, dimensioned, to scale sketch of the duct bank.

110-4 CONSTRUCTION METHODS.

110-4.1 GENERAL. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the Contract Drawings. The Engineer shall indicate specific locations as the work progresses, if required to differ from the Contract Drawings. Duct banks and conduits shall be of the size, material, and type indicated on the Contract Drawings or specifications. Where no size is indicated on the Contract Drawings or in the specifications, conduits shall be not less than 2 inches inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the Contract Drawings, grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. No duct bank or underground conduit shall be less than 18 inches below finished grade, unless otherwise shown. Where installed under pavement, the top of the duct bank shall not be less than 18 inches below the subgrade, unless otherwise shown.

All ducts and conduits must be capped or plugged prior to backfilling to prevent the infiltration of soil and water.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4-inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc. interiors IMMEDIATELY prior to pulling cable. Once cleaned and swabbed the base cans, manhole, pull boxes, etc. and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc. is incidental to the pay item of the item being cleaned. All conduits/ducts left open which become dirty or obstructed for any reason after initial cleaning shall be re-cleaned at the Contractor’s expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 1,000 pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the Contract Drawings, the open ends shall be plugged with removable tapered plugs, designed for this purpose.
All conduits shall be securely fastened in place during construction and shall be plugged to prevent contamination from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet.

Unless otherwise shown on the Contract Drawings, concrete encased duct banks shall be utilized when crossing under pavements expected to carry aircraft loads.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Existing paved areas to be trenched shall be saw cut to a vertical face with no surface spalling prior to removal of pavement.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

Removal of conduits and duct banks shown on the Contract Drawings shall be considered necessary and incidental to the work of this item. Conduits and duct banks encountered which are not shown on the Contract Drawings and which interfere with the proposed work shall be removed by the Contractor and the costs shall be considered incidental to the work of this item.

When rock is encountered, the rock shall be removed to the depths required replaced with bedding or lining as shown on the Contract Drawings. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. The cost of all excavation regardless of type of material encountered, shall be included in the unit prices bid for the various items of work involved.

Plastic detectable underground electrical warning (caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the Engineer. Unless otherwise shown on the Contract Drawings, the warning tape shall be located 3 inches below finished grade.

Joints in plastic conduit shall be prepared in accordance with the manufacturer’s recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Excavation for duct bank and conduit installation shall consist of removal of all material, regardless of its nature, and the disposal of all such material as directed by the Engineer. No separate measurement for payment shall be made for excavation. Excavation, regardless of the type of material encountered, is incidental and the cost shall be included in the unit prices bid for the various items of work involved. The Contractor shall excavate for underground electrical duct to the lines and grades shown on the Contract Drawings. Excavation shall be of sufficient size to permit placing of the full width and length of the underground electrical duct bank or conduit shown. The Engineer may order, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation. After excavation is completed, the Contractor shall notify the Engineer to that effect and the duct bank or conduit shall be installed after the Engineer has approved the excavation and character of the foundation material.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the Engineer, the unsuitable material shall be removed in accordance with and replaced with suitable on-site material. Alternatively, additional duct bank supports that are adequate and stable shall be installed, as approved by the Engineer. Boulders, logs or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and
cut to a firm surface either level, stepped or serrated, as directed by the Engineer. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the original foundation.

Unless otherwise specified, excavated materials that are deemed by the Engineer to be unsuitable for use in backfill or embankments shall be removed and disposed of off site.

Dewatering shall be performed in accordance with the requirements of the General Provisions section for "Removal of Water". Dewatering necessary for duct bank and conduit installation is incidental and the cost shall be included in the unit prices bid for the various items of work involved.

Any excess excavation shall be filled with suitable material approved by the Engineer and compacted in accordance with item P-152.

The Contractor shall do all bracing, sheeting or shoring necessary to implement and protect the excavations and the structures as required for safety, and for conformance to governing laws. The cost of bracing, sheeting or shoring shall be included in the unit prices bid for the various items of work involved. Trench bracing, sheeting and shoring shall be in accordance with the requirements of the General Provisions section for "Sheeting and Bracing". Unless otherwise directed, bracing, sheeting and shoring used in the construction of this item shall be removed by the Contractor after the completion of the duct bank or conduit. Removal shall be made in a manner which will not disturb or mar finished duct bank or conduit. The cost of removal shall be included in the unit prices bid for the various items of work involved.

It is the Contractor’s responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall insure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the Contract Drawings. Installation of new cable where such crossings must occur shall proceed as follows:

1. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred
2. Trenching, etc., in cable areas shall then proceed with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event of damage to existing utilities or cables, the Engineer and airport authorities are to be notified immediately. The Contractor shall repair all damage, as directed by the Engineer, immediately and at the Contractor’s expense.

110-4.2 DUCT BANKS. Unless otherwise shown in the Contract Drawings, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas. Trenches for concrete-encased ducts shall be opened the complete length before concrete is laid so that if any obstructions are encountered, proper provisions can be made to avoid them. Unless otherwise shown on the Contract Drawings, all duct banks shall be placed on a layer of concrete not less than 4-1/2 inches thick prior to its initial set.

Unless otherwise shown on the Contract Drawings, duct banks under paved areas shall extend at least 10 feet beyond the edges of the pavement. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, proper provisions can be made to avoid them.

Where two or more conduits are encased in concrete, the Contractor shall space them not less than 3 inches apart (measured from outside wall to outside wall) using spacers applicable to the type of duct. Concrete, not less than 4-1/2 inches thick, shall be placed below, above and along the outer edges of the conduits. End bells shall be installed flush with the concrete encasement at access points.

No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5 foot intervals. Spacers shall be in the proper sizes
and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

When specified or shown, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the soil bearing capacity is inadequate, where ducts cross under roadways, or where shown on the Contract Drawings. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5 foot intervals. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be tied into duct bank reinforcement at the time the duct bank is installed.

Concrete handling and placement shall be in accordance with CALTRANS Section 90, Portland Cement Concrete.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine that it is in good condition. Split duct shall be installed as shown on the Contract Drawings, or as required by the Engineer.

Where duct banks are being extended, or where the duct bank is structurally tied to existing concrete, Contractor shall apply a concrete bonding agent to the surface of existing concrete prior to pouring fresh concrete.

Counterpoise wire and ground rods shall be installed in accordance with Item L-108, Underground Cable for Airports.

110-4.3 CONDUITS WITHOUT CONCRETE ENCASEMENT. Trenches for conduits shall be wide enough to accommodate at least 8 inches of bedding along the sides of the conduits. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length. Conduits shall be installed to the depths shown on the Contract Drawings, but in no case will they be less than 18 inches below the finished grade.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Where two or more conduits are installed in the same trench, the Contractor shall space them not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction. End bells shall be installed at access points.

Contractor shall place a layer of Bedding at least 4 inches deep, loose measurement, in the bottom of the trench prior to placing the duct. This layer shall not be tamped. Ducts shall be installed on the bedding in the number and spacing specified. Contractor shall place a layer of bedding that extends at least 3 inches, loose measurement, above the top of the duct. In the case where ducts are “stacked”, the layer shall be placed at 6 inches above the underlying conduit. This layer shall be tamped prior to installing the subsequent layer of conduits. After placing all the bedding material, Contractor shall thoroughly tamp and compact the bedding to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Engineer. If necessary to obtain the desired compaction, the backfill material shall be moistened or aerated as required.

Item P-153, Controlled Low Strength Material may be used in lieu of bedding, provided the same material is used for backfill as described below.

Counterpoise wire and ground rods shall be installed in accordance with Item L-108, Underground Cable for Airports.

110-4.4 MARKERS. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet square and 4-6 inches thick extending approximately 1 inch above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building.
The Contractor shall impress the word “DUCT” or “CONDUIT” on each marker slab. The Contractor shall also impress the number and size of conduits on the marker, along with all other necessary information as determined by the Engineer. The letters shall be 4 inches high and 3 inches wide with width of stroke 1/2-inch and 1/4-inch deep or as large as the available space permits. Furnishing and installation of duct and conduit markers is incidental and the cost shall be included in the unit prices bid for the various items of work involved.

110-4.5 BACKFILLING FOR CONDUITS. For conduits, 8 inches (loose measurement) of bedding shall be placed around the conduits and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled with bedding and thoroughly tamped, unless otherwise shown on the Contract Drawings. If required, any backfill with suitable on-site material shall not be larger than 4 inches in diameter and shall be placed and compacted in accordance with Item P-152 Excavation and Embankment.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and compacted. Where sod or topsoil is to be placed over the trench, backfill shall be stopped at a depth equal to the thickness of the sod or topsoil to be placed.

Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

110-4.6 BACKFILLING FOR DUCT BANKS. Backfill shall not be placed against any concrete encased ducts until the concrete has been in place for seven days, or until tests made by the laboratory, under supervision of the Engineer, determines that the concrete has reached a compressive strength of 2,000 psi. The trench shall be backfilled and compacted with Lining in accordance with Item CALTRANS Section 26, Aggregate Bases, Class II, or with suitable on-site material in accordance with Item P-152, Excavation and Embankment, as shown on the Contract Drawings. Suitable on-site material used for backfill shall not be larger than 4 inches in diameter. Where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period’s construction, whichever is less.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and compacted. Where sod or topsoil is to be placed over the trench, backfill shall be stopped at a depth equal to the thickness of the sod or topsoil to be placed.

Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

110-4.7 RESTORATION. Restoration of surfaces, turf or pavement, shall be performed in accordance with the details of the Contract Drawings. All areas disturbed by the trenching, storing of dirt, installation of duct banks and conduit, and other work, shall be restored to its original condition. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. Restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the various pay items involved.

110-4.8 GROUTING CONDUITS IN PAVEMENT. Conduit trenches in pavement to receive concrete grout material shall be thoroughly cleaned to the satisfaction of the Engineer prior to placement of grout material. Trench sides shall be saw cut to a vertical face with no surface spalling. Grout material shall be placed to the depths shown on the Contract Drawings. Grouting conduits in pavement shall be considered necessary and incidental to the work of this item and the costs shall be included in the various pay items involved.

110-5 METHOD OF MEASUREMENT.

110-5.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, detectable warning tape, trenching, and backfill, all measured in place, from end or inside face of structure to end or inside face of structure, completed, and accepted. Separate measurement shall be made for the various types and sizes.

110-6 BASIS OF PAYMENT.
110-6.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with the provisions and intent of the plans and specifications.

Payment will be under:

Item L-110-6.1 - 2”-Inch Dia. Type I–Schedule 40 PVC Conduit in Turf - per linear foot

MATERIAL REQUIREMENTS

Fed.Spec.W-C-1094 Conduit and Conduit Fittings; Plastic, Rigid (cancelled; replaced by UL 514 Boxes, Nonmetallic Outlet, Flush Device Boxes, & Covers, and UL 651 Standard for Conduit & Hope Conduit, Type EB & A Rigid PVC)

Underwriters Laboratories Standard 6 Rigid Metal Conduit

Underwriters Laboratories Standard 514B Fittings for Cable and Conduit

Underwriters Laboratories Standard 1242 Intermediate Metal Conduit

Underwriters Laboratories Standard 651 Schedule 40 and 80 Rigid PVC Conduit (for Direct Burial)

Underwriters Laboratories Standard 651A Type EB and A Rigid PVC Conduit and HDPE Conduit (for concrete encasement)

END OF ITEM L-110
ITEM L-115 ELECTRIC MANHOLES AND JUNCTION STRUCTURES

115-1 DESCRIPTION.

115-1.1 This item shall consist of electric manholes and junction structures (handholes, pullboxes, junction cans, etc.) installed in accordance with this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the Contract Drawings or as required by the Engineer. This item shall include the installation of each electric manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the Engineer.

This item shall also include all associated excavation, backfilling with on-site materials, modification or removal of existing electric manholes and junction structures, sheeting and bracing, concrete, reinforcing steel, steps, frames and covers, appurtenances, dewatering, disposal of removed structures and restoration of surfaces to the satisfaction of the Engineer.

115-2 EQUIPMENT AND MATERIALS.

115-2.1 GENERAL.

A. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer.

C. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

115-2.2 CONCRETE STRUCTURES. Cast in place concrete structures shall conform to the details and dimensions shown on the Contract Drawings.

Contractor may precast structures to the details and dimensions shown on the Contract Drawings. Any precast structures submitted in lieu of cast in place structures that are at variance with the Contract Drawings shall be accompanied by the design calculations showing that structure is designed to withstand AASHTO H-20 loadings. Design calculations shall be performed by a professional engineer licensed in the State in which the project is located. Openings or knockouts shall be provided in the structure as detailed on the Contract Drawings.

Where indicated on the Contract Drawing, precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. Minimum compressive strength of the concrete shall be 4,000 psi and the structure shall be designed to withstand AASHTO H-20 loadings. Openings or knockouts shall be provided in the structure as detailed on the Contract Drawings.

Pulling-in irons shall be cast in as shown.

115-2.3 JUNCTION CANS. Junction Cans shall be L-867 (non-load bearing) cans with 3/8 inch thick galvanized steel blank covers encased in concrete. Junction cans shall be Class IA and Size B, as shown on the Contract Drawings. The cans shall have gaskets and stainless steel hardware.

115-2.4 MORTAR. The mortar shall be composed of one part of portland cement and two parts of mortar sand, by volume. The portland cement shall conform to the requirements of ASTM C 150, Type I. The sand shall conform to the requirements of ASTM C 144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15 percent of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C
6. The water shall be clean and free of deleterious amounts of acid, alkalis or organic material. If the water is of questionable quality, it shall be tested in accordance with AASHTO T-26.

115-2.5 CONCRETE. All concrete used in structures shall conform to the requirements of CALTRANS Section 90, Portland Cement Concrete.

Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 90. Unless otherwise shown on the Contract Drawings, the concrete shall be Class 1, with a maximum permissible slump of 3-1/2 inches. Cement shall be Portland Cement Type I or Type II.

115-2.6 FRAMES AND COVERS. The frames shall conform to one of the following requirements:

A. Gray iron castings shall meet the requirements of ASTM A 48.
B. Malleable iron castings shall meet the requirements of ASTM A 47.
C. Steel castings shall meet the requirements of ASTM A 27.
D. Structural steel for frames shall conform to the requirements of ASTM A-283, Grade D.
E. Ductile iron castings shall conform to the requirements of ASTM A 536.
F. Austempered ductile iron castings shall conform to the requirements of ASTM A 897.

All castings specified shall withstand AASHTO H-20 loadings.

All castings or structural steel units shall conform to the dimensions shown on the Contract Drawings and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A 123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the Contract Drawings or approved equivalent. No cable notches are required.

115-2.7 LADDERS. Ladders, if specified, shall be galvanized steel or as shown on the Contract Drawings.

115-2.8 REINFORCING STEEL. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60.

115-2.9 LINING. Lining shall conform to the requirements of CALTRANS Section 26 Aggregate Bases, Class II.

115-2.10 FLOWABLE BACKFILL. Not Used

115-2.11 CABLE TRAYS. Cable trays shall be of galvanized steel, plastic, or aluminum. Cable trays shall be located as shown on the Contract Drawings.

Cable trays shall be ladder type, 6-inches wide and 4 inches deep as manufactured by Square D, Class 5160 or approved equal.

115-2.12 PLASTIC CONDUIT. Plastic conduit shall comply with Item L-110 - Airport Underground Electrical Duct Banks and Conduits.

115-2.13 CONDUIT TERMINATORS. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the Contract Drawings.

115-2.14 PULLING-IN IRONS. Pulling-in irons shall be manufactured with 7/8-inch diameter hot-dipped galvanized steel.
115-2.15 GROUND RODS. Ground rods shall be copper-clad steel, unless otherwise noted. The ground rods shall be of the length and diameter specified on the Contract Drawings, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

115-3 SUBMITTALS AND CERTIFICATIONS.

115-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Submittal of shop drawings and certifications for pre-cast structures.
- Submittal of shop drawings and strength design calculations when structure used is at variance with Contract Drawings.
- Catalogue data for junction cans meeting the requirements specified.
- Catalogue data for frames and covers meeting the requirements specified.
- Catalogue data for ladders meeting the requirements specified.
- Certification that reinforcing steel meets the requirements specified.
- Catalog data for cable trays meeting the requirements specified.
- Catalog data for ground rods meeting the requirements specified.

115-4 CONSTRUCTION METHODS.

115-4.1 UNCLASSIFIED EXCAVATION. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the Engineer without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the Contract Drawings or as staked by the Engineer. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to the respective L-115 pay item of which it is a component part. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-115 Item.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the Engineer. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure. All trench bracing, sheeting and shoring shall be in accordance with the Sheeting and Bracing section of the General Provisions.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the Engineer. Structures shall be placed after the Engineer has approved the depth of the excavation and the suitability of the foundation material.

115-4.2 REMOVAL OF WATER. Removal of water, if encountered, shall be in accordance with the Removal of Water section of the General Provisions. Performance of the work described in this section is not payable directly, but shall be considered as a subsidiary obligation of the Contractor and included in the Contract price for the pay items of work involved.
115-4.3 CONCRETE STRUCTURES. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the Contract Drawings. The concrete and construction methods shall conform to the requirements specified in Item P-610, Structural Portland Cement Concrete. Any reinforcement required shall be placed as indicated on the Contract Drawings and shall be approved by the Engineer before the concrete is placed.

115-4.4 PRECAST UNIT INSTALLATIONS. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each joint and at the roof of manhole. Excess sealant shall be removed and surface projections on exterior of structure shall be removed.

115-4.5 PLACEMENT AND TREATMENT OF CASTINGS, FRAMES AND FITTINGS. All castings, frames and fittings shall be placed in the positions indicated on the Contract Drawings or as directed by the Engineer and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

After the frames or fittings have been set in final position and the concrete or mortar has been allowed to harden for seven days, the covers shall be placed and fastened down.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written permission is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the Engineer and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately. Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-4.6 INSTALLATION OF LADDERS. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-4.7 REMOVAL OF SHEETING AND BRACING. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than six inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Engineer may order the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-4.8 BACKFILLING. After a structure has been completed, the area around it shall be backfilled as shown on the Contract Drawings, in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152, Excavation and Embankment. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the Contract Drawings or as directed by the Engineer.

Backfilling shall not be placed against any structure until permission is given by the Engineer. In the case of cast-in-place concrete, such permission shall not be given until the concrete has been in place seven days, or until tests made by the laboratory under supervision of the Engineer shows that the concrete has attained at least 67% of the design strength. The concrete structure shall be able to withstand any pressure created by the backfill or the methods used in placing it.
Where required, the Engineer may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to pipes, structures, property or persons due to improper placing or compacting of backfill.

Backfilling with special backfill materials shall be measured separately under their various payment items.

Backfilling with suitable on-site material shall not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor covered under the contract unit price for each structure involved.

115-4.9 CONNECTION OF DUCT BANKS. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be tied into duct bank reinforcement at the time the duct bank is installed. The size and spacing of the reinforcing bars shall match those in the concrete encased duct bank, but in no case shall they be less than No. 4 bars spaced at 6 inches maximum on center.

115-4.10 GROUNDING. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within 1 foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of No. 4/0 AWG bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of 1 foot above the floor of the structure and separate from other cables. No. 2 AWG bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. Hardware connections may be mechanical, using a lug designed for that purpose.

115-4.11 CLEANUP AND REPAIR. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound conforming MIL-P-21035. Surfaces shall be prepared and compound applied in accordance with manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-4.12 RESTORATION. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be incorporated into embankments on the project site provided it is suitable material. The Contractor shall restore all disturbed areas to their original condition.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Payment for restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

After all work is completed, the Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

115-4.13 INSPECTION. Prior to final approval, the electric structures shall be thoroughly inspected for conformance with the Contract Drawings and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested utilizing the fall-of-potential ground impedance test as described by ANSI IEEE Standard 81. This test shall be performed prior to establishing connections to other ground electrodes. Defects shall be corrected by the Contractor without additional compensation and as directed by the Engineer.
115-4.14 ELEVATION ADJUSTMENTS. The Contractor shall adjust the tops of existing manholes, handholes, and pull boxes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise the top of each manhole, handhole, and pull box to the new elevations. The existing top elevation of each manhole, handhole, and pull box to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.

The Contractor shall remove/extend the existing top section or ring and cover on the manhole, handhole, or pull box. The Contractor shall then install precast concrete sections or grade rings of the required dimensions to adjust the manhole, handhole, or pull box top to the new proposed elevation or shall cut the existing manhole, handhole, or pull box walls to shorten the existing structure, as required by final grades. Finally, the Contractor shall reinstall the manhole, handhole, or pull box top section or ring and cover on top. Extensions shall meet the strength requirements of Section 2.2 above.

115-4.15 REMOVAL OF EXISTING STRUCTURES. Where existing structures are to be removed in the same location as proposed structures, the Contractor shall consider such removal including excavation, removal, backfilling and disposal of existing structures as an incidental part of construction and include the costs thereof in the various pay items involved. Where existing structures are to be removed outside the limits of proposed structures, they shall be paid for separately. The cost of such removal shall include excavation, removal, backfilling and disposal of existing structures. Restoration shall be as specified above in the section titled “Restoration”. Backfill shall be with suitable on-site material unless otherwise shown or specified. Backfill under paved areas shall be as shown on the Contract Drawings. Structures shall be removed as shown on the Contract Drawings and as directed by the Engineer.

115-4.16 DUCT EXTENSION TO EXisting Ducts. Where precast structures are installed at the ends of existing ducts or conduits, the connection shall be made by extending the ducts or conduits. The duct or conduit extension shall be made in accordance with Item L-110, Airport Underground Electrical Duct. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. Duct or conduit extensions shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs in the various pay items involved.

115-5 METHOD OF MEASUREMENT.

115-5.1 Electric manholes, handholes, pullboxes, junction cans and modifications or removal of existing structures shall be measured by each unit completed in place and accepted, or removed. The following additional items are specifically included in each unit.

- All required excavation
- Dewatering
- Sheeting and bracing
- All required backfilling with on-site materials
- Restoration of turf areas
- All required connections
- Temporary cables and connections
- Ground rod testing

115-5.2 Manhole, handhole, and pull box elevation adjustments shall be measured by the completed unit installed, in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

115-6 BASIS OF PAYMENT.

115-6.1 The accepted quantity of electric manholes, handholes, pullboxes, junction cans and modifications or removal of existing structures shall be paid for at the Contract unit price per each, complete and in place, or removed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the Contract Drawings and for all labor, equipment, tools and incidentals necessary to complete the structure.
115-6.2 Payment shall be made at the contract unit price for each manhole, handhole, or pull box elevation adjustment. These prices shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary, including but not limited to, spacers, concrete, rebar, dewatering, excavating, backfill and restoration to complete this item as shown in the Contract Drawings and to the satisfaction of the Engineer.

Payment will be made under:

Item L-115-6.1 - Electric Junction Can - per each

MATERIAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 150/5345-7</td>
<td>Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits</td>
</tr>
<tr>
<td>AC 150/5345-26</td>
<td>Specification for L-823 Plug and Receptacle Cable Connectors</td>
</tr>
<tr>
<td>FED SPEC J-C-30</td>
<td>Cable and Wire, Electrical Power, Fixed Installation (cancelled; replaced by AA-59544 Cable and Wire, Electrical (Power, Fixed Installation))</td>
</tr>
<tr>
<td>ASTM B.3</td>
<td>Soft or Annealed Copper Wire</td>
</tr>
<tr>
<td>ASTM B.8</td>
<td>Concentric-Lay-Stranded Copper Conductor, Hard, Medium-Hard, or Soft</td>
</tr>
</tbody>
</table>

END OF ITEM L-115
ITEM L-119 AIRPORT OBSTRUCTION LIGHTS

119-1 DESCRIPTION.

119-1.1 This item shall consist of furnishing and installing LED dual obstruction lights on beacon tower in accordance with these specifications.

Obstruction lights shall be installed at the locations and in accordance with the dimensions, design, and details shown in the Contract Drawings. This item shall include all excavation, backfilling, and restoration of surfaces and the furnishing of all equipment, materials, services, and incidentals necessary to place the obstruction lights in operation as completed units to the satisfaction of the Engineer.

119-2 EQUIPMENT AND MATERIALS.

119-2.1 GENERAL.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer’s certification of compliance with the applicable specification when requested by the Engineer.

C. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

119-2.2 OBSTRUCTION LIGHTS. The LED dual obstruction lights shall conform to the requirements of AC 150/5345-43, Specification for Obstruction Lighting Equipment.

119-2.3 ISOLATION TRANSFORMERS. Where required for series circuits, the isolation transformers shall conform to the requirements of AC 150/5345-47, Isolation Transformers for Airport Lighting Systems.

119-2.4 TRANSFORMER HOUSING. Transformer housings, if specified, shall conform to AC 150/5345-42, Specification for Airport Light Base and Transformer Housings, Junction Boxes, and Accessories.

119-2.5 JUNCTION BOXES. Shall be of NEMA 3R construction unless otherwise shown. Junction boxes and pull boxes shall be minimum NEC code size.

119-2.6 CONDUIT. Conduit shall be in accordance with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

119-2.7 WIRES. Wire shall conform to the requirements of Item L-108, Underground Cable for Airports. The wire shall be of the type, size, number of conductors and voltage shown in the Plan or in the proposal. Overhead line wire from pole to pole where specified shall conform to ANSI 8-35.

119-2.8 POWER ADAPTER. 670 VA maximum output power, 370 VA from one secondary plug and 300 VA from the other secondary plug; 120/240 volts single phase output; ±3% regulation from an input range of 2.7 to 6.7 amps 60 Hz; construction shall be watertight for direct burial. Power adapter shall be as manufactured by ADB-ALNACO Model PA-4 or an approved equal.

119-2.9 GROUND RODS. Ground rods shall be copper-clad steel, unless otherwise noted. The ground rods shall be of the length and diameter specified on the Contract Drawings, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

119-2.10 CONCRETE. Item not used
119-2.11 PHOTO CONTROL. Per AC 70/7460-1G, shall conform to FAA requirements of 35 footcandle turn-on and 58 footcandle turn-off.

119-2.12 MISCELLANEOUS. Paint, poles, pole steps, insulators, and all other miscellaneous materials necessary for the completion of this item shall be new and first-grade commercial products. These products shall be as specified in the Contract Drawings or specifications.

119-3 SUBMITTALS AND CERTIFICATIONS.

119-3.1 Submittals of "Shop and Setting Drawings," "Working Drawings," "Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Catalogue data showing that obstruction light meets the requirements specified.
- Certification for the obstruction light specified in accordance with AC 150/5345-53.
- Catalogue data showing that junction boxes meet the requirements specified.
- Catalogue data showing that photo control meets the requirements specified.
- Catalogue data showing that power adapters meet the requirements specified.
- Catalogue data showing that ground rods meet the requirements specified.

119-4 CONSTRUCTION METHODS.

119-4.1 PLACING THE OBSTRUCTION LIGHTS. The Contractor shall furnish and install single-or double-obstruction lights as specified in the proposal and shown in the Contract Drawings. The obstruction lights shall be mounted as shown on the Contract Drawings, at the approximate locations shown. The exact location shall be as determined in the field, and as directed by the Engineer. Obstruction lights shall be installed in accordance with the manufacturer’s instructions. All locations shall be field verified prior to installation.

119-4.2 INSTALLATION ON BEACON TOWER. Where obstruction lights are installed on a beacon tower, two obstruction lights shall be mounted on top of the beacon tower using 1-inch conduit. The conduit shall screw directly into the obstruction light fixtures and shall support them at a height of not less than 4 inches above the top of the rotating beacon. If obstruction lights are specified at lower levels, the Contractor shall install not less than 1-inch galvanized rigid steel conduit with standard conduit fittings for mounting the fixtures. The fixtures shall be mounted in an upright position in all cases. The conduit shall be fastened to the tower members with “wraplock” straps, clamps, or approved fasteners spaced approximately 5 feet apart. Three coats of aviation-orange paint shall be applied (one prime, one body, and one finish coat) to all exposed material installed.

119-4.3 SERIES ISOLATION TRANSFORMERS. The L-810 series obstruction light does not include a film cutout; therefore, an isolation transformer is required with each series lamp. Double series units of this type require two series isolating transformers. The transformers shall be housed in a base or buried directly in the earth in accordance with the details shown in the Contract Drawings.

119-4.4 WIRING. The Contractor shall furnish all necessary labor and materials and shall make complete electrical connections from the underground cable or other source of power in accordance with the wiring diagram furnished with the project Contract Drawings. If underground cable is required for the power feed and if duct is required under paved areas, the cable and duct shall be installed in accordance with and paid for as described in Item L-108, Underground Power Cable for Airports, and Item L-110, Airport Underground Electrical Duct Banks and Conduit.

119-4.5 LAMPS. The Contractor shall furnish and install in each unit one or two lamps, as required, conforming to the manufacturer’s requirements.

119-4.6 TESTS. The installation shall be fully tested by continuous operation for not less than 1/2 hour as a completed unit prior to acceptance. These tests shall include the functioning of each control not less than 10 times. Obstruction lights that are controlled by a constant current regulator shall be tested on all steps. All tests shall be performed in the presence of the Engineer.
119-5 METHOD OF MEASUREMENT.

119-5.1 No measurement will be made for direct payment of obstruction lights as the cost of furnishing and sowing shall be considered a subsidiary obligation in completing the various items involved.

119-6 BASIS OF PAYMENT.

119-6.1 No payment will be made separately or directly for this item on any part of the work unless otherwise listed in the various payment items. All obstruction lights will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract price for the pay items of work involved.

MATERIAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 150/5345-7</td>
<td>Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits</td>
</tr>
<tr>
<td>AC 150/5345-42</td>
<td>Specification for Airport Light Base and Transformer Housing, Junction Boxes, and Accessories</td>
</tr>
<tr>
<td>AC 150/5345-43</td>
<td>Specification for Obstruction Lighting Equipment</td>
</tr>
<tr>
<td>AC 150/5345-47</td>
<td>Isolation Transformers for Airport Lighting Systems</td>
</tr>
<tr>
<td>ANSI/ICEA S-70-547-1992</td>
<td>Weather-Resistant Polyolefin-Covered Wire and Cable</td>
</tr>
<tr>
<td>FED SPEC J-C-30</td>
<td>Cable and Wire, Electrical (Power, Fixed Installation) (cancelled; replaced by AA-59544 Cable and Wire, Electrical (Power, Fixed Installation))</td>
</tr>
</tbody>
</table>

END OF ITEM L-119
ITEM L-127 TRAFFIC SIGNS

127-1 DESCRIPTION.

127-1.1 This item shall consist of providing and installing traffic signs in accordance with these specifications and as indicated on the Contract Drawings.

127-2 MATERIALS.

127-2.1 SIGN ASSEMBLIES. Traffic sign posts, panels and footings shall be in accordance with the California Department of Transportation Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 56-2 Roadside Signs. The Sign Face Layout shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Stop signs shall be in accordance with MUTCD section 2B.04 and shall be 24-inches by 24-inches.

127-2.2 CONCRETE. Concrete shall conform to the requirements of CALTRANS Section 90 Portland Cement Concrete.

Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 90, unless otherwise shown on the Contract Drawings, the concrete shall be Class 1, with a maximum permissible slump of 3-1/2 inches. Cement shall be Portland Cement Type I or Type II.

127-2.3 YIELD DEVICE. Each sign, when specified, shall have a yield point near where the sign post attaches to the footing. The yield point shall withstand a bending moment of design parameters-wind load 33 lb/sf without failure, but shall separate cleanly from the mounting system before the bending moment reaches design parameters-36 lb/sf. The yield point shall be no more than 1-1/2 inch above grade, and shall give way before any other part of the sign is damaged. The yield device shall be telescopic type tubing and shall be easily replaceable after breakage.

127-3 SUBMITTALS AND CERTIFICATIONS

127-3.1 Submittals of "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Concrete mix design.
- Certification that the sign, post, mounting, and frangible coupling meet the requirements specified.

127-4 CONSTRUCTION METHODS.

127-4.1 SIGN ASSEMBLIES. Construction methods shall be in accordance with the California Department of Transportation (CALTRANS) Standard Specifications, latest issue, plus all revisions and addenda pertaining thereto, Section 56-2.

127-4.2 CONCRETE. Concrete handling and placement shall be in accordance with CALTRANS Section 90, Portland Cement Concrete.

127-5 METHOD OF MEASUREMENT.

127-5.1 The quantity of traffic signs to be paid for under this item shall be the actual number of complete traffic signs, including sign panels, post and footing, and appurtenances, installed relocated or removed in accordance with the Contract Drawings and Specifications and accepted by the Engineer.

127-6 BASIS OF PAYMENT.

127-6.1 Payment shall be made at the contract unit price for each complete traffic sign installed, relocated or removed in place by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete the item.
Payment will be made under:

Item L-127-6.1 - Traffic Sign - per each

END OF ITEM L-127
ITEM M-100 MAINTENANCE AND PROTECTION OF TRAFFIC

100-1 DESCRIPTION.

100-1.1 GENERAL. This work shall consist of maintaining aircraft and vehicular traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract.

Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

The following additional items are specifically included without limiting the generality implied by these Specifications and the Contract Drawings. Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

- Restoration of all surfaces disturbed as a result of the Contractor's Operations which are not otherwise paid for.
- Installation, maintenance, repair and removal of temporary access roads and maintenance and repair of existing access roads.
- Installation, maintenance, repair and removal of temporary security fencing and gates.
- Installation, maintenance, repair and removal of temporary barricades, barricade lights, barricade flags, warning signs and hazard markings.
- Installation of permanent barricades, warning signs and hazard markings.
- Installation, maintenance, repair and removal of temporary lights and lighting circuits. Temporary above ground lighting cables, if approved, shall be delineated with stakes and flagging at the direction of the Engineer.
- Installation, maintenance, repair and removal of temporary NAVAIDS.
- Installation, maintenance, repair and removal of all temporary markings.
- Testing and maintenance of existing and new lighting circuitry.
- Cleaning and maintenance of all paved areas.
- Security requirements.

Contractor shall have experience installing NAVAIDS, or the manufacturer's representative shall be onsite during installation. Experience shall be documented by the Contractor by providing the Engineer with a list of three previous installations of the equipment being installed.

For temporary NAVAIDS installations, Contractor shall provide a precast concrete pad large enough to encompass the support legs. Concrete pad shall be set level on a previously prepared bed of sand.

Contractor's surveyor shall be onsite during installation of NAVAIDS to verify elevations, alignment and siting angles.

100-2 METHOD OF MEASUREMENT.

100-2.1 Measurement for payment of maintenance and protection of traffic will be made on a lump sum basis. Measurements for partial payment may be made at the discretion of the Engineer as the work progresses based on contract time or percent of work completed.

100-3 BASIS OF PAYMENT.
100-3.1 The lump sum price bid for maintenance and protection of traffic shall include all equipments, materials, labor and incidentals necessary to adequately and safely maintain and protect traffic.

In the event the contract completion date is extended, no additional payment will be made for maintenance and protection of traffic.

Partial payments of the lump sum price bid may be made for this item at the discretion of the Engineer as the work progresses based on contract time or work completed, less any deductions for unsatisfactory maintenance and protection of traffic.

No payment will be made under maintenance and protection of traffic for each calendar day during which there are substantial deficiencies in compliance with the Specification requirements of any subsection of this Section as determined by the Engineer.

The amount of such calendar day non-payment will be determined by dividing the lump sum amount bid for maintenance and protection of traffic by the number of calendar days between the date the Contractor commences work and the date of completion as designated in this proposal, without regard to any extension of time.

If the Contractor fails to maintain and protect traffic adequately and safely for a period of 24 hours, the Owner shall correct the adverse conditions by any means it deems appropriate and shall deduct the cost of the corrective work from any monies due the Contractor. The cost of this work shall be in addition to the liquidated damages and non-payment for maintenance and protection of traffic listed above.

However, where major nonconformance with the requirements of this Specification is noted by the Engineer and prompt Contractor compliance is deemed not to be obtainable, all contract work may be stopped by direct order of the Engineer regardless of whether corrections are made by the Owner as stated in the paragraph above.

Payment will be made under:

- Item M-100-3.1 - Maintenance and Protection of Traffic - per lump sum

END OF ITEM M-100
ITEM M-150 PROJECT SURVEY AND STAKEOUT

150-1 DESCRIPTION.

150-1.1 Project survey and stakeout shall be in accordance with this specification. The Contractor shall do all necessary surveying required to construct all elements of the Project. Project survey and stakeout shall be performed by competent qualified personnel acceptable to the Engineer. The survey and stakeout shall be progressed in advance of construction operations such that the layout does not impede the construction schedule. All survey work shall be provided under the direction of a Licensed Surveyor licensed in the State in which the project is located.

150-2 MATERIALS.

150-2.1 All instruments, equipment, stakes and any other material necessary to perform the work satisfactorily shall be provided by the Contractor. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

Upon request, the Contractor shall make available to the Engineer, a rod, level, and tripod. The rod shall be 15 foot in length with hundredth of a foot graduation. The level shall be self leveling and have documentation demonstrating it has been calibrated within one month of the project’s commencement. All equipment provided shall be in good working order and maintained by the Contractor throughout the duration of the project.

150-3 CONSTRUCTION DETAILS.

150-3.1 Project survey and stakeout shall be in accordance with Section 50-06 “Construction Layout and Stakes” of the General Provisions.

The Contractor shall be responsible for trimming trees, brush and other objects from survey lines in advance of all survey work to permit accurate and unimpeded work by his survey crews.

The exact position of all work shall be established from control points, baseline points or other points of similar nature which are shown on the Contract Drawings. Any error, apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required.

Stakes shall be clearly and legibly marked based on computations and measurements made by the Contractor. Markings shall include centerline station, offset and cut or fill marks. If markings become faded or blurred, they shall be restored by the Contractor, if requested by the Engineer. Contractor shall locate and place all cut, fill, slope, fine grade or other stakes and points for the proper progress of the work. All control points shall be properly guarded and flagged for easy identification.

Reference points, baselines, stakes and benchmarks for borrow pits shall be established by the Contractor. Permanent survey marker locations shall be established and referenced by the Contractor.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the Contract. Damaged or destroyed points, benchmarks or stakes, or any reference points made inaccessible by the progress of the construction, shall be replaced or transferred by the Contractor. Any of the above points which may be destroyed or damaged shall be transferred by the Contractor before they are damaged or destroyed. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the Engineer immediately. All stakeout survey work shall be referenced to the centerlines shown on the Contract Drawings indicating station and offset. All computations necessary to establish the exact position of the work from control points shall be made by the Contractor. All computations, survey notes and other records necessary to accomplish the work shall be neatly made, and shall be made available to the Engineer upon request.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor. Any necessary
correction to the work shall be made immediately by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy or completeness of his work.

Upon completion of all grading and paving work, the Contractor shall re-establish baseline points, control points, and centerline points at 100 foot stations. The baseline points, control points, and centerline points to be established shall be the same as those used to develop design quantities.

Prior to the final cross-section survey of any borrow pits by the Engineer, the Contractor shall re-establish baseline points and stationing, as well as any necessary benchmarks as required by the Engineer.

Existing property corners, markers, stakes, iron pins, and survey monuments defining property lines which may be disturbed during construction shall be properly tied into fixed reference points before being disturbed and accurately reset in their proper position upon completion of the work.

150-4 METHOD OF MEASUREMENT.

150-4.1 Measurement for payment of project survey and stakeout will be made on a lump sum basis. Measurement for partial payments, at the discretion of the Engineer, will be in proportion to the total amount of contract work completed.

150-5 BASIS OF PAYMENT.

150-5.1 The lump sum price bid shall include the cost of furnishing all labor, equipment, instruments and all other material necessary to satisfactorily complete the project surveying and stakeout.

Partial payments of the lump sum price bid may be made for this item as the work progresses, at the discretion of the Engineer.

Payment will be made under:

    Item M-150-5.1 - Project Survey and Stakeout – per lump sum

END OF ITEM M-150
ITEM M-200  MOBILIZATION

200-1 DESCRIPTION.

200-1.1 Under this work the Contractor shall set up his necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or state law or regulation.

200-2 MATERIALS.

200-2.1 Such materials as are required for mobilization and that are not to be a part of the completed contract shall be as determined by the Contractor, except that they shall conform to all pertinent local or state law, regulation or code.

200-3 CONSTRUCTION DETAILS.

200-3.1 The work required to provide the above facilities and services for mobilization shall be done in a safe and workmanlike manner and shall conform with any pertinent local or state law, regulation or code. Good housekeeping consistent with safety shall be maintained.

200-4 METHOD OF MEASUREMENT.

200-4.1 Payment for mobilization will be made on a lump sum basis.

200-5 BASIS OF PAYMENT.

200-5.1 The amount bid for mobilization for the base bid shall not exceed four percent (4%) of the base bid price, excluding the bid price for mobilization. The amount bid for mobilization for alternates, or alternate add-ons, where a mobilization item is listed, shall not exceed four percent (4%) of the total bid price for that alternate, or that alternate add-on, excluding that alternate's bid price for mobilization. Should the bidder exceed the foregoing four percent (4%), the engineer will make the necessary adjustment to determine the total amount bid based on the arithmetically correct proposal.

The amount bid shall include the furnishing and maintaining of services and facilities noted under 200-1, Description, to the extent and at the time the Contractor deems them necessary for his operations, consistent with the requirements of this work and the respective contract.

The amount bid shall be payable to the Contractor with the first progress estimate made for other contract work. Unless provided for elsewhere, the cost of required insurance and bonds and/or any initiation of the contract work may be included in this work.

Payment will be made under:

Item M-200-5.1 - Mobilization (4% Maximum) - per lump sum

END OF ITEM M-200
SECTION 26: AGGREGATE BASES

26-1.01 DESCRIPTION

- This work shall consist of furnishing, spreading and compacting aggregate bases as specified in these specifications and the special provisions.
- Aggregate bases are designated as Class 2 and Class 3. The class of aggregate base will be shown on the plans or specified in the special provisions.

26-1.02 MATERIALS

- Aggregate for the various classes of aggregate base at the time it is deposited on the roadbed shall conform to the following requirements:

26-1.02A Class 2 Aggregate Base

- Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious substances, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base. Aggregate may include material processed from reclaimed asphalt concrete, portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.
- Aggregate shall conform to the grading and quality requirements shown in the following tables. At the option of the Contractor, the grading for either the 1\(\frac{1}{2}\)-inch maximum or 3\(\frac{1}{4}\)-inch maximum shall be used, except that once a grading is selected the grading shall not be changed without the Engineer's written approval.

<table>
<thead>
<tr>
<th>Aggregate Grading Requirements</th>
<th>Percentage Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
<td>1(\frac{1}{2})” Maximum</td>
</tr>
<tr>
<td></td>
<td>Operating Range</td>
</tr>
<tr>
<td>2”</td>
<td>100</td>
</tr>
<tr>
<td>1(\frac{1}{2})”</td>
<td>90-100</td>
</tr>
<tr>
<td>1”</td>
<td>—</td>
</tr>
<tr>
<td>3/4’</td>
<td>50-85</td>
</tr>
<tr>
<td>No. 4</td>
<td>25-45</td>
</tr>
<tr>
<td>No. 30</td>
<td>10-25</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality Requirements</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance (R-value)</td>
<td>—</td>
<td>78 Min.</td>
</tr>
<tr>
<td>Sand Equivalent</td>
<td>25 Min.</td>
<td>22 Min.</td>
</tr>
<tr>
<td>Durability Index</td>
<td>—</td>
<td>35 Min.</td>
</tr>
</tbody>
</table>

- The aggregate shall not be treated with lime, cement or other chemical material before the Durability Index test is performed. Untreated reclaimed asphalt concrete and portland cement concrete will not be considered to be treated with lime, cement or other chemical material for purposes of performing the Durability Index test.
- If the results of either or both the aggregate grading and Sand Equivalent tests do not meet the requirements specified for "Operating Range" but meet the "Contract Compliance" requirements, placement of the aggregate base may be continued for the remainder of that day. However, another day's work may not be started until tests, or other information, indicate to the satisfaction of the Engineer that the next material to be used in the work will comply with the requirements specified for "Operating Range."
- If the results of either or both the aggregate grading and Sand Equivalent tests do not meet the requirements specified for "Contract Compliance," the aggregate base which is represented by these tests shall be removed. However, if requested by the Contractor and approved by the Engineer, the aggregate base may remain in place, and the Contractor shall pay to the State $2.25 per cubic yard for the aggregate base represented by the tests and left in place. The Department may deduct this amount from any moneys due, or that may become due, the Contractor under the contract. If both the aggregate grading and Sand Equivalent do not conform to the "Contract Compliance" requirements, only one adjustment shall apply.
- No single aggregate grading or Sand Equivalent test shall represent more than 500 cubic yards or one day's production, whichever is smaller.
- When aggregate base is to be measured by the ton, the weight will be converted to volume for the purpose of the above paragraphs. Factors for converting tons to cubic yards will be determined by the Engineer.

**26-1.02B Class 3 Aggregate Base**
- Aggregate for Class 3 aggregate base shall conform to the requirements set forth in the special provisions. Aggregate may include material processed from reclaimed asphalt concrete, portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.
- The grading of aggregate for Class 3 aggregate base shall, at the option of the Contractor, conform either to the grading specified in the special provisions or to either the 1\(1/2\)-inch maximum or the 3/4-inch maximum grading for Class 2 aggregate base specified in Section 26-1.02A, "Class 2 Aggregate Base." Once a grading is selected, the grading shall not be changed without written approval of the Engineer.

**26-1.03 SUBGRADE**
- The subgrade to receive aggregate base, immediately prior to spreading shall conform to the compaction and elevation tolerance specified for the material involved, and shall be free of loose or extraneous material.
- When aggregate base is paid for by the cubic yard, areas of the finished surface of aggregate subbase which are lower than the grade established by the Engineer shall be filled with aggregate base. Volumes of aggregate base so placed will not be included in the volume calculated for payment.
- When aggregate subbase is not specified and aggregate base is paid for by the cubic yard, areas of the grading plane which are lower than the grade established by the Engineer may be filled with aggregate base. Volumes of aggregate base so placed will not be included in the volume calculated for payment as stated above. If basement material consists of imported borrow, aggregate base placed below the grade established by the Engineer will not be measured or paid for as imported borrow.

**26-1.05 ADDING WATER**
- At the time aggregate base is spread it shall have a moisture content sufficient to obtain the required compaction. The moisture shall be uniformly distributed throughout the material.

**26-1.04 SPREADING**
- Aggregate bases shall be delivered to the roadbed as uniform mixtures. The mixture shall be deposited and spread to the required compacted thickness within the tolerances specified in Section 26-1.05, "Compacting," by means which will maintain the uniformity of the mixture. Each layer shall be free from pockets of coarse or fine material.
- Where the required thickness is 0.50-foot or less, the base material may be spread and compacted in one layer. Where the required thickness is more than 0.50-foot, the base material shall be spread and compacted in 2 or more layers of approximately equal thickness, and the maximum compacted thickness of any one layer shall not exceed 0.50-foot.
- Aggregate bases, placed on road approaches and connections, street intersection areas, median strip areas, shoulder areas, and at locations which are inaccessible to the spreading equipment, may be spread in one or more layers by any means to obtain the specified results.
- When the subgrade for aggregate base consists of cohesionless sand, and written permission is granted by the Engineer, a portion of the aggregate base may be dumped in piles upon the subgrade and spread ahead from the dumped material in sufficient quantity to stabilize the subgrade. Segregation of aggregate shall be avoided and each layer shall be free from pockets of coarse or fine material.

**26-1.05 COMPACTING**
- Aggregate bases, after compaction, shall be watered in conformance with the provisions in Section 17, "Watering."
- The relative compaction of each layer of compacted base material shall be not less than 95 percent.
- The surface of the finished aggregate base at any point shall not vary more than 0.05-foot above or below the grade established by the Engineer.
- When aggregate base is paid for by the cubic yard, and at locations where the planned thickness of aggregate base, less allowable tolerance, is not obtained, the Contractor shall take such corrective measures as are necessary to obtain that thickness. If requested by the Contractor and permitted by the Engineer, a deduction will be made from contract payment for aggregate base in lieu of correcting the deficient thickness. The deduction will be computed as
the product of (a) the deficient thickness less allowable tolerance; (b) the planned width; and (c) the longitudinal distance between locations showing specified thickness, all as determined by the Engineer, multiplied by a fixed price of $17.00 per cubic yard, or the contract bid price, whichever is higher.

- Base which does not conform to the above requirements shall be reshaped or reworked, watered and thoroughly recompacted to conform to the specified requirements.

26-1.06 MEASUREMENT

- Quantities of aggregate base to be paid for by the ton will be measured in conformance with the provisions in Section 9-1.01, "Measurement of Quantities," and in this Section 26-1.06.
- The weight of material to be paid for will be determined by deducting from the weight of material delivered to the work, the weight of water in the material, at the time of weighing, as determined by California Test 226, in excess of one percentage point more than the optimum moisture content as determined by California Test 216. The weight of water deducted in conformance with the provisions in this Section 26-1.06 will not be paid for.
- Quantities of aggregate base to be paid for by the cubic yard will be calculated on the basis of the dimensions shown on the plans adjusted by the amount of any change ordered by the Engineer. No allowance will be made for aggregate base placed outside those dimensions unless otherwise ordered by the Engineer.

26-1.07 PAYMENT

- Quantities of aggregate base will be paid for at the contract price per ton or cubic yard, whichever unit is designated in the contract item, for the class or classes involved.
- The above prices and payments shall include full compensation for furnishing all labor, materials (including water in the material at the time of weighing as provided in Section 26-1.06, "Measurement"), tools, equipment, and incidentals, and for doing all the work involved in constructing aggregate base, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.
SECTION 39: ASPHALT CONCRETE

39-1 GENERAL

39-1.01 DESCRIPTION

* This work shall consist of furnishing and mixing aggregate and asphalt binder at a central mixing plant, spreading and compacting the mixture and furnishing and placing pavement reinforcing fabric, all as specified in these specifications and the special provisions.
* Asphalt concrete is designated as Type A, Type B or Open Graded.
* Asphalt concrete base is designated as Type A or Type B. The type of asphalt concrete or asphalt concrete base will be shown on the plans or specified in the special provisions.
* Asphalt concrete and asphalt concrete base shall be produced in a batch mixing plant, a continuous pugmill mixing plant or a drier-drum mixing plant. Proportioning shall be either by hot-feed control or cold-feed control.

39-2 MATERIALS

39-2.01 ASPHALTS

* Asphalt binder to be mixed with aggregate shall be a steam-refined paving asphalt in conformance with the provisions in Section 92, "Asphalts," and shall be of the grade designated in the special provisions or as determined by the Engineer.
* The amount of asphalt binder to be mixed with the aggregate for asphalt concrete (except Open Graded asphalt concrete) and asphalt concrete base will be determined by the Engineer in conformance with the requirements in California Test 367 using the samples of aggregates furnished by the Contractor in conformance with the provisions in Section 39-3.03, "Proportioning." The amount of asphalt binder to be mixed with the aggregate for Open Graded asphalt concrete will be determined by the Engineer in conformance with the requirements in California Test 368, using the samples of aggregates furnished by the Contractor in conformance with the provisions in Section 39-3.03.
* Liquid asphalt for prime coat shall conform to the provisions in Section 93, "Liquid Asphalts," and shall be of the grade designated by the contract item or specified in the special provisions.
* Asphaltic emulsion for paint binder (tack coat) shall conform to the provisions in Section 94, "Asphaltic Emulsions," for the rapid-setting or slow-setting type and grade selected by the Engineer.
* Paving asphalt to be used as a binder for pavement reinforcing fabric shall be a steam-refined paving asphalt conforming to the provisions in Section 92, "Asphalts," and shall be PG 70-10.

39-2.02 AGGREGATE

* Aggregates shall be clean and free from decomposed materials, organic material and other deleterious substances. Coarse aggregate is material retained on the No. 4 sieve; fine aggregate is material passing the No. 4 sieve; and supplemental fine aggregate is added fine material passing the No. 30 sieve, including, but not limited to, cement and stored fines from dust collectors.
* Unless otherwise specified in the special provisions, the aggregate grading of the various types of asphalt concrete shall conform to the following:

<table>
<thead>
<tr>
<th>Type</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3/4-inch maximum, coarse</td>
</tr>
<tr>
<td>B</td>
<td>3/4-inch maximum, medium</td>
</tr>
<tr>
<td>Open Graded</td>
<td>3/8-inch maximum</td>
</tr>
</tbody>
</table>

* The combined aggregate, prior to the addition of asphalt binder, shall conform to the requirements of this section. Conformance with the grading requirements will be determined by California Test 202, modified by California Test 105 when there is a difference in specific gravity of 0.2 or more between the coarse and fine portions of the aggregate or between blends of different aggregates.
* In the tables below, the symbol "X" is the gradation which the Contractor proposes to furnish for the specific sieve. The proposed gradation shall meet the gradation shown in the table under "Limits of Proposed Gradation." Changes from one mix design to another shall not be made during the progress of the work unless permitted by the Engineer. However, changes in proportions to conform to the approved mix design shall not be considered changes in mix design.
### AGGREGATE GRADING REQUIREMENTS

#### Types A and B Asphalt Concrete

##### Percentage Passing

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; inch Maximum, Coarse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>—</td>
<td>90-100</td>
<td>87-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>60-75</td>
<td>55-80</td>
</tr>
<tr>
<td>No. 4</td>
<td>45-50</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 8</td>
<td>32-36</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 30</td>
<td>15-18</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-7</td>
<td>0-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; inch Maximum, Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>—</td>
<td>95-100</td>
<td>90-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>65-80</td>
<td>60-85</td>
</tr>
<tr>
<td>No. 4</td>
<td>49-54</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 8</td>
<td>36-40</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 30</td>
<td>18-21</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-8</td>
<td>0-11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; inch Maximum, Coarse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>95-100</td>
<td>89-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>75-90</td>
<td>70-95</td>
</tr>
<tr>
<td>No. 4</td>
<td>55-61</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 8</td>
<td>40-45</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 30</td>
<td>20-25</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-7</td>
<td>0-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; inch Maximum, Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>95-100</td>
<td>89-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>80-95</td>
<td>75-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>59-66</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 8</td>
<td>43-49</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 30</td>
<td>22-27</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-8</td>
<td>0-11</td>
</tr>
</tbody>
</table>
### 3/8 inch Maximum

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>95-100</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>73-77</td>
<td>X±6</td>
<td>X±10</td>
</tr>
<tr>
<td>No. 8</td>
<td>58-63</td>
<td>X±6</td>
<td>X±10</td>
</tr>
<tr>
<td>No. 30</td>
<td>29-34</td>
<td>X±6</td>
<td>X±10</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-10</td>
<td>0-14</td>
</tr>
</tbody>
</table>

### No. 4 Maximum

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>—</td>
<td>95-100</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8</td>
<td>72-77</td>
<td>X±6</td>
<td>X±10</td>
</tr>
<tr>
<td>No. 30</td>
<td>37-43</td>
<td>X±7</td>
<td>X±11</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>3-12</td>
<td>0-16</td>
</tr>
</tbody>
</table>

### Open Graded Asphalt Concrete

#### Percentage Passing

**1/2 inch Maximum**

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>95-100</td>
<td>92-100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>78-89</td>
<td>X±4</td>
<td>X±7</td>
</tr>
<tr>
<td>No. 4</td>
<td>28-37</td>
<td>X±4</td>
<td>X±7</td>
</tr>
<tr>
<td>No. 8</td>
<td>7-18</td>
<td>X±4</td>
<td>X±5</td>
</tr>
<tr>
<td>No. 16</td>
<td>—</td>
<td>0-10</td>
<td>0-13</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>0-3</td>
<td>0-4</td>
</tr>
</tbody>
</table>

**3/8 inch Maximum**

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>—</td>
<td>90-100</td>
<td>88-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>29-36</td>
<td>X±4</td>
<td>X±7</td>
</tr>
<tr>
<td>No. 8</td>
<td>7-18</td>
<td>X±4</td>
<td>X±5</td>
</tr>
<tr>
<td>No. 16</td>
<td>—</td>
<td>0-10</td>
<td>0-12</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>0-3</td>
<td>0-4</td>
</tr>
</tbody>
</table>
The combined aggregate shall conform to the following quality requirements prior to the addition of the asphalt:

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Limits of Proposed Gradation</th>
<th>Operating Range</th>
<th>Contract Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(\frac{1}{4})&quot;</td>
<td>—</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1&quot;</td>
<td>—</td>
<td>95-100</td>
<td>92-100</td>
</tr>
<tr>
<td>3(\frac{1}{4})&quot;</td>
<td>—</td>
<td>80-100</td>
<td>77-100</td>
</tr>
<tr>
<td>3(\frac{3}{8})&quot;</td>
<td>55-60</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 4</td>
<td>40-45</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 30</td>
<td>14-19</td>
<td>X±5</td>
<td>X±8</td>
</tr>
<tr>
<td>No. 200</td>
<td>—</td>
<td>2-7</td>
<td>0-10</td>
</tr>
</tbody>
</table>

If the results of either or both the aggregate grading and Sand Equivalent tests do not meet the requirements specified for "Operating Range" but meet the "Contract Compliance" requirements, placement of the asphalt concrete or asphalt concrete base may be continued for the remainder of that day. However, another day's work may not be started until tests, or other information, indicate to the satisfaction of the Engineer that the next material to be used in the work will comply with the requirements specified for "Operating Range."

If the results of either or both the aggregate grading and Sand Equivalent tests do not meet the requirements specified for "Contract Compliance," the asphalt concrete or asphalt concrete base which is represented by these tests shall be removed. However, if requested by the Contractor and approved by the Engineer, the asphalt concrete or asphalt concrete base may remain in place and the Contractor shall pay to the State $1.75 per ton for the asphalt concrete or asphalt concrete base represented by these tests and left in place. The Department may deduct this amount from any moneys due, or that may become due, the Contractor under the contract. If both the aggregate grading and Sand Equivalent do not conform to the "Contract Compliance" requirements, only one adjustment shall apply.

No single aggregate grading or Sand Equivalent test shall represent more than 500 tons or one day's production, whichever is smaller.

The asphalt concrete mixture, composed of the aggregate proposed for use and the optimum amount of asphalt as determined by California Test 367, shall conform to the following quality requirements:
<table>
<thead>
<tr>
<th>Tests</th>
<th>California Test</th>
<th>Asphalt Concrete Type</th>
<th>Open Graded Asphalt Concrete</th>
<th>Asphalt Concrete Base Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swell (Max.) (inch)</td>
<td>305</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Moisture Vapor Susceptibility (Min.)</td>
<td>307</td>
<td>30</td>
<td>25</td>
<td>—</td>
</tr>
<tr>
<td>Stabilometer Value (Min.)</td>
<td>366</td>
<td>30</td>
<td>30</td>
<td>—</td>
</tr>
<tr>
<td>(3/8&quot; &amp; No. 4 Max. AC)</td>
<td>366</td>
<td>30</td>
<td>35</td>
<td>—</td>
</tr>
<tr>
<td>All Others</td>
<td>366</td>
<td>37</td>
<td>35</td>
<td>37</td>
</tr>
</tbody>
</table>

39-2.03 PAVEMENT REINFORCING FABRIC

- Pavement reinforcing fabric shall conform to the provisions in Section 88, "Engineering Fabrics."

39-3 STORING, PROPORTIONING AND MIXING MATERIALS

39-3.01 STORAGE

- Aggregate shall be stored so that separately sized aggregates will not be intermingled, and asphalt binder shall be stored so that different grades of asphalt will not be intermingled. Any aggregate which has been intermingled with another size of aggregate shall be removed and replaced with aggregate of specified grading. As used in this specification, "cold storage" is the storing of aggregates prior to their having been processed in a drier, and "hot storage" is the storing of aggregates after their having been processed in a drier. "Hot-feed control" and "cold-feed control" indicate the location of measuring devices or controls.

- When the Contractor adds supplemental fine aggregate, each supplemental fine aggregate used shall be stored separately and kept thoroughly dry.

- The measurement and storage requirements of this Section 39-3, shall not apply to the dust collected in skimmers and expansion chambers (knock-out boxes) or to the dust collected in centrifugal (cyclone) collectors. Dust from these collectors may be returned to the aggregate without being measured or stored separately, provided the dust is returned uniformly at a point in advance of the sampling device in batch-mixing plants or is returned at or before mixing in continuous mixing plants.

- Aggregate and asphalt binder shall also be stored in conformance with the following:

39-3.01A Cold Storage

- When aggregate contains material of which at least 20 percent will pass the No. 8 sieve, the material shall be fed from storage by means of a mechanical feeder.

- Before being fed to the drier, aggregate shall be separated into sizes and stored as follows:

39-3.01A(1) Cold Storage for Plants Utilizing Hot-Feed Control

- Aggregate for asphalt concrete base shall be separated into 4 or more sizes and stored separately. Aggregate for Type A or Type B asphalt concrete of the 3/4-inch and 1/2-inch maximum sizes shall be separated into 3 or more sizes and stored separately.

- Aggregate for Type A or Type B asphalt concrete of the 3/8-inch maximum size and aggregate for Open Graded asphalt concrete need not be separated into sizes and stored separately.

39-3.01A(2) Cold Storage for Plants Utilizing Cold-Feed Control

- When the Contractor elects to use a plant equipped with cold-feed control, aggregate for asphalt concrete base shall be separated into 4 or more sizes. Aggregate for asphalt concrete of the 3/4-inch and 1/2-inch maximum sizes shall be separated into 3 or more sizes. Aggregate for asphalt concrete of the 3/8-inch maximum size and aggregate for Open Graded asphalt concrete shall be separated into 2 or more sizes. Aggregate for asphalt concrete of No. 4 maximum size need not be separated.

- After the aggregate is separated, each size shall be stored separately.

39-3.01B Hot Storage

- Aggregate for asphalt concrete and asphalt concrete base to be mixed in batch mixing plants, after being dried, shall be stored in accordance with the following:

  Aggregates for asphalt concrete base shall be separated into 4 or more sizes. Aggregates for asphalt concrete of 3/4-inch and 1/2-inch maximum sizes shall be separated into 3 or more sizes. Aggregate for asphalt
concrete of 3/8-inch maximum size and aggregate for Open Graded asphalt concrete shall be separated into 2 or more sizes. Aggregate for asphalt concrete of No. 4 maximum size need not be separated.

After the aggregate is separated, each size shall be stored in a separate bin and shall be recombined in conformance with the provisions in Section 39-3.03, "Proportioning," to conform to the gradings specified in Section 39-2, "Materials."

Storage bins shall be provided with chutes to prevent overflow into adjacent bins.

39-3.01C Asphalt Binder Storage

- Asphalt to be used as a binder for asphalt concrete shall be stored in tanks accurately calibrated in uniform intervals of 100 gallon intervals and maintained to this accuracy. The storage tanks shall be accessible for measuring the volume of asphalt at any time.

- The Contractor shall provide a suitable sampling device in asphalt feed lines connecting plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall consist of a valve with a nominal diameter between 1/2 inch or 3/4 inch valve constructed in a manner that a one-quart sample may be withdrawn slowly at any time during plant operations. The valve shall be maintained in good condition, and if the valve fails to function properly, the valve shall be replaced. The sampling device shall be readily accessible and in an area free of dangerous obstructions and shall be between 24 inches and 30 inches above the platform. A drainage receptacle shall be provided for flushing the device prior to sampling.

- A temperature-sensing device shall be installed in the asphalt feed line. The device shall measure the temperature of the asphalt and shall be accurate to 10° F. The indicator shall be located and maintained at the point where the proportioning operations are controlled. When a recording type indicator is used, the recording type indicator shall be maintained in working condition and shall be serviced as required.

39-3.02 Drying

- Aggregate shall be fed directly to a drier-drum mixer or to a drier at a uniform rate.

- Drying shall continue for a sufficient time and at a sufficiently high temperature that, at the time of spreading, the moisture content of the completed mixture shall not exceed one percent. Moisture content will be determined by California Test 310 or 370.

- The drier or drier-drum mixer shall be provided with a device which senses the temperature of the material leaving the drier or the drier-drum mixer. The temperature-sensing device shall be accurate to the nearest 10° F, and shall be installed in such a manner that changes of 10° F in temperature of the material will be shown within one minute. The indicator shall be located and maintained at the point where the proportioning operations are controlled. When a recording type indicator is used, the recording type indicator shall be maintained in working condition and shall be serviced as required.

- The burner used for heating the aggregate shall achieve complete combustion of the fuel.

39-3.03 Proportioning

- Before producing asphalt concrete or asphalt concrete base, the Contractor shall submit in writing to the Engineer the gradation of the aggregate for each mix which he proposes to furnish. If the aggregate is separated into 2 or more sizes, the proposed gradation shall consist of gradations for individual sizes, and the proposed proportions of individual sizes, combined mathematically to indicate one proposed gradation. The gradation shall meet the applicable grading requirements shown in Section 39-2.02, "Aggregate," and shall show the percentage passing each of the specified sieve sizes.

- At least 2 weeks prior to their intended use, the Contractor shall furnish samples of aggregates, in the quantity requested by the Engineer, from the source the Contractor proposes to use for the project. The samples shall have been processed in a manner representative of that for the material to be used in the work. In batch-mixing plants, these samples shall be obtained from the normal sampling area, just before the weighhopper. In continuous mixing plants, the sample shall be obtained from the normal sampling area, after cold feed proportioning and in advance of the point where the aggregate enters the mixer. The bitumen ratio (pounds of asphalt per 100 pounds of dry aggregate including supplemental fine aggregate, if used) will be determined by the Engineer using California Test 367, or California Test 368 for Open Graded asphalt concrete.

- Should the Contractor change the source of supply, the Contractor shall furnish new samples and proposed proportions, as determined by the Engineer to be necessary, at least 2 weeks before their intended use. A change which affects any portion of the total aggregate in the mix will be considered a change in source and will require a new mix design. Up to 3 mix designs will be performed by the State at State expense when the mix design is
utilized for one or more working days. The Contractor shall bear all costs involved in developing any mix design not utilized for one or more days and for all mix designs developed after the first 3 that have been so utilized. The Engineer will determine the cost to the State for the mix designs, and the Department may deduct this amount from any moneys due, or that may become due the Contractor under the contract.

Where asphalt concrete or asphalt concrete base is to be produced from established sources and if acceptable to the Engineer, the Contractor may advise the Engineer in writing that the source, gradings and proportions of those aggregates proposed to be furnished are the same as those approved for, and used on, another prior or concurrent project. The project shall be identified by contract number. The Engineer will determine if an existing mix design is acceptable for the current project.

39-3.03A Proportioning for Batch Mixing
- When the Contractor elects to use batch mixing equipment, each aggregate storage bin shall be equipped with a suitable, safe sampling device which will provide a sample, representative of actual production, of the aggregate discharged into the weighhopper or volumetric proportioning bin. When the samples are taken from a location above ground level, a means shall be provided for lowering the aggregate samples to the ground.
- The fine material collected in dust control systems, other than centrifugal collectors or knock-out boxes, shall be proportioned as provided for supplemental fine aggregate in this Section 39-3.03A.
- When supplemental fine aggregate is used, it shall be proportioned by weight as provided in "Weight Proportioning" of Section 39-3.03A(1), "Manual Proportioning." A suitable, safe sampling device shall be installed in each feed line or surge tank preceding the weighhopper. The delivery point of samples shall be safe and convenient.
- Aggregate and asphalt shall be proportioned by weight or by volume as follows:

39-3.03A(1) Manual Proportioning
- An automatic plant shall not be operated manually unless the automatic circuitry is disconnected to the extent that the automatic circuitry cannot be activated by the mere operation of a switch, circuit breaker or some other similar routine procedure.
- When manual proportioning is used in the production of asphalt concrete or asphalt concrete base, proportioning shall conform to the following:

Weight Proportioning
- The zero tolerance for aggregate scales shall be 0.5-percent of the total batch weight of the aggregate. The zero tolerance for separate scales for weighing supplemental fine aggregate or asphalt binder shall be 0.05-percent of the total batch weight of the aggregate.
- The indicated weight of material drawn from storage for any draft of material shall not vary from the preselected scale setting by more than the following percentages of the total batch weight of the aggregate:

(1) Aggregate shall be within one percent, except that when supplemental fine aggregate is used and is weighed cumulatively with the aggregate, the draft of aggregate drawn immediately before the supplemental fine aggregate shall be within 0.5-percent.
(2) Supplemental fine aggregate shall be within 0.5-percent.
(3) Asphalt binder shall be within 0.1-percent.

- The asphalt binder shall be measured by a tank scale.

Volumetric Proportioning
- Each size of aggregate, except supplemental fine aggregate, shall be proportioned in a separate bin that is adjustable in size. Each bin shall have a gate or other device so designed that the bin shall be completely filled and struck off in measuring the volume of aggregate to be used in the mix. Means shall be provided for calibrating the weight of material in each measuring bin at any time. The plant shall be operated in such a manner that the material in each aggregate bin is within 2 percent of the weight preselected for the type of mixture being produced.
- Asphalt binder shall be proportioned by a meter or an adjustable calibrated tank. When meters are used, the asphalt lines leading to asphalt meters shall be full-circulating or shall be regulated so that, during plant stoppages, the temperature of the asphalt does not change more than 15°F from the temperature maintained while the plant is in full operation. Asphalt binder shall be proportioned to within 2 percent of the weight preselected for the mixture being produced.
Automatic Proportioning

When automatic batch mixing is required by the special provisions or when the Contractor elects to use an automatic batching system, the proportioning devices shall be automatic to the extent that the only manual operation required for proportioning all materials for one batch shall be a single operation of a switch or starter.

Weight Proportioning

Automatic proportioning devices shall be of a type in which materials discharged from the several bins are controlled by gates or by mechanical conveyors. The batching devices shall be so interlocked that no new batch may be started until all weighhoppers are empty, the scales are at zero, and the discharge gates are closed. The means of withdrawal from the bins and of discharge from the weigh box shall be interlocked so that not more than one bin can discharge onto any given scale at one time, and that the weigh box cannot be tripped until the required quantity from each of the bins has been deposited therein. In addition, automatic proportioning devices shall be interlocked so that the weighing cycle will be interrupted whenever the amount of material drawn from any storage varies from the preselected amount by more than the tolerances specified in Section 39-3.03A(1), "Manual Proportioning." Whenever the weighing cycle is interrupted, that specific batch shall not be used in the work unless it can be manually adjusted to meet the specified tolerances based on the total weight of the batch. When partial batches are batched automatically, the interlock tolerances, except the zero tolerance, shall apply to the total weight of the aggregate in the partial batch.

Automatic proportioning devices shall be operated so that all weight increments required for a batch are preset on the controls at the same time. Controls shall be designed so that these settings may be changed without delay, and the order of discharge from the several bins can be changed as directed by the Engineer.

Automatic proportioning controls shall be equipped with means for inspection of the interlock tolerance settings, and instructions for doing so shall be immediately available at the point of operation.

In order to check the accuracy of proportioning during plant operation, the Contractor shall provide means to check the weight of various proportioned amounts on a separate scale located at the plant.

Volumetric Proportioning

Asphalt binder shall be proportioned by an adjustable calibrated tank.

Automatic volumetric proportioning devices shall be of a type which will not allow the bins to discharge into the mixer unless the mixer is empty and the mixer discharge gate is closed and will not operate unless the aggregate bins and asphalt binder tank are full.

The automatic proportioning device shall operate in such a manner that the material in each aggregate bin and the asphalt binder tank is within 2 percent of the preselected weight.

In order to check the accuracy of proportioning during plant operation, the Contractor shall provide means to check the weight of various proportioned amounts on a separate scale located at the plant.

Proportioning for Continuous Mixing

Asphalt binder shall be introduced into the mixer through a meter in conformance with the provisions in Section 9-1.01, "Measurement of Quantities." The asphalt meter shall automatically compensate for changes in asphalt temperature, unless the meter is of the weight flow, coriolis effect, type. The system shall be capable of varying the rate of delivery of binder proportionate with the delivery of aggregate. During any day's run, the temperature of asphalt binder shall not vary more than 50°F. The meter and lines shall be heated and insulated. The storage for binder shall be equipped with a device for automatic plant cut-off when the level of binder is lowered sufficiently to expose the pump suction line.

When supplemental fine aggregate is used, it shall be proportioned by weight by a method that uniformly feeds the material within 2 percent of the required amount. Supplemental fine aggregate shall be discharged from the proportioning device directly into the mixer.

The supplemental fine aggregate proportioning system shall function with such accuracy that, when operated at between 30 percent and 100 percent of maximum operating capacity, the average difference between the indicated weight of material delivered and the actual weight delivered will not exceed one percent of the actual weight for three 15-minute runs. For any of 3 individual 15-minute runs, the indicated weight of material delivered shall not vary from the actual weight delivered by more than 2 percent of the actual weight.

The fine material collected in all dust control systems may be returned to the aggregate production stream without proportioning if returned at a rate commensurate with overall plant production, and if returned at or before the mixer. Any return rate of less than 100 percent of the collection rate shall be metered as specified above for supplemental fine aggregate.
The asphalt feeder, each of the aggregate feeders, the supplemental fine aggregate feeder, if used, and the combined aggregate feeder, shall be equipped with devices by which the rate of feed can be determined while the plant is in full operation.

The combined aggregate shall be weighed using a belt scale. The belt scale shall be of such accuracy that, when the plant is operating between 30 percent and 100 percent of belt capacity, the average difference between the indicated weight of material delivered and the actual weight delivered will not exceed one percent of the actual weight for three 3-minute runs. For any of the 3 individual 3-minute runs, the indicated weight of material delivered shall not vary from the actual weight delivered by more than 2 percent of the actual weight.

The actual weight of material delivered for proportioning device calibrations shall be determined by a vehicle scale in conformance with the provisions in Section 9-1.01, "Measurement of Quantities." The vehicle scale shall be located at the plant and shall be sealed within 24 hours of checking the plant's proportioning devices. The plant shall be equipped so that this accuracy check can be made prior to the first operation for a project and at any other time as directed by the Engineer.

The belt scale for the combined aggregate, the proportioning devices for supplemental fine aggregate, if used, and the asphalt proportioning meter shall be interlocked so that the rates of feed of the aggregates and asphalt will be adjusted automatically (at all production rates and production rate changes) to maintain the bitumen ratio (pounds of asphalt per 100 pounds of dry aggregate including supplemental fine aggregate, if used) designated by the Engineer. The plant shall not be operated unless this automatic system is operating and in good working condition.

Asphalt meters and aggregate belt scales used for proportioning aggregates and asphalt shall be equipped with rate-of-flow indicators to show the rates of delivery of asphalt and aggregate, and resettable totalizers so that the total amounts of asphalt and aggregate introduced into the mixture can be determined. Rate-of-flow indicators and totalizers for like materials shall be accurate within one percent when compared directly. The asphalt cement totalizer shall not register when the asphalt metering system is not delivering material to the mixer.

The bin or bins containing the fine aggregate and supplemental fine aggregate, if used, shall be equipped with vibrating units or other equipment which will prevent any hang-up of material while the plant is operating. Each belt feeder shall be equipped with a device to monitor the depth of aggregate between the troughing rollers. The device for monitoring depth of aggregate shall automatically shut down the plant whenever the depth of aggregate is less than 70 percent of the target depth. To avoid erroneous shutdown by normal fluctuation, a delay between sensing less than 70 percent flow and shutdown of the plant will be permitted, as determined by the Engineer, at the time of the initial California Test 109. A second device shall be located either in the stream of aggregate beyond the belt or where it will monitor movement of the belt by detecting revolutions of the tail pulley on the belt feeder. The device for monitoring no flow or belt movement, as the case may be, shall stop the plant automatically and immediately when there is no flow. The plant shall not be operated unless both low-flow and no-flow devices are in good working condition and functioning.

The Contractor shall determine the moisture content of the aggregate at least once during each 2 hours of production and shall adjust the moisture control equipment accordingly.

For continuous pugmill mixing plants an aggregate sampling device which will provide a 60-pound to 80-pound sample of the combined aggregate while the plant is in full operation shall be provided in advance of the point where the aggregate enters the mixer.

For drier-drum mixing plants an aggregate sampling device which will provide a 60-pound to 80-pound sample of the combined aggregate while the plant is in full operation shall be provided in advance of the point where the aggregate enters the drier-drum mixer.

When the samples are taken from a location above ground level, a means shall be provided for lowering the aggregate samples to the ground.

When supplemental fine aggregate is used, a suitable, safe sampling device shall be installed in each feed line or surge tank preceding the proportioning device for the supplemental fine aggregate.

**39-3.04 MIXING**

Aggregate, supplemental fine aggregate and asphalt binder shall be mixed in a batch mixer, continuous mixing pugmill mixer or continuous mixing drier-drum mixer. The asphalt content of the asphalt mixture will be determined by extraction tests in conformance with the requirements in California Test 310 or 362, or will be determined in conformance with the requirements in California Test 379. The bitumen ratio (pounds of asphalt per 100 pounds of dry aggregate including supplemental fine aggregate if used) shall not vary by more than 0.5-pound of asphalt above or 0.5-pound of asphalt below the amount designated by the Engineer. Compliance with this requirement, except for Open Graded asphalt concrete, will be determined by testing samples taken from the mat behind the paver before initial or breakdown compaction of the mat.
For Open Graded asphalt concrete, compliance with this requirement will be determined either by taking samples from trucks at the plant or from the mat behind the paver before initial or breakdown compaction of the mat. If the sample of Open Graded asphalt concrete is taken from the mat behind the paver, the bitumen ratio shall be not less than the amount designated by the Engineer, less 0.7-pound of asphalt per 100 pounds of dry aggregate, nor more than the amount designated by the Engineer, plus 0.5-pound of asphalt per 100 pounds of dry aggregate.

- The charge in a batch mixer, or the rate of feed to a continuous mixer, shall not exceed that which will permit complete mixing of all of the material. Dead areas in the mixer, in which the material does not move or is not sufficiently agitated, shall be corrected by a reduction in the volume of material or by other adjustments.
- Asphalt binder shall be at a temperature of not less than 250° F nor more than 375° F when added to the aggregate.
- The temperature of the aggregate before adding the binder, except for Open Graded mixes, shall be not more than 325° F. The temperature of the aggregate for Open Graded mixtures shall be not more than 275° F.

**39-3.04A Batch Mixing**

- When asphalt concrete or asphalt concrete base is produced by batch mixing, the mixer shall be equipped with a sufficient number of paddles of a type and arrangement to produce a properly mixed batch.
- The binder shall be introduced uniformly into the mixer along the center of the mixer parallel to the mixer shafts, or by pressure spraying. When a pan is used, the pan shall be equipped with movable vanes in order that the flow of binder may be directed across the width of the pan, as desired. The vanes shall be equipped with a means for quick adjustment, and a positive lock to prevent shifting.
- The mixer platform shall be of ample size to provide safe and convenient access to the mixer and other equipment. The mixer housing and weighbox housing shall be provided with gates of ample size to permit ready sampling of the discharge of aggregate from each of the plant bins and from each feed line or surge tank of supplemental fine aggregate, if used. The Contractor shall provide a sampling device capable of delivering a representative sample of sufficient size to permit the required tests.
- The mixer shall be equipped with a timing device which will indicate by a definite audible or visual signal the expiration of the mixing period. The device shall measure the time of mixing within 2 seconds.
- The time of mixing a batch shall begin on the charging stroke of the weighhopper dumping mechanism and shall end when discharge is started. Mixing shall continue until a homogeneous mixture of uniformly distributed and properly coated aggregates of unchanging appearance is produced. The time of mixing shall be not less than 30 seconds.
- When automatic proportioning or automatic batch mixing is required by the special provisions or when the Contractor elects to use an automatic batching system, an interval timer shall control the time of mixing. The interval timer shall be interlocked so that the mixer cannot be discharged until all of the materials have been mixed for the full time specified.

**39-3.04B Continuous Mixing**

- Continuous mixing plants shall utilize pugmill or drier-drum mixers.
- When asphalt concrete or asphalt concrete base is produced by pugmill mixing, the mixer shall be equipped with paddles of a type and arrangement to provide sufficient mixing action and movement to the mixture to produce properly mixed asphalt concrete or asphalt concrete base. The combined aggregate shall be fed directly from the drier to the mixer at a uniform and controlled rate.
- Mixing shall continue until a homogeneous mixture of thoroughly and uniformly coated aggregates of unchanging appearance is produced at discharge from the mixer.
- Temperature of the completed mixture shall not exceed 325° F at discharge from the mixer.
- The mixer shall discharge into a storage silo with a capacity of not less than that specified in Section 39-3.05, "Asphalt Concrete and Asphalt Concrete Base Storage.” The Contractor shall provide a means of diverting the flow of asphalt concrete or asphalt concrete base away from the silo to prevent incompletely mixed portions of the mixture from entering the silo.

**39-3.05 ASPHALT CONCRETE AND ASPHALT CONCRETE BASE STORAGE**

- When asphalt concrete or asphalt concrete base is stored, the asphalt concrete or asphalt concrete base shall be stored only in silos. Asphalt concrete or asphalt concrete base shall not be stockpiled. The minimum quantity of asphalt concrete or asphalt concrete base in any one silo during mixing shall be 20 tons except for the period immediately following a shutdown of the plant of 2 hours or more. A means shall be provided to indicate that storage in each silo is being maintained as required.
Storage silos shall be equipped with a surge-batcher sized to hold a minimum of 2 tons of material. A surge-batcher consists of equipment placed at the top of the storage silo which catches the continuous delivery of the completed mix and changes it to individual batch delivery and prevents the segregation of product ingredients as the completed mix is placed into storage. The surge-batcher shall be center loading and shall be thermally insulated or heated or thermally insulated and heated to prevent material buildup. Rotary chutes shall not be used as surge-batchers.

The surge-batcher shall be independent and distinct from conveyors or chutes used to collect or direct the completed mixture being discharged into storage silos and shall be the last device to handle the material before it enters the silo. Multiple storage silos shall be served by an individual surge-batcher for each silo. Material handling shall be free of oblique movement between the highest elevation (conveyor outfall) and subsequent placement in the silo. Discharge gates on surge-batchers shall be automatic in operation and shall discharge only after a minimum of 2 tons of material has been collected and shall close before the last collected material leaves the device. Discharge gate design shall prevent the deflection of material during the opening and closing operation.

Open Graded asphalt concrete stored in excess of 2 hours, and any other asphalt concrete or asphalt concrete base stored in excess of 18 hours, shall not be used in the work.

Asphalt concrete or asphalt concrete base with hardened lumps in the mixture shall not be used. Any storage facility which contained the material with the hardened lumps shall not be used for further storage until the cause of the lumps is corrected.

39-3.06 ASPHALT CONCRETE PLANTS

Any plants, including commercial plants, that produce asphalt concrete or asphalt concrete base that is subject to these specifications shall conform to the provisions in Section 7-1.01F, "Air Pollution Control," and shall be equipped with a wet-tube dust washer or equal and other devices which will reduce the dust emission to the degree that adjacent property is not damaged. The washer and other equipment shall function efficiently at all times when the plant is in operation.

During production, petroleum products such as diesel fuel and kerosene shall not be used as a release agent on belts, conveyors, hoppers or hauling equipment.

Plants shall be equipped with an inspection dock so constructed that an inspector standing on the dock can inspect the completed mix and take samples, as necessary, from the hauling vehicle before the vehicle leaves the plant site. This inspection dock shall allow the vehicle to pull alongside and shall meet all applicable safety requirements of the California Division of Occupational Safety and Health. Drivers shall be instructed to stop at the dock whenever an inspector is on the dock and to remain there until directed to leave by the inspector.

39-4. SUBGRADE, PRIME COAT, PAINT BINDER (TACK COAT), AND PAVEMENT REINFORCING FABRIC

39-4.01 SUBGRADE

Immediately prior to applying prime coat or paint binder (tack coat), or immediately prior to placing the asphalt concrete or asphalt concrete base when a prime coat or paint binder (tack coat) is not required, the subgrade to receive asphalt concrete or asphalt concrete base shall conform to the compaction requirement and elevation tolerances specified for the material involved and shall be free of loose or extraneous material. If the asphalt concrete or asphalt concrete base is to be placed on an existing base or pavement which was not constructed as part of the contract, the Contractor shall clean the surface by sweeping, flushing or other means to remove all loose particles of paving, all dirt and all other extraneous material immediately before applying the prime coat or paint binder (tack coat).

39-4.02 PRIME COAT AND PAINT BINDER (TACK COAT)

A prime coat of liquid asphalt shall be applied to the areas to be surfaced when there is a contract item for the work or when the work is required by the special provisions.

Prime coat shall be applied only to those areas designated by the Engineer.

Prime coat shall be applied at the approximate total rate of 0.25-gallon per square yard of surface covered. The exact rate and number of applications will be determined by the Engineer.

Prime coat shall be applied at a temperature conforming to the range of temperatures provided in Section 93-1.03, "Mixing and Applying," for distributor application of the grade of liquid asphalt being used.

A paint binder (tack coat) of asphaltic emulsion shall be furnished and applied in conformance with the provisions in Section 94, "Asphaltic Emulsions," and shall be applied to all vertical surfaces of existing pavement, curbs, gutters and construction joints in the surfacing against which additional material is to be placed, to a pavement to be surfaced and to other surfaces designated in the special provisions.
Paint binder (tack coat) shall be applied in one application at a rate of from 0.02-gallon to 0.10-gallon per square yard of surface covered. The exact rate of application will be determined by the Engineer.

Before placing a layer of Open Graded asphalt concrete on any other type of asphalt concrete or on an existing bituminous pavement, paint binder (tack coat) shall be applied in one application at a rate of from 0.05-gallon to 0.10-gallon per square yard of surface covered. The exact rate of application will be determined by the Engineer.

At the Contractor's option, paving asphalt may be used for paint binder (tack coat) instead of asphaltic emulsion. If paving asphalt is used, the grade to be used and the rate of application will be determined by the Engineer. The paving asphalt shall be applied at a temperature of not less than 285°F nor more than 350°F.

Prime coat or paint binder (tack coat) shall be applied only so far in advance of placing the surfacing as may be permitted by the Engineer. When asphaltic emulsion is used as a paint binder (tack coat), asphalt concrete shall not be placed until the asphaltic emulsion has cured.

Immediately in advance of placing asphalt concrete or asphalt concrete base, additional prime coat or paint binder (tack coat) shall be applied as directed by the Engineer to areas where the prime coat or paint binder (tack coat) has been damaged, and loose or extraneous material shall be removed, and no additional compensation will be allowed therefor.

39-4.03 PAVEMENT REINFORCING FABRIC

Pavement reinforcing fabric shall be placed on existing pavement to be surfaced or between layers of asphalt concrete when the work is shown on the plans or specified in the special provisions, or ordered by the Engineer.

Before placing the pavement reinforcing fabric, a binder of paving asphalt shall be applied to the surface to receive the pavement reinforcing fabric at an approximate rate of 0.25-gallon per square yard of surface covered. The exact rate will be determined by the Engineer. The binder shall be applied to a width equal to the width of the fabric mat plus 3 inches on each side.

Before applying binder, large cracks, spalls and chuckholes in existing pavement shall be repaired as directed by the Engineer, and the repair work will be paid for as extra work as provided in Section 4-1.03D.

The fabric shall be aligned and placed with no wrinkles that lap. The test for lapping shall be made by gathering together the fabric in a wrinkle. If the height of the doubled portion of extra fabric is 1/2 inch or more, the fabric shall be cut to remove the wrinkle, then lapped in the direction of paving. Lap in excess of 2 inches shall be removed.

Pavement reinforcing fabric shall not be placed in areas of conform tapers where the thickness of the overlying asphalt concrete is 0.10-foot or less.

If manual laydown methods are used, the fabric shall be unrolled, aligned, and placed in increments of approximately 30 feet.

Adjacent borders of the fabric shall be lapped 2 inches to 4 inches. The preceding roll shall lap 2 inches to 4 inches over the following roll in the direction of paving at ends of rolls or at any break. At fabric overlaps, both the binder and the fabric shall overlap the previously placed fabric by the same amount.

Seating of the fabric with rolling equipment after placing will be permitted. Turning of the paving machine and other vehicles shall be gradual and kept to a minimum to avoid damage.

A small quantity of asphalt concrete, to be determined by the Engineer, may be spread over the fabric immediately in advance of placing asphalt concrete surfacing in order to prevent fabric from being picked up by construction equipment.

Public traffic shall not be allowed on the bare reinforcing fabric, except that public cross traffic shall be allowed to cross the fabric, under traffic control, after the Contractor has placed a small quantity of asphalt concrete over the fabric.

Care shall be taken to avoid tracking binder material onto the pavement reinforcing fabric or distorting the fabric during seating of the fabric with rolling equipment. If necessary, exposed binder material shall be covered lightly with sand.

39-5 SPREADING AND COMPACTING EQUIPMENT

39-5.01 SPREADING EQUIPMENT

Asphalt pavers shall be self-propelled mechanical spreading and finishing equipment, provided with a screed or strike-off assembly capable of distributing the material to not less than the full width of a traffic lane. Screed action shall include any cutting, crowding or other practical action which is effective on the mixture without tearing, shoving or gouging, and which produces a surface texture of uniform appearance. The screed shall be adjustable to the required section and thickness. The paver shall be provided with a suitable full width compacting device.
Pavers that leave ridges, indentations or other marks in the surface shall not be used unless the ridges, indentations or other marks are eliminated by rolling or prevented by adjustment in operation.

- The asphalt paver shall operate independently of the vehicle being unloaded or shall be capable of propelling the vehicle being unloaded in a satisfactory manner. The load of the haul vehicle shall be limited to that which will ensure satisfactory spreading. While being unloaded the haul vehicle shall be in contact with the machine at all times, and the brakes on the haul vehicle shall not be depended upon to maintain contact between the vehicle and the machine.
- No portion of the weight of hauling or loading equipment, other than the connection, shall be supported by the asphalt paver, and no vibrations or other motions of the loader, which could have a detrimental effect on the riding quality of the completed pavement, shall be transmitted to the paver.
- When asphalt concrete is placed directly upon asphalt treated permeable base, the asphalt concrete shall be placed with a paver equipped with tracks unless the layer being placed is 0.15-foot or less in compacted thickness.

39-5.02 COMPACTING EQUIPMENT
- A minimum of one steel-tired, 2-axle tandem roller weighing not less than 8 tons nor more than 10 tons shall be used for each asphalt paver to compact Open Graded asphalt concrete, and a minimum of 3 rollers consisting of the following shall be used for each asphalt paver to compact all other asphalt concrete and asphalt concrete base:

  One steel-tired roller weighing not less than 8 tons;
  One steel-tired, 2-axle or 3-axle tandem or 3-wheel roller weighing not less than 12 tons and
  One pneumatic-tired roller.

- The 2-axle or 3-axle tandem or 3-wheel roller shall have rolling wheels with a diameter of 40 inches or more.
- Except when leveling or when asphalt concrete less than 0.20-foot in compacted thickness is being placed on existing surfacing, pneumatic-tired rollers will not be required when approved vibratory rollers are furnished and used as specified in Section 39-6.03, "Compacting."
- Each roller shall have a separate operator. Rolling equipment shall be self-propelled and reversible. The minimum number, weight and type of rollers required may be reduced or modified in conformance with the provisions in Section 39-6.03, "Compacting," for low rates of production or when alternative equipment is approved by the Engineer.
- Rollers shall be equipped with pads and water systems which prevent sticking of asphalt mixtures to the pneumatic- or steel-tired wheels. A parting agent, which will not damage the asphalt mixture, as determined by the Engineer, may be used to aid in preventing the sticking of the mixture to the wheels.
- Other equipment, approved by the Engineer in conformance with the requirements in California Test 113, may be substituted for 3-wheel or tandem rollers when used as specified in Section 39-6.03, "Compacting."
- Pneumatic-tired rollers shall be the oscillating type having a width of not less than 4 feet with pneumatic tires of equal size, diameter and having treads satisfactory to the Engineer. Wobble-wheel rollers will not be permitted. The tires shall be spaced so that the gaps between adjacent tires will be covered by the following tires.
- The tires shall be inflated to 90 psi, or a lower pressure as designated by the Engineer, and maintained so that the air pressure will not vary more than 5 psi from the designated pressure. Pneumatic-tired rollers shall be constructed so that the total weight of the roller can be varied to produce an operating weight per tire of not less than 2,000 pounds. The total operating weight of the roller shall be varied as directed by the Engineer.

39-6 SPREADING AND COMPACTING

39-6.01 GENERAL REQUIREMENTS
- Placing material in a windrow, then picking it up and placing it in the asphalt paver with loading equipment, will be permitted provided:

  A. The asphalt paver is of such design that the material will fall into a hopper which has a movable bottom conveyor to feed the screed.
  B. The loader (pick-up machine) is constructed and operated so that substantially all of the material deposited on the roadbed is picked up and deposited in the paving machine.
  C. The windrow is deposited only so far in advance of the paver to provide for continuous operation of the paver and not so far as to allow the temperature of the asphalt concrete in the windrow to fall below 260° F.
Unless lower temperatures are directed by the Engineer, all mixtures, except Open Graded asphalt concrete, shall be spread, and the first coverage of initial or breakdown compaction shall be performed when the temperature of the mixture is not less than 250° F, and all breakdown compaction shall be completed before the temperature of the mixture drops below 200° F. Open Graded asphalt concrete shall be spread at a temperature of not less than 200° F, and not more than 250° F, measured in the hopper of the paving machine. Open Graded asphalt concrete shall be compacted as soon as possible after spreading.

- Type A and Type B asphalt concrete shall be placed only when the atmospheric temperature is above 50° F. Asphalt concrete base shall be placed only when the atmospheric temperature is above 40° F.
- Open Graded asphalt concrete shall be placed only when the atmospheric temperature is above 70° F and, where placement is to be on bridges or other structures when the surface temperature of the structure is above 60° F.
- Asphalt concrete and asphalt concrete base shall not be placed when the underlying layer or surface is frozen, or when, in the opinion of the Engineer, weather conditions will prevent the proper handling, finishing or compaction of the mixtures.
- Asphalt concrete shall be spread and compacted in the number of layers of the thicknesses indicated in the following table:

<table>
<thead>
<tr>
<th>Total Thickness Shown on Plans'</th>
<th>No. of Layers</th>
<th>Top Layer Thickness (foot)</th>
<th>Next Lower Layer Thickness (foot)</th>
<th>All Other Lower Layer Thickness (foot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20-foot or less</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.25-foot</td>
<td>2</td>
<td>0.12</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>0.30-0.40 foot</td>
<td>2</td>
<td>0.15</td>
<td>0.20</td>
<td>0.15</td>
</tr>
<tr>
<td>0.45-foot or more</td>
<td>c</td>
<td>0.15</td>
<td>0.20</td>
<td>0.15</td>
</tr>
</tbody>
</table>

a When pavement reinforcing fabric is shown to be placed between layers of asphalt concrete, the thickness of asphalt concrete above the pavement reinforcing fabric shall be considered to be the "Total Thickness Shown on Plans" for the purpose of spreading and compacting the asphalt concrete above the pavement reinforcing fabric.

b At the option of the Contractor, one layer 0.25-foot thick may be placed.

c At least 3 layers shall be placed if total thickness is 0.45-foot. At least 4 layers shall be placed if total thickness is more than 0.45-foot and less than 0.90-foot. At least 4 layers shall be placed if total thickness is 0.90-foot or more.

- Asphalt concrete base shall be spread and compacted in one or more layers. Each layer of asphalt concrete base shall be not less than 0.20-foot nor more than 0.40-foot in compacted thickness, except that where the total thickness of asphalt concrete to be placed over asphalt concrete base is 0.20-foot or less, the layer of asphalt concrete base below the asphalt concrete shall not exceed 0.25-foot.
- A layer shall not be placed over a layer which exceeds 0.25-foot in compacted thickness until the temperature of the layer which exceeds 0.25-foot in compacted thickness is less than 160° F at mid depth.
- Asphalt concrete and asphalt concrete base to be placed on shoulders, and other areas off the traveled way having a width of 5 feet or more, shall be spread in the same manner as specified above. When the shoulders and other areas are less than 5 feet in width, the material may be deposited and spread in one or more layers by any mechanical means that will produce a uniform smoothness and texture. Unless otherwise shown on the plans, asphalt mixtures shall not be handled, spread or windrowed in a manner that will stain the finished surface of any pavement or other improvements.
- The completed mixture shall be deposited on the roadbed at a uniform quantity per linear foot, as necessary to provide the required compacted thickness without resorting to spotting, picking-up or otherwise shifting the mixture.
- Segregation shall be avoided, and the surfacing shall be free from pockets of coarse or fine material. Asphalt concrete or asphalt concrete base containing hardened lumps shall not be used.
- Longitudinal joints in the top layer shall correspond with the edges of proposed traffic lanes. Longitudinal joints in all other layers shall be offset not less than 0.5-foot alternately each side of the edges of traffic lanes. The Engineer may permit other patterns of placing longitudinal joints if the Engineer considers that those patterns will not adversely affect the quality of the finished product.
- Unless otherwise provided herein or permitted by the Engineer, the top layer of asphalt concrete for shoulders, tapers, transitions, road connections, private drives, curve widenings, chain control lanes, turnouts, left turn pockets, and other such areas, shall not be spread before the top layer of asphalt concrete for the adjoining through lane has been spread and compacted. At locations where the number of lanes is changed, the top layer for the through lanes
shall be paved first. When existing pavement is to be surfaced and the specified thickness of asphalt concrete to be spread and compacted on the existing pavement is 0.25-foot or less, shoulders or other adjoining areas may be spread simultaneously with the through lane provided the completed surfacing conforms to the requirements of these specifications. Tracks or wheels of spreading equipment shall not be operated on the top layer of asphalt concrete in any area until final compaction has been completed.

- At locations shown on the plans, specified in the special provisions or as directed by the Engineer, the asphalt concrete shall be tapered or feathered to conform to existing surfacing or to other highway and non-highway facilities.
- At locations where the asphalt concrete or asphalt concrete base is to be placed over areas inaccessible to spreading and rolling equipment, the asphalt concrete or asphalt concrete base shall be spread by any means to obtain the specified results and shall be compacted thoroughly to the required lines, grades and cross sections by means of pneumatic tampers, or by other methods that will produce the same degree of compaction as pneumatic tampers.

39-6.02 SPREADING

- All layers, except as otherwise provided in Section 39-6.01, “General Requirements,” and in this Section 39-6.02, shall be spread with an asphalt paver. Asphalt pavers shall be operated in such a manner as to ensure continuous and uniform movement of the paver.
- In advance of spreading asphalt concrete over an existing base, surfacing or bridge deck, if there is a contract item for asphalt concrete (leveling) or if ordered by the Engineer, asphalt concrete shall be spread by any mechanical means that will produce a uniform smoothness and texture. Asphalt concrete (leveling) shall include, but is not limited to, the filling and leveling of irregularities and ruts. Asphalt concrete used to change the cross slope or profile of an existing surface shall not be considered as asphalt concrete (leveling).
- When directed by the Engineer, paint binder (tack coat) shall be applied to any layer in advance of spreading the next layer.
- Before placing the top layer adjacent to cold transverse construction joints, the joints shall be trimmed to a vertical face and to a neat line. Transverse joints shall be tested with a 12-foot straightedge and shall be cut back as required to conform to the provisions in Section 39-6.03, "Compacting," for surface smoothness. Connections to existing surfacing shall be feathered to conform to the provisions for smoothness. Longitudinal joints shall be trimmed to a vertical face and to a neat line if the edges of the previously laid surfacing are, in the opinion of the Engineer, in such condition that the quality of the completed joint will be affected.

39-6.03 COMPACTING

- Compacting equipment shall conform to the provisions in Section 39-5.02, "Compacting Equipment."
- A pass shall be one movement of a roller in either direction. A coverage shall be as many passes as are necessary to cover the entire width being paved. Overlap between passes during any coverage, made to ensure compaction without displacement of material in accordance with good rolling practice, shall be considered to be part of the coverage being made and not part of a subsequent coverage. Each coverage shall be completed before subsequent coverages are started.
- Rolling shall commence at the lower edge and shall progress toward the highest portion, except that when compacting layers which exceed 0.25-foot in compacted thickness, and if directed by the Engineer, rolling shall commence at the center and shall progress outwards.
- Compaction of Open Graded asphalt concrete shall consist of 2 coverages. If necessary, only one coverage of the Open Graded asphalt concrete may be ordered by the Engineer to prevent a break in the bond of asphalt between the aggregate particles.
- All other asphalt concrete and asphalt concrete base shall be compacted as follows:

  Initial or breakdown compaction shall consist of 3 coverages of a layer of asphalt mixture and shall be performed with a 2-axle or 3-axle tandem or a 3-wheel roller weighing not less than 12 tons. Where the thickness of the layer of asphalt mixture is less than 0.15-foot, fewer coverages than specified above may be ordered by the Engineer if necessary to prevent damage to the layer being compacted. The initial or breakdown compaction shall be followed immediately by additional rolling consisting of 3 coverages with a pneumatic-tired roller. Coverages with a pneumatic-tired roller shall start when the temperature of the mixture is as high as practicable, preferably above 180°F, and shall be completed while the temperature of the mixture is at or above 150°F.
Each layer of asphalt concrete and asphalt concrete base shall be compacted additionally without delay by a final rolling consisting of not less than one coverage with a steel-tired roller weighing not less than 8 tons. Except as otherwise provided for low rates of production, a separate finish roller will be required.

- Rolling shall be performed so that cracking, shoving or displacement will be avoided.
- Rolling, where 3-axle tandem rollers may be used as specified in this Section 39-6.03, shall be under the control of the Engineer, but in general, no 3-axle tandem roller shall be used in rolling over a crown or on warped sections when the center axle is in the locked position.
- Provided it is demonstrated to the satisfaction of the Engineer that one roller can perform the work, the required minimum rolling equipment specified above may be reduced to one 2-axle tandem roller, weighing at least 8 tons, for each paver under any of the following conditions:
  
  A. When asphalt concrete or asphalt concrete base is placed at a rate of 50 tons, or less, per hour at any location.

  B. When asphalt concrete or asphalt concrete base is placed at a rate of 100 tons, or less, per hour and at the locations or under the conditions as follows:

  1. Placed on miscellaneous areas in conformance with the provisions in Section 39-7.01, "Miscellaneous Areas."
  2. When the width to be placed is less than 8 feet.

  C. When the total amount of asphalt concrete and asphalt concrete base included in the contract is 1,000 tons, or less.

- When rolling equipment is reduced as provided in this Section 39-6.03, the rolling requirements may be reduced to at least 3 complete coverages with the tandem roller.

- Alternative compacting equipment, approved by the Engineer in conformance with the requirements in California Test 113, may be used for the initial or breakdown compaction if operated according to the procedures and under the conditions designated in the approval. Except when leveling or when asphalt concrete less than 0.20-foot in compacted thickness is being placed on existing surfacing, additional compaction with pneumatic-tired rollers will not be required when approved alternative equipment has been used for the initial compaction. A vibratory roller may be used as the finish roller provided that the vibratory roller meets the requirements for a finish roller and is operated with the vibratory unit turned off.

- Upon completion of rolling operations, if ordered by the Engineer, the asphalt concrete or asphalt concrete base shall be cooled by applying water. Applying water shall conform to the provisions in Section 17, "Watering."

- The completed surfacing shall be thoroughly compacted, smooth and free from ruts, humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations or other objectionable marks in the asphalt concrete shall be discontinued, and acceptable equipment shall be furnished by the Contractor.

- When a straightedge 12 feet long is laid on the finished surface and parallel with the center line, the surface shall not vary more than 0.01-foot from the lower edge of the straightedge. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02-foot are present when tested with a straightedge 12 feet long laid in a direction transverse to the center line and extending from edge to edge of a 12-foot traffic lane.

- Pavement within 50 feet of a structure or approach slab shall conform to the smoothness tolerances specified in Section 51-1.17, "Finishing Bridge Decks."

39-7 MISCELLANEOUS

39-7.01 MISCELLANEOUS AREAS

- Surfacing of miscellaneous areas, such as median areas (exclusive of inside shoulders), island areas, sidewalks, dikes, gutters, gutter flares, ditches, overside drains, aprons at the ends of drainage structures and other areas outside the traveled way which are designated on the plans as miscellaneous areas to be paved with asphalt concrete, shall conform to these specifications.

- The combined aggregate grading for asphalt concrete placed on miscellaneous areas shall conform to that specified for the asphalt concrete placed on the traveled way, unless otherwise directed by the Engineer. The
amount of asphalt binder used in the asphalt concrete placed in dikes, gutters, gutter flares, overside drains and aprons at the ends of drainage structures, unless otherwise directed by the Engineer, shall be increased one percent by weight of the aggregate over the amount of asphalt binder used in the asphalt concrete placed on the traveled way.

- The asphalt concrete placed in miscellaneous areas may be spread in one layer. The material shall be compacted to the required lines, grades and cross section.
- Dikes shall be shaped and compacted with an extrusion machine or other equipment capable of shaping and compacting the material to the required cross section.

39-7.02 SEAL COAT

Where shown on the plans or provided in the special provisions, a fog seal coat shall be applied to the surface of Types A and B asphalt concrete in conformance with the provisions in Section 37, "Bituminous Seals."

39-8 MEASUREMENT AND PAYMENT

39-8.01 MEASUREMENT

- Asphalt concrete and asphalt concrete base will be measured by weight. The quantity to be paid for will be the combined weight of the mixture for the various types of asphalt concrete or asphalt concrete base, whichever is designated in the Engineer's Estimate.
- The weight of the materials will be determined as provided in Section 9-1.01, "Measurement of Quantities."
- Quantities of paving asphalt, liquid asphalt and asphaltic emulsion to be paid for as contract items of work will be determined in accordance with the methods provided in Sections 92, "Asphalts," 93, "Liquid Asphalts," or 94, "Asphaltic Emulsions," as the case may be.
- When recorded batch weights are printed automatically, these weights may be used for determining pay quantities providing the following requirements are complied with:
  a. Total aggregate and supplemental fine aggregate weight per batch shall be printed. When supplemental fine aggregate is weighed cumulatively with the aggregate, the total batch weight of aggregate shall include the supplemental fine aggregate.
  b. Total bitumen weight per batch shall be printed.
  c. Zero-tolerance weight shall be printed prior to weighing the first batch and after weighing the last batch of each truckload.
  d. Time, date, mix number, load number and truck identification shall be correlated with load slip.
  e. A copy of the recorded batch weights shall be certified by a licensed weighmaster and submitted to the Engineer.
- When there is a contract item to place asphalt concrete dikes by the linear foot, the quantity to be paid for will be the length in feet measured along the completed dike. When there is a contract item to place asphalt concrete (miscellaneous area), the quantity to be paid for will be the area in square yards of the asphalt concrete compacted in place. In addition to the quantities for placing asphalt concrete measured on a linear foot or square yard basis, the asphalt concrete to be placed will also be measured for payment.
- Pavement reinforcing fabric will be measured and paid for by the square yard for the actual pavement area covered.

39-8.02 PAYMENT

- Asphalt concrete placed in the work, unless otherwise specified, will be paid for at the contract price per ton for asphalt concrete or asphalt concrete base of the types designated in the Engineer's Estimate.
- When there is a contract item for asphalt concrete (leveling), quantities of asphalt concrete placed for leveling will be paid for at the contract price per ton for asphalt concrete (leveling). When there is no contract item for asphalt concrete (leveling), and leveling is ordered by the Engineer, asphalt concrete so used will be paid for as extra work as provided in Section 4-1.03D.
- When there is a contract item for place asphalt concrete dike by the linear foot, quantities of dikes will be paid for at the contract price per ton for asphalt concrete and also at the contract price per linear foot for place asphalt concrete dike. Full compensation for any necessary excavation, backfill and preparation of the area shall be considered as included in the contract price paid per linear foot for place asphalt concrete dike and no additional compensation will be allowed therefor.
- Quantities of asphalt concrete placed in miscellaneous areas designated in the special provisions or tabulated on the plans to be included in the contract item of place asphalt concrete (miscellaneous area), will be paid for at the
contract price per ton for asphalt concrete and also at the contract price per square yard for place asphalt concrete (miscellaneous area). Full compensation for any necessary excavation, backfill and preparation of the area shall be considered as included in the contract price paid per square yard for place asphalt concrete (miscellaneous area) and no additional compensation will be allowed therefor.

- When there is no item for place asphalt concrete dike by the linear foot or for place asphalt concrete (miscellaneous area) by the square yard and the work is shown on the plans, full compensation therefor, including any necessary excavation, backfill, and preparation of the area, shall be considered as included in the contract price paid for the asphalt concrete.

- Quantities of pavement reinforcing fabric placed and paving asphalt applied as a binder for the pavement reinforcing fabric will be paid for at the contract price per square yard for pavement reinforcing fabric and per ton for paving asphalt (binder-pavement reinforcing fabric). Full compensation for furnishing and spreading sand to cover exposed binder material, if necessary, shall be considered as included in the contract price paid per ton for paving asphalt (binder-pavement reinforcing fabric) and no separate payment will be made therefor.

- Small quantities of asphalt concrete placed on pavement reinforcing fabric to prevent the fabric from being displaced by construction equipment or to allow traffic to cross over the fabric, shall be considered as part of the layer of asphalt concrete to be placed over the fabric and will be measured and paid for by the ton as asphalt concrete.

- When there is a contract item for liquid asphalt (prime coat), the quantity of prime coat will be paid for at the contract price per ton for the designated grade of liquid asphalt (prime coat). When there is no contract item for liquid asphalt (prime coat) and the special provisions require the application of prime coat, full compensation for furnishing and applying prime coat shall be considered as included in the contract price paid per ton for the asphalt concrete, and no separate payment will be made therefor.

- When there is a contract item for asphaltic emulsion (paint binder), the quantity of asphaltic emulsion or paving asphalt used as paint binder (tack coat) will be paid for at the contract price per ton for asphaltic emulsion (paint binder). When there is no contract item for asphaltic emulsion (paint binder), full compensation for furnishing and applying paint binder (tack coat) shall be considered as included in the contract price paid per ton for the asphalt concrete, and no separate payment will be made therefor.

- Fog seal coat will be paid for as provided in Section 37-1, "Seal Coats."

- No adjustment of compensation will be made for any increase or decrease in the quantities of paint binder (tack coat) or fog seal coat required, regardless of the reason for the increase or decrease. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," shall not apply to the items of paint binder or fog seal coat.

- The above contract prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing asphalt concrete and asphalt concrete base, complete in place, as shown on the plans and as specified in these specifications and the special provisions, and as directed by the Engineer.
SECTION 84: TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-1 GENERAL

84-1.01 DESCRIPTION
- This work shall consist of applying painted and thermoplastic traffic stripes (traffic lines) and pavement markings at the locations and in conformance with the details shown on the plans or designated by the Engineer, and as specified in these specifications and the special provisions.
- The kind of material, paint or thermoplastic, to be applied will be designated in the contract item, specified in the special provisions, or shown on the plans.
- For the purposes of this Section 84, "Traffic Stripes and Pavement Markings," traffic stripes (traffic lines) are defined as longitudinal centerlines and lanelines which separate traffic lanes in the same or opposing direction of travel, and longitudinal edgelines which mark the edge of the traveled way or the edge of the lanes at gore areas separating traffic at exit and entrance ramps. Pavement markings are defined as transverse markings which include, but are not limited to, word and symbol markings, limit lines (stoplines), crosswalk lines, shoulder markings parking stall markings and railroad grade crossing markings.

84-1.02 CONTROL OF ALIGNMENT AND LAYOUT
- All work necessary to establish satisfactory alignment for stripes and all layout work required for pavement markings shall be performed by the Contractor with any device or method that will not damage the pavement nor conflict with other traffic control devices.

84-1.03 TOLERANCES AND APPEARANCE
- Traffic stripes and pavement markings shall conform to the dimensions and details shown on the plans.
- Completed traffic stripes shall have clean and well-defined edges without running or deformation, shall be uniform, shall be straight on tangent alignment and shall be on a true arc on curved alignment. The widths of completed traffic stripes shall not deviate more than $\frac{1}{4}$ inch on tangent nor more than $\frac{1}{2}$ inch on curves from the widths shown on the plans. Broken traffic stripes shall also conform to the following requirements:
  - A. The lengths of the gaps and individual stripes that form broken traffic stripes shall not deviate more than 2 inches from the lengths shown on the plans.
  - B. The lengths of the gaps and individual stripes shall be of such uniformity throughout the entire length of each broken traffic stripe that a normal striping machine will be able to repeat the pattern and superimpose additional stripes upon the traffic stripe being applied.
- The completed pavement markings shall have clean and well-defined edges without running or deformation and shall conform to the dimensions shown on the plans, except that minor variations may be accepted by the Engineer.
- Drips, overspray, improper markings and paint and thermoplastic material tracked by traffic shall be immediately removed from the pavement surface by methods approved by the Engineer. All this removal work shall be at the Contractor's expense.

84-1.04 PROTECTION FROM DAMAGE
- The Contractor shall take special care to protect existing reflective pavement markers and shall, at the Contractor's expense, replace all coated markers.
- Newly placed traffic stripes and pavement markings shall be protected from damage by public traffic or other causes until the paint is thoroughly dry or the thermoplastic material has sufficiently hardened.

84-2 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-2.01 DESCRIPTION
- This work shall consist of furnishing and applying thermoplastic traffic stripes and pavement markings, including glass beads.

84-2.02 MATERIALS
- The thermoplastic material shall conform to State Specification PTH-02SPRAY, PTH-02HYDRO or PTH-02ALKYD. Glass beads to be applied to the surface of the molten thermoplastic material shall conform to the requirements of State Specification 8010-004 (Type II).
- State Specifications for thermoplastic material and glass beads may be obtained from the Transportation Laboratory.
84-2.03 (BLANK)

84-2.04 APPLICATION

- Existing surfacing which is to receive the thermoplastic material shall be mechanically wire brushed to remove all dirt and contaminants. Surfaces of new portland cement concrete pavement to receive the thermoplastic material shall be mechanically wire brushed or abrasive blast cleaned to remove all laitance and curing compound.
- Existing pavement markers which are damaged by blast cleaning or wire brushing shall be removed and replaced by the Contractor at the Contractor's expense.
- Thermoplastic material shall be applied only to dry pavement surfaces and only when the pavement surface temperature is above 50°F.
- A primer, of the type recommended by the manufacturer of the thermoplastic material, shall be applied to all asphaltic surfaces over 6 months old and to all portland cement concrete surfaces. The primer shall be applied immediately in advance of, but concurrent with, the application of thermoplastic material. The primer shall be applied at the application rate recommended by the manufacturer and shall not be thinned.
- Preheaters with mixers having 360 degree rotation shall be used to preheat material.
- The thermoplastic material shall be applied to the pavement at a temperature between 400°F and 425°F, unless a different temperature is recommended by the manufacturer.
- The thermoplastic material shall be applied by either spray or extrusion methods in a single uniform layer.
- Stencils shall be used when applying thermoplastic material for pavement markings.
- The pavement surface to which thermoplastic material is applied shall be completely coated by the material and the voids of the pavement surface shall be filled.
- Unless otherwise specified in the special provisions, the thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.060-inch. Thermoplastic material for pavement markings shall be applied at a thickness of 0.100-inch to 0.150-inch. Glass beads shall be applied immediately to the surface of the molten thermoplastic material at a rate of not less than 8 pounds per 100 square feet. The amount of glass beads applied shall be measured by stabbing the glass bead tank with a calibrated rod.

84-2.05 MEASUREMENT

- Thermoplastic traffic stripes will be measured by the linear foot along the line of the traffic stripes, without deductions for gaps in broken traffic stripes. A double traffic stripe, consisting of two 4-inch wide yellow stripes, will be measured as 2 traffic stripes.
- Thermoplastic pavement markings will be measured by the square foot for the actual area covered.

84-2.06 PAYMENT

- The contract prices paid per linear foot for thermoplastic traffic stripes of the widths and patterns designated in the Engineer's Estimate and per square foot for thermoplastic pavement markings shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes and pavement markings, complete in place, including establishing alignment for stripes and layout work, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

84-3 PAINTED TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-3.01 DESCRIPTION

- This work shall consist of painting traffic stripes and pavement markings, including applying glass beads.

84-3.02 MATERIALS

- Paint for traffic stripes and pavement markings shall conform to the following State Specifications:

<table>
<thead>
<tr>
<th>Paint Type</th>
<th>Color</th>
<th>State Specification No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterborne Traffic Line</td>
<td>White, Yellow and Black</td>
<td>PTWB-01</td>
</tr>
<tr>
<td>Acetone-Based</td>
<td>White, Yellow and Black</td>
<td>PT-150VOC(A)</td>
</tr>
<tr>
<td>Waterborne Traffic Line for disabled persons’ parking, and other curb markings</td>
<td>Blue, Red and Green</td>
<td>Federal Specification No. TT-P-1952D</td>
</tr>
</tbody>
</table>

- Glass beads shall conform to State Specification No. 8010-004 (Type II).
84-3.03 MIXING

- Mechanical mixers shall be used to mix paint. Prior to applying, the paint shall be mixed a sufficient length of
time to thoroughly mix the pigment and vehicle together, and shall be kept thoroughly agitated during its
application.

84-3.04 APPLICATION EQUIPMENT

- Mechanical means shall be used to paint traffic stripes and pavement markings and to apply the glass beads for
traffic stripes.
- Equipment used in the application of traffic stripes and pavement markings shall produce stripes and pavement
markings of uniform quality that conform to the specified requirements.
- Stencils and hand spray equipment shall be used to paint pavement markings. Stencils shall conform to the
dimensions shown on the plans.
- The striping machine shall be capable of accurately superimposing succeeding coats of traffic paint upon the
first coat and upon existing stripes at a speed of at least 5 miles per hour.
- The striping machine shall consist of a rubber-tired vehicle that is maneuverable to the extent that straight lines
can be followed and normal curves can be made in true arcs. It shall be capable of applying traffic paints and glass
beads at the rates specified. The striping machine shall be equipped with the following: (a) a pointer or sighting
device not less than 5 feet long and extending from the front of the machine; (b) a pointer or sighting device
extending from the side of the machine to gauge the distance from the centerline for painting shoulder stripes; (c) a
positive acting cutoff device to prevent depositing paint in gaps of broken stripes; (d) shields or an adjustable air
curtain for line control; (e) pressure regulators and gages (if pneumatically operated) that are in full view of the
operator; (f) a paint strainer in the paint supply line; (g) a paint storage tank with a mechanical agitator that operates
continuously during painting operations; (h) a glass bead dispenser located behind the paint applicator nozzle and
which is controlled simultaneously with the paint applicator nozzle; and (i) calibrated rods for measuring the
volumes of paint and glass beads in the paint and glass bead tanks.
- Spray equipment shall be of a proper type and of adequate capacity for the work. Air atomized spray equipment
shall be equipped with oil and water extractors and pressure regulators and shall have adequate air volume and
compressor recovery capacity. Spray gun tip needle assemblies and orifices shall be of the proper sizes.
- Attention is directed to Section 5-1.11, "Alternative Equipment," of these specifications.
- Where the configuration or location of a traffic stripe is such that the use of a striping machine is unsuitable,
traffic paint and glass beads may be applied by other methods and equipment approved by the Engineer. The
Engineer will determine if the striping machine is unsuitable for a particular use.

84-3.05 APPLICATION

- Traffic stripes and pavement markings shall be applied only on dry surfaces and only during periods of
favorable weather. Painting shall not be performed when the atmospheric temperature is below 40°F when using
acetone-based paint or below 50°F when using waterborne paint; when freshly painted surfaces may become
damaged by rain, fog, or condensation; nor when it can be anticipated that the atmospheric temperature will drop
below the aforementioned 40°F or 50°F temperatures during the drying period.
- Surfaces which are to receive traffic stripes and pavement markings shall be cleaned of all dirt and loose
material.
- A one-coat 3-inch wide black stripe shall be painted between the two 4-inch wide yellow stripes of a double
traffic stripe. If the two 4-inch wide yellow stripes are to be applied in 2 coats, the black stripe shall be applied
concurrently with the second coat of yellow stripes.
On new surfacing, pavement markings and traffic stripes (except the black stripe between the yellow stripes of a double traffic stripe) shall be applied in 2 coats unless otherwise shown on the plans. The first coat of paint shall be dry before application of the second coat.
On 2-lane highways, when the first coat of the centerline stripe is applied in the same direction as the post miles increase, the right-hand spray gun of the 3 spray guns used to apply double yellow stripe shall be used to apply a single yellow stripe. When the first coat of the centerline stripe is applied in the same direction as the post miles decrease, the left-hand spray gun of the 3 spray guns used to apply double yellow stripe shall be used to apply a single yellow stripe. The second coat of centerline striping shall be applied in the opposite direction that the first coat was applied.
On existing surfacing, pavement markings and traffic stripes shall be applied in one coat.
Each coat of paint for any traffic stripe, including glass beads where required, shall be applied in one pass of the striping machine, regardless of the number, widths and patterns of individual stripes involved.
Paint to be applied in one coat shall be applied at an approximate rate of one gallon per 107 square feet.
P glare beads shall be uniformly incorporated in all coats of paint concurrently with the application of the paint, except that glass beads shall not be applied to black paint. Beads shall be embedded in the coat of traffic paint being applied to a depth of one-half their diameters.
Glass beads shall be applied at an approximate rate of 5 pounds per gallon of paint. The exact rate will be determined by the Engineer. The amount of glass beads applied shall be measured by stabbing the glass bead tank with a calibrated rod.

<table>
<thead>
<tr>
<th>Paint Type</th>
<th>Square Foot Coverage Per Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Coat</td>
</tr>
<tr>
<td>Waterborne Paint</td>
<td>215</td>
</tr>
<tr>
<td>Acetone-Based Paint</td>
<td>360</td>
</tr>
</tbody>
</table>

The exact rate of paint to be applied will be determined by the Engineer. The volume of paint applied shall be measured by stabbing the paint tank with a calibrated rod. At the option of the Engineer, if the striping machine is provided with paint gages, the volume of paint may be determined by using the gages.

84-3.06 MEASUREMENT
Painting traffic stripes will be measured by the linear foot along the line of the traffic stripes, without deductions for gaps in broken traffic stripes. A double traffic stripe, consisting of two 4-inch wide yellow stripes separated by a 3-inch wide black stripe, will be measured as one traffic stripe. Painted pavement markings will be measured by the square foot for the actual area painted.

84-3.07 PAYMENT
The contract prices paid per linear foot for paint traffic stripe and per square foot for paint pavement marking, of the number of coats designated in the Engineer's Estimate, shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in painting traffic stripes (regardless of the number, widths and patterns of individual stripes involved in each traffic stripe) and pavement markings including establishing alignment for stripes and layout work, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.
SECTION 90: PORTLAND CEMENT CONCRETE

90-1.01 DESCRIPTION

- Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.
- The Contractor shall determine the mix proportions for concrete in conformance with these specifications. Unless otherwise specified, cementitious material shall be a combination of cement and mineral admixture. Cementitious material shall be either:
  
  A. “Type IP (MS) Modified” cement; or
  B. A combination of “Type II Modified” portland cement and mineral admixture; or
  C. A combination of Type V portland cement and mineral admixture.

- Type III portland cement shall be used only as allowed in the special provisions or with the approval of the Engineer.
- Class 1 concrete shall contain not less than 675 pounds of cementitious material per cubic yard.
- Class 2 concrete shall contain not less than 590 pounds of cementitious material per cubic yard.
- Class 3 concrete shall contain not less than 505 pounds of cementitious material per cubic yard.
- Class 4 concrete shall contain not less than 420 pounds of cementitious material per cubic yard.
- Minor concrete shall contain not less than 550 pounds of cementitious material per cubic yard unless otherwise specified in these specifications or the special provisions.
- Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic yard of concrete in structures or portions of structures shall conform to the following:

<table>
<thead>
<tr>
<th>Use</th>
<th>Cementitious Material Content pounds/CY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete designated by compressive strength:</td>
<td></td>
</tr>
<tr>
<td>Deck slabs and slab spans of bridges</td>
<td>675 min., 800 max.</td>
</tr>
<tr>
<td>Roof sections of exposed top box culverts</td>
<td>675 min., 800 max.</td>
</tr>
<tr>
<td>Other portions of structures</td>
<td>590 min., 800 max.</td>
</tr>
<tr>
<td>Concrete not designated by compressive strength:</td>
<td></td>
</tr>
<tr>
<td>Deck slabs and slab spans of bridges</td>
<td>675 min.</td>
</tr>
<tr>
<td>Roof sections of exposed top box culverts</td>
<td>675 min.</td>
</tr>
<tr>
<td>Prestressed members</td>
<td>675 min.</td>
</tr>
<tr>
<td>Seal courses</td>
<td>675 min.</td>
</tr>
<tr>
<td>Other portions of structures</td>
<td>590 min.</td>
</tr>
<tr>
<td>Concrete for precast members</td>
<td>590 min., 925 max.</td>
</tr>
</tbody>
</table>

- Whenever the 28-day compressive strength shown on the plans is greater than 3,600 psi, the concrete shall be designated by compressive strength. If the plans show a 28-day compressive strength that is 4,000 psi or greater, an additional 14 days will be allowed to obtain the specified strength. The 28-day compressive strengths shown on the plans that are 3,600 psi or less are shown for design information only and are not a requirement for acceptance of the concrete.
- Concrete designated by compressive strength shall be proportioned such that the concrete will attain the strength shown on the plans or specified in the special provisions.
- Before using concrete for which the mix proportions have been determined by the Contractor, or in advance of revising those mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.
- Compliance with cementitious material content requirements will be verified in conformance with procedures described in California Test 518 for cement content. For testing purposes, mineral admixture shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.
- If any concrete has a cementitious material, portland cement, or mineral admixture content that is less than the minimum required, the concrete shall be removed. However, if the Engineer determines that the concrete is
structurally adequate, the concrete may remain in place and the Contractor shall pay to the State $0.25 for each pound of cementitious material, portland cement, or mineral admixture that is less than the minimum required. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions will be made based on the results of California Test 518.

- The requirements of the preceding paragraph shall not apply to minor concrete or commercial quality concrete.

90-2 MATERIALS

90-2.01 CEMENT

- Unless otherwise specified, cement shall be either "Type IP (MS) Modified" cement, "Type II Modified" portland cement or Type V portland cement.
- "Type IP (MS) Modified" cement shall conform to the requirements for Type IP (MS) cement in ASTM Designation: C 595, and shall be comprised of an intimate and uniform blend of Type II cement and not more than 35 percent by weight of mineral admixture. The type and minimum amount of mineral admixture used in the manufacture of "Type IP (MS) Modified" cement shall be in conformance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."
- "Type II Modified" portland cement shall conform to the requirements for Type II portland cement in ASTM Designation: C 150-02a.
- In addition, "Type IP (MS) Modified" cement and "Type II Modified" portland cement shall conform to the following requirements:
  
  A. The cement shall not contain more than 0.60-percent by weight of alkalis, calculated as the percentage of Na₂O plus 0.658 times the percentage of K₂O, when determined by either direct intensity flame photometry or by the atomic absorption method. The instrument and procedure used shall be qualified as to precision and accuracy in conformance with the requirements in ASTM Designation: C 114;
  B. The autoclave expansion shall not exceed 0.50-percent; and
  C. Mortar, containing the cement to be used and Ottawa sand, when tested in conformance with California Test 527, shall not expand in water more than 0.010-percent and shall not contract in air more than 0.048-percent, except that when cement is to be used for precast prestressed concrete piling, precast prestressed concrete members, or steam cured concrete products, the mortar shall not contract in air more than 0.053-percent.

- Type III and Type V portland cements shall conform to the requirements in ASTM Designation: C 150-02a and the additional requirements listed above for "Type II Modified" portland cement, except that when tested in conformance with California Test 527, mortar containing Type III portland cement shall not contract in air more than 0.075-percent.
- Cement used in the manufacture of cast-in-place concrete for exposed surfaces of like elements of a structure shall be from the same cement mill.
- Cement shall be protected from exposure to moisture until used. Sacked cement shall be piled to permit access for tally, inspection, and identification of each shipment.
- Adequate facilities shall be provided to assure that cement meeting the provisions specified in this Section 90-2.01 shall be kept separate from other cement in order to prevent any but the specified cement from entering the work. Safe and suitable facilities for sampling cement shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper, in conformance with California Test 125.
- If cement is used prior to sampling and testing as provided in Section 6-1.07, "Certificates of Compliance," and the cement is delivered directly to the site of the work, the Certificate of Compliance shall be signed by the cement manufacturer or supplier of the cement. If the cement is used in ready-mixed concrete or in precast concrete products purchased as such by the Contractor, the Certificate of Compliance shall be signed by the manufacturer of the concrete or product.
- Cement furnished without a Certificate of Compliance shall not be used in the work until the Engineer has had sufficient time to make appropriate tests and has approved the cement for use.

90-2.02 AGGREGATES

- Aggregates shall be free from deleterious coatings, clay balls, roots, bark, sticks, rags, and other extraneous material.
Natural aggregates shall be thoroughly and uniformly washed before use.

The Contractor, at the Contractor's expense, shall provide safe and suitable facilities, including necessary splitting devices for obtaining samples of aggregates, in conformance with California Test 125.

Aggregates shall be of such character that it will be possible to produce workable concrete within the limits of water content provided in Section 90-6.06, "Amount of Water and Penetration."

Aggregates shall have not more than 10 percent loss when tested for soundness in conformance with the requirements in California Test 214. The soundness requirement for fine aggregate will be waived, provided that the durability index, Dn, of the fine aggregate is 60, or greater, when tested for durability in conformance with California Test 229.

If the results of any one or more of the Cleanness Value, Sand Equivalent, or aggregate grading tests do not meet the requirements specified for "Operating Range" but all meet the "Contract Compliance" requirements, the placement of concrete shall be suspended at the completion of the current pour until tests or other information indicate that the next material to be used in the work will comply with the requirements specified for "Operating Range."

If the results of either or both the Cleanness Value and coarse aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete that is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State $3.50 per cubic yard for paving concrete and $5.50 per cubic yard for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

If the results of either or both the Sand Equivalent and fine aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete which is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State $3.50 per cubic yard for paving concrete and $5.50 per cubic yard for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

The 2 preceding paragraphs apply individually to the "Contract Compliance" requirements for coarse aggregate and fine aggregate. When both coarse aggregate and fine aggregate do not conform to the "Contract Compliance" requirements, both paragraphs shall apply. The payments specified in those paragraphs shall be in addition to any payments made in conformance with the provisions in Section 90-1.01, "Description."

No single Cleanness Value, Sand Equivalent or aggregate grading test shall represent more than 300 cubic yards of concrete or one day's pour, whichever is smaller.

When the source of an aggregate is changed, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using the aggregates.

**90-2.02A Coarse Aggregate**

- Coarse aggregate shall consist of gravel, crushed gravel, crushed rock, crushed air-cooled iron blast furnace slag or combinations thereof. Crushed air-cooled blast furnace slag shall not be used in reinforced or prestressed concrete.

Coarse aggregate shall conform to the following quality requirements:

<table>
<thead>
<tr>
<th>Tests</th>
<th>California Test</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss in Los Angeles Rattler (after 500 revolutions)</td>
<td>211</td>
<td>45% max.</td>
</tr>
<tr>
<td>Cleanness Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Range</td>
<td>227</td>
<td>75 min.</td>
</tr>
<tr>
<td>Contract Compliance</td>
<td>227</td>
<td>71 min.</td>
</tr>
</tbody>
</table>

In lieu of the above Cleanness Value requirements, a Cleanness Value "Operating Range" limit of 71, minimum, and a Cleanness Value "Contract Compliance" limit of 68, minimum, will be used to determine the acceptability of the coarse aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

A. coarse aggregate sampled at the completion of processing at the aggregate production plant had a Cleanness Value of not less than 82 when tested by California Test 227; and
B. prequalification tests performed in conformance with the requirements in California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.02B Fine Aggregate

* Fine aggregate shall consist of natural sand, manufactured sand produced from larger aggregate or a combination thereof. Manufactured sand shall be well graded.
* Fine aggregate shall conform to the following quality requirements:

<table>
<thead>
<tr>
<th>Test</th>
<th>California Test</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Impurities</td>
<td>213</td>
<td>Satisfactory&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mortar Strengths Relative to Ottawa Sand</td>
<td>515</td>
<td>95%, min.</td>
</tr>
<tr>
<td>Sand Equivalent:</td>
<td>217</td>
<td></td>
</tr>
<tr>
<td>Operating Range</td>
<td></td>
<td>75, min.</td>
</tr>
<tr>
<td>Contract Compliance</td>
<td></td>
<td>71, min.</td>
</tr>
</tbody>
</table>

<sup>a</sup> Fine aggregate developing a color darker than the reference standard color solution may be accepted if it is determined by the Engineer, from mortar strength tests, that a darker color is acceptable.

* In lieu of the above Sand Equivalent requirements, a Sand Equivalent "Operating Range" limit of 71 minimum and a Sand Equivalent "Contract Compliance" limit of 68 minimum will be used to determine the acceptability of the fine aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

A. fine aggregate sampled at the completion of processing at the aggregate production plant had a Sand Equivalent value of not less than 82 when tested by California Test 217; and
B. prequalification tests performed in conformance with California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.03 WATER

* In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl<sub>−</sub>, when tested in conformance with California Test 417. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl<sub>−</sub>, when tested in conformance with California Test 417. In no case shall the water contain an amount of impurities that will cause either: 1) a change in the setting time of cement of more than 25 percent when tested in conformance with the requirements in ASTM Designation: C 191 or ASTM Designation: C 266; or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent when tested in conformance with the requirements in ASTM Designation: C 109, compared to the results obtained with distilled water or deionized water tested in conformance with the requirements in ASTM Designation: C 109.
* In non-reinforced concrete work, the water for curing, for washing aggregates and for mixing shall be free from oil and shall not contain more than 2,000 parts per million of chlorides as Cl<sub>−</sub>, when tested in conformance with California Test 422, or more than 1,500 parts per million of sulfates as SO<sub>4</sub><sup>2-</sup>, when tested in conformance with California Test 417. In addition to the above provisions, water for curing concrete shall not contain impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.
* Water reclaimed from mixer wash-out operations may be used in mixing concrete. The water shall not contain coloring agents or more than 300 parts per million of alkalis (Na<sub>2</sub>O + 0.658 K<sub>2</sub>O) as determined on the filtrate. The specific gravity of the water shall not exceed 1.03 and shall not vary more than ±0.010 during a day's operations.

90-2.04 ADMIXTURE MATERIALS

* Admixture materials shall conform to the requirements in the following ASTM Designations:

A. Chemical Admixtures—ASTM Designation: C 494.
C. Calcium Chloride—ASTM Designation: D 98.
D. Mineral Admixtures—Coal fly ash; raw or calcined natural pozzolan as specified in ASTM Designation: C 618; silica fume conforming to the requirements in ASTM Designation: C 1240, with reduction of mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

Unless otherwise specified in the special provisions, mineral admixtures shall be used in conformance with the provisions in Section 90-4.08, "Required Use of Mineral Admixtures."

90-3 AGGREGATE GRADINGS

90-3.01 GENERAL
- Before beginning concrete work, the Contractor shall submit in writing to the Engineer the gradation of the primary aggregate nominal sizes that the Contractor proposes to furnish. If a primary coarse aggregate or the fine aggregate is separated into 2 or more sizes, the proposed gradation shall consist of the gradation for each individual size, and the proposed proportions of each individual size, combined mathematically to indicate one proposed gradation. The proposed gradation shall meet the grading requirements shown in the table in this section, and shall show the percentage passing each of the sieve sizes used in determining the end result.
- The Engineer may waive, in writing, the gradation requirements in this Section 90-3.01 and in Sections 90-3.02, "Coarse Aggregate Grading," 90-3.03, "Fine Aggregate Grading," and 90-3.04, "Combined Aggregate Gradings," if, in the Engineer's opinion, furnishing the gradation is not necessary for the type or amount of concrete work to be constructed.
- Gradations proposed by the Contractor shall be within the following percentage passing limits:

<table>
<thead>
<tr>
<th>Primary Aggregate Nominal Size</th>
<th>Sieve Size</th>
<th>Limits of Proposed Gradation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1¹/2&quot; x 3/4&quot;</td>
<td>1&quot;</td>
<td>19 - 41</td>
</tr>
<tr>
<td>1&quot; x No. 4</td>
<td>3/4&quot;</td>
<td>52 - 85</td>
</tr>
<tr>
<td>1&quot; x No. 4</td>
<td>3/8&quot;</td>
<td>15 - 38</td>
</tr>
<tr>
<td>1/2&quot; x No. 4</td>
<td>3/8&quot;</td>
<td>40 - 78</td>
</tr>
<tr>
<td>3/8&quot; x No. 8</td>
<td>3/8&quot;</td>
<td>50 - 85</td>
</tr>
<tr>
<td>Fine Aggregate</td>
<td>No. 16</td>
<td>55 - 75</td>
</tr>
<tr>
<td>Fine Aggregate</td>
<td>No. 30</td>
<td>34 - 46</td>
</tr>
<tr>
<td>Fine Aggregate</td>
<td>No. 50</td>
<td>16 - 29</td>
</tr>
</tbody>
</table>

- Should the Contractor change the source of supply, the Contractor shall submit in writing to the Engineer the new gradations before their intended use.

90-3.02 COARSE AGGREGATE GRADING
- The grading requirements for coarse aggregates are shown in the following tables for each size of coarse aggregate:

  Percentage Passing Primary Aggregate Nominal Sizes
Sieve Sizes

<table>
<thead>
<tr>
<th></th>
<th>1(\frac{1}{2})&quot; x (\frac{3}{4})&quot;</th>
<th>1&quot; x No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating Range</td>
<td>Contract Compliance</td>
</tr>
<tr>
<td>2&quot;</td>
<td>100</td>
<td>—</td>
</tr>
<tr>
<td>1(\frac{1}{2})&quot;</td>
<td>88-100</td>
<td>85-100</td>
</tr>
<tr>
<td>1&quot;</td>
<td>X ± 18</td>
<td>X ± 25</td>
</tr>
<tr>
<td>(\frac{3}{4})&quot;</td>
<td>0-17</td>
<td>0-20</td>
</tr>
<tr>
<td>(\frac{1}{2})&quot;</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>(\frac{3}{8})&quot;</td>
<td>0-7</td>
<td>0-9</td>
</tr>
<tr>
<td>No. 4</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>No. 8</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(\frac{1}{2})&quot; x No. 4</th>
<th>(\frac{3}{8})&quot; x No. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating Range</td>
<td>Contract Compliance</td>
</tr>
<tr>
<td>2&quot;</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1(\frac{1}{2})&quot;</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1&quot;</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>(\frac{3}{4})&quot;</td>
<td>82-100</td>
<td>80-100</td>
</tr>
<tr>
<td>(\frac{1}{2})&quot;</td>
<td>X ± 15</td>
<td>X ± 22</td>
</tr>
<tr>
<td>No. 4</td>
<td>0-15</td>
<td>0-18</td>
</tr>
<tr>
<td>No. 8</td>
<td>0-6</td>
<td>0-7</td>
</tr>
</tbody>
</table>

In the above tables, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."

Coarse aggregate for the 1\(\frac{1}{2}\)-inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," shall be furnished in 2 or more primary aggregate nominal sizes. Each primary aggregate nominal size may be separated into 2 sizes and stored separately, provided that the combined material conforms to the grading requirements for that particular primary aggregate nominal size.

When the one-inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," is to be used, the coarse aggregate may be separated into 2 sizes and stored separately, provided that the combined material shall conform to the grading requirements for the 1" x No. 4 primary aggregate nominal size.

**90-3.03 FINE AGGREGATE GRADING**

- Fine aggregate shall be graded within the following limits:

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operating Range</td>
</tr>
<tr>
<td>(\frac{3}{8})&quot;</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>95-100</td>
</tr>
<tr>
<td>No. 8</td>
<td>65-95</td>
</tr>
<tr>
<td>No. 16</td>
<td>X ± 10</td>
</tr>
<tr>
<td>No. 30</td>
<td>X ± 9</td>
</tr>
<tr>
<td>No. 50</td>
<td>X ± 6</td>
</tr>
<tr>
<td>No. 100</td>
<td>2-12</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-8</td>
</tr>
</tbody>
</table>

In the above table, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."

In addition to the above required grading analysis, the distribution of the fine aggregate sizes shall be such that the difference between the total percentage passing the No. 16 sieve and the total percentage passing the No. 30 sieve shall be between 10 and 40, and the difference between the percentage passing the No. 30 and No. 50 sieves shall be between 10 and 40.
. Fine aggregate may be separated into 2 or more sizes and stored separately, provided that the combined material conforms to the grading requirements specified in this Section 90-3.03.

### 90-3.04 COMBINED AGGREGATE GRADINGS

. Combined aggregate grading limits shall be used only for the design of concrete mixes. Concrete mixes shall be designed so that aggregates are combined in proportions that shall produce a mixture within the grading limits for combined aggregates as specified herein.

. The combined aggregate grading, except when otherwise specified in these specifications or the special provisions, shall be either the 11/2-inch, maximum grading, or the one-inch, maximum grading, at the option of the Contractor.

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>11/2&quot; Max.</th>
<th>1&quot; Max.</th>
<th>1/2&quot; Max.</th>
<th>3/8&quot; Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>100</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11/2&quot;</td>
<td>90-100</td>
<td>100</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1&quot;</td>
<td>50-86</td>
<td>90-100</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>45-75</td>
<td>55-100</td>
<td>100</td>
<td>—</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>—</td>
<td>—</td>
<td>90-100</td>
<td>100</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>38-55</td>
<td>45-75</td>
<td>55-86</td>
<td>50-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>30-45</td>
<td>35-60</td>
<td>45-63</td>
<td>45-63</td>
</tr>
<tr>
<td>No. 8</td>
<td>23-38</td>
<td>27-45</td>
<td>35-49</td>
<td>35-49</td>
</tr>
<tr>
<td>No. 16</td>
<td>17-33</td>
<td>20-35</td>
<td>25-37</td>
<td>25-37</td>
</tr>
<tr>
<td>No. 30</td>
<td>10-22</td>
<td>12-25</td>
<td>15-25</td>
<td>15-25</td>
</tr>
<tr>
<td>No. 50</td>
<td>4-10</td>
<td>5-15</td>
<td>5-15</td>
<td>5-15</td>
</tr>
<tr>
<td>No. 100</td>
<td>1-6</td>
<td>1-8</td>
<td>1-8</td>
<td>1-8</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-3</td>
<td>0-4</td>
<td>0-4</td>
<td>0-4</td>
</tr>
</tbody>
</table>

. Changes from one grading to another shall not be made during the progress of the work unless permitted by the Engineer.

### 90-4 ADMIXTURES

#### 90-4.01 GENERAL

. Admixtures used in portland cement concrete shall conform to and be used in conformance with the provisions in this Section 90-4 and the special provisions. Admixtures shall be used when specified or ordered by the Engineer and may be used at the Contractor's option as provided herein.

. Chemical admixtures and air-entraining admixtures containing chlorides as Cl in excess of one percent by weight of admixture, as determined by California Test 415, shall not be used in prestressed or reinforced concrete.

. Calcium chloride shall not be used in concrete except when otherwise specified.

. Mineral admixture used in concrete for exposed surfaces of like elements of a structure shall be from the same source and of the same percentage.

. Admixtures shall be uniform in properties throughout their use in the work. Should it be found that an admixture as furnished is not uniform in properties, its use shall be discontinued.

. If more than one admixture is used, the admixtures shall be compatible with each other so that the desirable effects of all admixtures used will be realized.

#### 90-4.02 MATERIALS

. Admixture materials shall conform to the provisions in Section 90–2.04, "Admixture Materials."

#### 90-4.03 ADMIXTURE APPROVAL

. No admixture brand shall be used in the work unless it is on the Department's current list of approved brands for the type of admixture involved.

. Admixture brands will be considered for addition to the approved list if the manufacturer of the admixture submits to the Transportation Laboratory a sample of the admixture accompanied by certified test results demonstrating that the admixture complies with the requirements in the appropriate ASTM Designation and these specifications. The sample shall be sufficient to permit performance of all required tests. Approval of admixture brands will be dependent upon a determination as to compliance with the requirements, based on the certified test results submitted, together with tests the Department may elect to perform.
When the Contractor proposes to use an admixture of a brand and type on the current list of approved admixture brands, the Contractor shall furnish a Certificate of Compliance from the manufacturer, as provided in Section 6-1.07, “Certificates of Compliance,” certifying that the admixture furnished is the same as that previously approved. If a previously approved admixture is not accompanied by a Certificate of Compliance, the admixture shall not be used in the work until the Engineer has had sufficient time to make the appropriate tests and has approved the admixture for use. The Engineer may take samples for testing at any time, whether or not the admixture has been accompanied by a Certificate of Compliance.

If a mineral admixture is delivered directly to the site of the work, the Certificate of Compliance shall be signed by the manufacturer or supplier of the mineral admixture. If the mineral admixture is used in ready-mix concrete or in precast concrete products purchased as such by the Contractor, the Certificate of Compliance shall be signed by the manufacturer of the concrete or product.

90-4.04 REQUIRED USE OF CHEMICAL ADMIXTURES AND CALCIUM CHLORIDE

When the use of a chemical admixture or calcium chloride is specified, the admixture shall be used at the dosage specified, except that if no dosage is specified, the admixture shall be used at the dosage normally recommended by the manufacturer of the admixture.

Calcium chloride shall be dispensed in liquid, flake, or pellet form. Calcium chloride dispensed in liquid form shall conform to the provisions for dispensing liquid admixtures in Section 90-4.10, “Proportioning and Dispensing Liquid Admixtures.”

90-4.05 OPTIONAL USE OF CHEMICAL ADMIXTURES

The Contractor will be permitted to use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate any concrete construction application subject to the following conditions:

A. When a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by weight, except that the resultant cementitious material content shall be not less than 505 pounds per cubic yard, and

B. When a reduction in cementitious material content is made, the dosage of admixture used shall be the dosage used in determining approval of the admixture.

Unless otherwise specified, a Type C accelerating chemical admixture conforming to the requirements in ASTM Designation: C 494, may be used in portland cement concrete. Inclusion in the mix design submitted for approval will not be required provided that the admixture is added to counteract changing conditions that contribute to delayed setting of the portland cement concrete, and the use or change in dosage of the admixture is approved in writing by the Engineer.

90-4.06 REQUIRED USE OF AIR-ENTRAINING ADMIXTURES

When air-entrainment is specified or ordered by the Engineer, the air-entraining admixture shall be used in amounts to produce a concrete having the specified air content as determined by California Test 504.

90-4.07 OPTIONAL USE OF AIR-ENTRAINING ADMIXTURES

When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent, and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate as provided in Section 40-1.015, "Cement Content."

90-4.08 REQUIRED USE OF MINERAL ADMIXTURES

Unless otherwise specified, mineral admixture shall be combined with cement to make cementitious material.

The calcium oxide content shall not exceed 10 percent when determined in conformance with the requirements in ASTM Designation: C 114. The available alkali content (as sodium oxide equivalent) shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM Designation: C 311, or the total alkali content (as sodium oxide equivalent) shall not exceed 5.0 percent when determined in conformance with the requirements in ASTM Designation: D 4326.
The amounts of cement and mineral admixture used in cementitious material shall be sufficient to satisfy the minimum cementitious material content requirements specified in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and shall conform to the following:

A. The minimum amount of cement shall not be less than 75 percent by weight of the specified minimum cementitious material content;
B. The minimum amount of mineral admixture to be combined with cement shall be determined using one of the following criteria:

1. When the calcium oxide content of a mineral admixture is equal to or less than 2 percent by weight, the amount of mineral admixture shall not be less than 15 percent by weight of the total amount of cementitious material to be used in the mix;
2. When the calcium oxide content of a mineral admixture is greater than 2 percent, the amount of mineral admixture shall not be less than 25 percent by weight of the total amount of cementitious material to be used in the mix;
3. When a mineral admixture that conforms to the provisions for silica fume in Section 90-2.04, "Admixture Materials," is used, the amount of mineral admixture shall not be less than 10 percent by weight of the total amount of cementitious material to be used in the mix.

C. The total amount of mineral admixture shall not exceed 35 percent by weight of the total amount of cementitious material to be used in the mix. Where Section 90-1.01, "Description," specifies a maximum cementitious content in pounds per cubic yard, the total weight of cement and mineral admixture per cubic yard shall not exceed the specified maximum cementitious material content.

90-4.09 BLANK

90-4.10 PROPORTIONING AND DISPENSING LIQUID ADMIXTURES

- Chemical admixtures and air-entraining admixtures shall be dispensed in liquid form. Dispensers for liquid admixtures shall have sufficient capacity to measure at one time the prescribed quantity required for each batch of concrete. Each dispenser shall include a graduated measuring unit into which liquid admixtures are measured to within ±5 percent of the prescribed quantity for each batch. Dispensers shall be located and maintained so that the graduations can be accurately read from the point at which proportioning operations are controlled to permit a visual check of batching accuracy prior to discharge. Each measuring unit shall be clearly marked for the type and quantity of admixture.

- Each liquid admixture dispensing system shall be equipped with a sampling device consisting of a valve located in a safe and readily accessible position such that a sample of the admixture may be withdrawn slowly by the Engineer.

- If more than one liquid admixture is used in the concrete mix, each liquid admixture shall have a separate measuring unit and shall be dispensed by injecting equipment located in such a manner that the admixtures are not mixed at high concentrations and do not interfere with the effectiveness of each other. When air-entraining admixtures are used in conjunction with other liquid admixtures, the air-entraining admixture shall be the first to be incorporated into the mix.

- When automatic proportioning devices are required for concrete pavement, dispensers for liquid admixtures shall operate automatically with the batching control equipment. The dispensers shall be equipped with an automatic warning system in good operating condition that will provide a visible or audible signal at the point at which proportioning operations are controlled when the quantity of admixture measured for each batch of concrete varies from the preselected dosage by more than 5 percent, or when the entire contents of the measuring unit are not emptied from the dispenser into each batch of concrete.

- Unless liquid admixtures are added to premeasured water for the batch, their discharge into the batch shall be arranged to flow into the stream of water so that the admixtures are well dispersed throughout the batch. Air-entraining admixtures may be dispensed directly into moist sand in the batching bins provided that adequate control of the air content of the concrete can be maintained.

- Liquid admixtures requiring dosages greater than one-half gallon per cubic yard shall be considered to be water when determining the total amount of free water as specified in Section 90-6.06, "Amount of Water and Penetration."

- Special admixtures, such as "high range" water reducers that may contribute to a high rate of slump loss, shall be measured and dispensed as recommended by the admixture manufacturer and as approved by the Engineer.
90-4.11 STORAGE, PROPORTIONING, AND DISPENSING OF MINERAL ADMIXTURES

- Mineral admixtures shall be protected from exposure to moisture until used. Sacked material shall be piled to permit access for tally, inspection, and identification of each shipment.
- Adequate facilities shall be provided to assure that mineral admixtures meeting the specified requirements are kept separate from other mineral admixtures in order to prevent any but the specified mineral admixtures from entering the work. Safe and suitable facilities for sampling mineral admixtures shall be provided at the weigh hopper or in the feed line immediately in advance of the hopper.
- Mineral admixtures shall be incorporated into concrete using equipment conforming to the requirements for cement weigh hoppers, and charging and discharging mechanisms in ASTM Designation: C 94, in Section 90-5.03, "Proportioning," and in this Section 90-4.11.
- When concrete is completely mixed in stationary paving mixers, the mineral admixture shall be weighed in a separate weigh hopper conforming to the provisions for cement weigh hoppers and charging and discharging mechanisms in Section 90-5.03A, "Proportioning for Pavement," and the mineral admixture and cement shall be introduced simultaneously into the mixer proportionately with the aggregate. If the mineral admixture is not weighed in a separate weigh hopper, the Contractor shall provide certification that the stationary mixer is capable of mixing the cement, admixture, aggregates and water uniformly prior to discharge. Certification shall contain the following:

  A. Test results for 2 compressive strength test cylinders of concrete taken within the first third and 2 compressive strength test cylinders of concrete taken within the last third of the concrete discharged from a single batch from the stationary paving mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength;"
  B. Calculations demonstrating that the difference in the averages of 2 compressive strengths taken in the first third is no greater than 7.5 percent different than the averages of 2 compressive strengths taken in the last third of the concrete discharged from a single batch from the stationary paving mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength;"
  C. The mixer rotation speed and time of mixing prior to discharge that are required to produce a mix that meets the requirements above.

90-5 PROPORTIONING

90-5.01 STORAGE OF AGGREGATES

- Aggregates shall be stored or stockpiled in such a manner that separation of coarse and fine particles of each size shall be avoided and also that the various sizes shall not become intermixed before proportioning.
- Aggregates shall be stored or stockpiled and handled in a manner that shall prevent contamination by foreign materials. In addition, storage of aggregates at batching or mixing facilities that are erected subsequent to the award of the contract and that furnish concrete to the project shall conform to the following:

  A. Intermingling of the different sizes of aggregates shall be positively prevented. The Contractor shall take the necessary measures to prevent intermingling. The preventive measures may include, but are not necessarily limited to, physical separation of stockpiles or construction of bulkheads of adequate length and height; and
  B. Contamination of aggregates by contact with the ground shall be positively prevented. The Contractor shall take the necessary measures to prevent contamination. The preventive measures shall include, but are not necessarily limited to, placing aggregates on wooden platforms or on hardened surfaces consisting of portland cement concrete, asphalt concrete, or cement treated material.

- In placing aggregates in storage or in moving the aggregates from storage to the weigh hopper of the batching plant, any method that may cause segregation, degradation, or the combining of materials of different gradings that will result in any size of aggregate at the weigh hopper failing to meet the grading requirements, shall be discontinued. Any method of handling aggregates that results in excessive breakage of particles shall be discontinued. The use of suitable devices to reduce impact of falling aggregates may be required by the Engineer.

90-5.02 PROPORTIONING DEVICES

- Weighing, measuring, or metering devices used for proportioning materials shall conform to the requirements in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, automatic weighing systems
shall comply with the requirements for automatic proportioning devices in Section 90-5.03A, "Proportioning for Pavement." Devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and mineral admixture for one batch of concrete is a single operation of a switch or starter.

- Proportioning devices shall be tested at the expense of the Contractor as frequently as the Engineer may deem necessary to ensure their accuracy.
- Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the plant is in operation, the weight of each batch of material shall not vary from the weight designated by the Engineer by more than the tolerances specified herein.
- Equipment for cumulative weighing of aggregate shall have a zero tolerance of ±0.5%-percent of the designated total batch weight of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be ±0.5%-percent of the individual batch weight designated for each size of aggregate. Equipment for cumulative weighing of cement and mineral admixtures shall have a zero tolerance of ±0.5%-percent of the designated total batch weight of the cement and mineral admixture. Equipment for weighing cement or mineral admixture separately shall have a zero tolerance of ±0.5%-percent of their designated individual batch weights. Equipment for measuring water shall have a zero tolerance of ±0.5%-percent of its designated weight or volume.
- The weight indicated for any batch of material shall not vary from the preselected scale setting by more than the following:
  
  A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch weight of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch weights;
  B. Cement shall be within 1.0 percent of its designated batch weight. When weighed individually, mineral admixture shall be within 1.0 percent of its designated batch weight. When mineral admixture and cement are permitted to be weighed cumulatively, cement shall be weighed first to within 1.0 percent of its designated batch weight, and the total for cement and mineral admixture shall be within 1.0 percent of the sum of their designated batch weights; and
  C. Water shall be within 1.5 percent of its designated weight or volume.

- Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, mineral admixture, or cement plus mineral admixture and aggregates shall not exceed that of commercially available scales having single graduations indicating a weight not exceeding the maximum permissible weight variation above, except that no scale shall be required having a capacity of less than 1,000 pounds, with one-pound graduations.

90-5.03 PROPORTIONING

- Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cement, mineral admixture, and water as provided in these specifications. Aggregates shall be proportioned by weight.
- At the time of batching, aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry weight.
- Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.
- Bulk "Type IP (MS) Modified" cement shall be weighed in an individual hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer.
- Bulk cement and mineral admixture may be weighed in separate, individual weigh hoppers or may be weighed in the same weigh hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer. If the cement and mineral admixture are weighed cumulatively, the cement shall be weighed first.
- When cement and mineral admixtures are weighed in separate weigh hoppers, the weigh systems for the proportioning of the aggregate, the cement, and the mineral admixture shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute
an individual and independent material weighing device. The cement and the mineral admixture shall be discharged into the mixer simultaneously with the aggregate.

- The scales and weigh hoppers for bulk weighing cement, mineral admixture, or cement plus mineral admixture shall be separate and distinct from the aggregate weighing equipment.
- For batches with a volume of one cubic yard or more, the batching equipment shall conform to one of the following combinations:
  A. Separate boxes and separate scale and indicator for weighing each size of aggregate.
  B. Single box and scale indicator for all aggregates.
  C. Single box or separate boxes and automatic weighing mechanism for all aggregates.
- In order to check the accuracy of batch weights, the gross weight and tare weight of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined when ordered by the Engineer. The equipment shall be weighed at the Contractor's expense on scales designated by the Engineer.

90-5.03A PROPORTIONING FOR PAVEMENT

- Aggregates and bulk cement, mineral admixture, and cement plus mineral admixture for use in pavement shall be proportioned by weight by means of automatic proportioning devices of approved type conforming to these specifications.
- The Contractor shall install and maintain in operating condition an electronically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5-percent by weight of the fine aggregate.
- The batching of cement, mineral admixture, or cement plus mineral admixture and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and mineral admixture hoppers or the cement plus mineral admixture hopper are charged with weights that are within the tolerances specified in Section 90-5.02, "Proportioning Devices."
- When interlocks are required for cement and mineral admixture charging mechanisms and cement and mineral admixtures are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of mineral admixture until the weight of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."
- The discharge gate on the cement and mineral admixture hoppers or the cement plus mineral admixture hopper shall be designed to permit regulating the flow of cement, mineral admixture, or cement plus mineral admixture into the aggregate as directed by the Engineer.
- When separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.
- Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and so that the weigh box cannot be tripped until the required quantity from each of the several bins has been deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.
- When the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required weight is discharged into the weigh box, after which the gate shall automatically close and lock.
- The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

90-6 MIXING AND TRANSPORTING

90-6.01 GENERAL

- Concrete shall be mixed in mechanically operated mixers, except that when permitted by the Engineer, batches not exceeding a third of a cubic yard may be mixed by hand methods in conformance with the provisions in Section 90-6.05, "Hand-Mixing."
- Equipment having components made of aluminum or magnesium alloys that would have contact with plastic concrete during mixing, transporting, or pumping of portland cement concrete shall not be used.
- Concrete shall be homogeneous and thoroughly mixed, and there shall be no lumps or evidence of undispersed cement, mineral admixture, or cement plus mineral admixture.
Uniformity of concrete mixtures will be determined by differences in penetration as determined by California Test 533, or slump as determined by ASTM Designation: C 143, and by variations in the proportion of coarse aggregate as determined by California Test 529.

When the mix design specifies a penetration value, the difference in penetration, determined by comparing penetration tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed \( \frac{1}{2} \) inch. When the mix design specifies a slump value, the difference in slump, determined by comparing slump tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed the values given in the table below. Variation in the proportion of coarse aggregate will be determined by comparing the results of tests of 2 samples of mixed concrete from the same batch or truck mixer load and the difference between the 2 results shall not exceed 170 pounds per cubic yard of concrete.

<table>
<thead>
<tr>
<th>Average Slump</th>
<th>Maximum Permissible Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4”</td>
<td>1”</td>
</tr>
<tr>
<td>4” to 6”</td>
<td>1 1/2”</td>
</tr>
<tr>
<td>Greater than 6” to 9”</td>
<td>2”</td>
</tr>
</tbody>
</table>

The Contractor, at the Contractor's expense, shall furnish samples of the freshly mixed concrete and provide satisfactory facilities for obtaining the samples.

**90-6.02 MACHINE MIXING**

Concrete mixers may be of the revolving drum or the revolving blade type, and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. Mixers and agitators that have an accumulation of hard concrete or mortar shall not be used.

The temperature of mixed concrete, immediately before placing, shall be not less than 50° F or more than 90° F. Aggregates and water shall be heated or cooled as necessary to produce concrete within these temperature limits. Neither aggregates nor mixing water shall be heated to exceed 150° F. If ice is used to cool the concrete, discharge of the mixer will not be permitted until all ice is melted.

The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first fourth of the specified mixing time.

Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions that reduce or vary the required quantity of cementitious material in the concrete mixture.

Paving and stationary mixers shall be operated with an automatic timing device. The timing device and discharge mechanism shall be interlocked so that during normal operation no part of the batch will be discharged until the specified mixing time has elapsed.

The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.

The size of batch shall not exceed the manufacturer's guaranteed capacity.

When producing concrete for pavement or base, suitable batch counters shall be installed and maintained in good operating condition at jobsite batching plants and stationary mixers. The batch counters shall indicate the exact number of batches proportioned and mixed.

Concrete shall be mixed and delivered to the jobsite by means of one of the following combinations of operations:

A. Mixed completely in a stationary mixer and the mixed concrete transported to the point of delivery in truck agitators or in non-agitating hauling equipment (central-mixed concrete).
B. Mixed partially in a stationary mixer, and the mixing completed in a truck mixer (shrink-mixed concrete).
C. Mixed completely in a truck mixer (transit-mixed concrete).
D. Mixed completely in a paving mixer.

Agitators may be truck mixers operating at agitating speed or truck agitators. Each mixer and agitator shall have attached thereto a prominent place a metal plate or plates on which is plainly marked the various uses for which the equipment is designed, the manufacturer's guaranteed capacity of the drum or container in terms of the volume of mixed concrete and the speed of rotation of the mixing drum or blades.
. Truck mixers shall be equipped with electrically or mechanically actuated revolution counters by which the number of revolutions of the drum or blades may readily be verified.
. When shrink-mixed concrete is furnished, concrete that has been partially mixed at a central plant shall be transferred to a truck mixer and all requirements for transit-mixed concrete shall apply. No credit in the number of revolutions at mixing speed shall be allowed for partial mixing in a central plant.

90-6.03 TRANSPORTING MIXED CONCRETE
. Mixed concrete may be transported to the delivery point in truck agitators or truck mixers operating at the speed designated by the manufacturer of the equipment as agitating speed, or in non-agitating hauling equipment, provided the consistency and workability of the mixed concrete upon discharge at the delivery point is suitable for adequate placement and consolidation in place, and provided the mixed concrete after hauling to the delivery point conforms to the provisions in Section 90-6.01, "General."
. Truck agitators shall be loaded not to exceed the manufacturer's guaranteed capacity and shall maintain the mixed concrete in a thoroughly mixed and uniform weight during hauling.
. Bodies of non-agitating hauling equipment shall be constructed so that leakage of the concrete mix, or any part thereof, will not occur at any time.
. Concrete hauled in open-top vehicles shall be protected during hauling against rain or against exposure to the sun for more than 20 minutes when the ambient temperature exceeds 75° F.
. No additional mixing water shall be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer. If the Engineer authorizes additional water to be incorporated into the concrete, the drum shall be revolved not less than 30 revolutions at mixing speed after the water is added and before discharge is commenced.
. The rate of discharge of mixed concrete from truck mixer-agitators shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open.
. When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours or before 250 revolutions of the drum or blades, whichever occurs first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F or above, the time allowed may be less than 1.5 hours.
. When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.
. Each load of concrete delivered at the jobsite shall be accompanied by a weighmaster certificate showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water added to the load, and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This weighmaster certificate shall also show the actual scale weights (pounds) for the ingredients batched. Theoretical or target batch weights shall not be used as a substitute for actual scale weights.
. Weighmaster certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on a 3 1/2-inch diskette with a capacity of at least 1.4 megabytes. Captured data, for the ingredients represented by each batch shall be "line feed, carriage return" (LFCR) and "one line, separate record" with allowances for sufficient fields to satisfy the amount of data required by these specifications.
. The Contractor may furnish a weighmaster certificate accompanied by a separate certificate that lists the actual batch weights or measurements for a load of concrete provided that both certificates are imprinted with the same non-repeating load number that is unique to the contract and delivered to the jobsite with the load.
. Weighmaster certificates furnished by the Contractor shall conform to the provisions in Section 9-1.01, "Measurement of Quantities."

90-6.04 TIME OR AMOUNT OF MIXING
. Mixing of concrete in paving or stationary mixers shall continue for the required mixing time after all ingredients, except water and admixture, if added with the water, are in the mixing compartment of the mixer before any part of the batch is released. Transfer time in multiple drum mixers shall not be counted as part of the required mixing time.
. The required mixing time, in paving or stationary mixers, of concrete used for concrete structures, except minor structures, shall be not less than 90 seconds or more than 5 minutes, except that when directed by the Engineer in writing, the requirements of the following paragraph shall apply.
The required mixing time, in paving or stationary mixers, except as provided in the preceding paragraph, shall be not less than 50 seconds or more than 5 minutes.

The minimum required revolutions at the mixing speed for transit-mixed concrete shall not be less than that recommended by the mixer manufacturer, but in no case shall the number of revolutions be less than that required to consistently produce concrete conforming to the provisions for uniformity in Section 90-6.01, "General."

90-6.05 HAND-MIXING

Hand-mixed concrete shall be made in batches of not more than one-third cubic yard and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than one foot in total depth. On this mixture shall be spread the dry cement and mineral admixture and the whole weight turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole weight again turned no fewer than 3 times, not including placing in the carriers or forms.

90-6.06 AMOUNT OF WATER AND PENETRATION

The amount of water used in concrete mixes shall be regulated so that the penetration of the concrete as determined by California Test 533 or the slump of the concrete as determined by ASTM Designation: C 143 is within the "Nominal" values shown in the following table. When the penetration or slump of the concrete is found to exceed the nominal values listed, the mixture of subsequent batches shall be adjusted to reduce the penetration or slump to a value within the nominal range shown. Batches of concrete with a penetration or slump exceeding the maximum values listed shall not be used in the work. When Type F or Type G chemical admixtures are added to the mix, the penetration requirements shall not apply and the slump shall not exceed 9 inches after the chemical admixtures are added.

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Nominal Penetration inches</th>
<th>Slump inches</th>
<th>Maximum Penetration inches</th>
<th>Slump inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Pavement</td>
<td>0 - 1</td>
<td>-</td>
<td>1 1/2</td>
<td>-</td>
</tr>
<tr>
<td>Non-reinforced concrete facilities</td>
<td>0 - 1 1/2</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Reinforced concrete structures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sections over 12 inches thick</td>
<td>0 - 1 1/2</td>
<td>-</td>
<td>2 1/2</td>
<td>-</td>
</tr>
<tr>
<td>Sections 12 inches thick or less</td>
<td>0 - 2</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Concrete placed under water</td>
<td>-</td>
<td>6 - 8</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Cast-in-place concrete piles</td>
<td>2 1/2 - 3 1/2</td>
<td>5 - 7</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

The amount of free water used in concrete shall not exceed 310 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cementitious material in excess of 550 pounds per cubic yard.

The term free water is defined as the total water in the mixture minus the water absorbed by the aggregates in reaching a saturated surface-dry condition.

Where there are adverse or difficult conditions that affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic yard of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 pounds of water per added 100 pounds of cementitious material per cubic yard. The cost of additional cementitious material and water added under these conditions shall be at the Contractor’s expense and no additional compensation will be allowed therefor.

The equipment for supplying water to the mixer shall be constructed and arranged so that the amount of water added can be measured accurately. Any method of discharging water into the mixer for a batch shall be accurate within 1.5 percent of the quantity of water required to be added to the mix for any position of the mixer. Tanks used to measure water shall be designed so that water cannot enter while water is being discharged into the mixer and discharge into the mixer shall be made rapidly in one operation without dribbling. All equipment shall be arranged so as to permit checking the amount of water delivered by discharging into measured containers.

90-7 CURING CONCRETE

90-7.01 METHODS OF CURING

Newly placed concrete shall be cured by the methods specified in this Section 90-7.01 and the special provisions.
90-7.01A Water Method

- The concrete shall be kept continuously wet by the application of water for a minimum curing period of 7 days after the concrete has been placed.
- When a curing medium consisting of cotton mats, rugs, carpets, or earth or sand blankets is to be used to retain the moisture, the entire surface of the concrete shall be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered with the curing medium. The moisture from the nozzle shall not be applied under pressure directly upon the concrete and shall not be allowed to accumulate on the concrete in a quantity sufficient to cause a flow or wash the surface. At the expiration of the curing period, the concrete surfaces shall be cleared of all curing mediums.
- At the option of the Contractor, a curing medium consisting of white opaque polyethylene sheeting extruded onto burlap may be used to cure concrete structures. The polyethylene sheeting shall have a minimum thickness of 4 mil, and shall be extruded onto 10-ounce burlap.
- At the option of the Contractor, a curing medium consisting of polyethylene sheeting may be used to cure concrete columns. The polyethylene sheeting shall have a minimum thickness of 10 mil achieved in a single layer of material.
- If the Contractor chooses to use polyethylene sheeting or polyethylene sheeting on burlap as a curing medium as specified above, these mediums and any joints therein shall be secured as necessary to provide moisture retention and shall be within 3 inches of the concrete at all points along the surface being cured. When these mediums are used, the temperature of the concrete shall be monitored during curing. If the temperature of the concrete cannot be maintained below 140°F, this method of curing shall be discontinued, and one of the other curing methods allowed for the concrete shall be used.
- When concrete bridge decks and flat slabs are to be cured without the use of a curing medium, the entire surface of the bridge deck or slab shall be kept damp by the application of water with an atomizing nozzle as specified in the preceding paragraph, until the concrete has set, after which the entire surface of the concrete shall be sprinkled continuously with water for a period of not less than 7 days.

90-7.01B Curing Compound Method

- Surfaces of the concrete that are exposed to the air shall be sprayed uniformly with a curing compound.
- Curing compounds to be used shall be as follows:

  A. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B, except the resin type shall be poly-alpha-methylstyrene.
  B. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B.
  C. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class A.
  D. Non-pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class B.
  E. Non-pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class A.
  F. Non-pigmented curing compound with fugitive dye conforming to the requirements in ASTM Designation: C 309, Type 1-D, Class A.

- The infrared scan for the dried vehicle from curing compound (A) in the preceding list shall match the infrared scan on file at the Transportation Laboratory.
- The loss of water for each type of curing compound, when tested in conformance with the requirements in California Test 534, shall not be more than 0.15-kilograms per meter squared in 24 hours.
- The curing compound to be used will be specified elsewhere in these specifications or in the special provisions.
- When the use of curing compound is required or permitted elsewhere in these specifications or in the special provisions and no specific kind is specified, any of the curing compounds listed above may be used.
- Curing compound shall be applied at a nominal rate of one gallon per 150 square feet, unless otherwise specified.
- At any point, the application rate shall be within ±50 square feet per gallon of the nominal rate specified, and the average application rate shall be within ±25 square feet per gallon of the nominal rate specified when tested in conformance with the requirements in California Test 535. Runs, sags, thin areas, skips, or holidays in the applied curing compound shall be evidence that the application is not satisfactory.
Curing compounds shall be applied using power operated spray equipment. The power operated spraying equipment shall be equipped with an operational pressure gage and a means of controlling the pressure. Hand spraying of small and irregular areas that are not reasonably accessible to mechanical spraying equipment, in the opinion of the Engineer, may be permitted.

The curing compound shall be applied to the concrete following the surface finishing operation, immediately before the moisture sheen disappears from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any drying or cracking of the surface, application of water with an atomizing nozzle as specified in Section 90-7.01A, "Water Method," shall be started immediately and shall be continued until application of the compound is resumed or started; however, the compound shall not be applied over any resulting freestanding water. Should the film of compound be damaged from any cause before the expiration of 7 days after the concrete is placed in the case of structures and 72 hours in the case of pavement, the damaged portion shall be repaired immediately with additional compound.

At the time of use, compounds containing pigments shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. A paddle shall be used to loosen all settled pigment from the bottom of the container, and a power driven agitator shall be used to disperse the pigment uniformly throughout the vehicle.

Agitation shall not introduce air or other foreign substance into the curing compound.

The manufacturer shall include in the curing compound the necessary additives for control of sagging, pigment settling, leveling, de-emulsification, or other requisite qualities of a satisfactory working material. Pigmented curing compounds shall be manufactured so that the pigment does not settle badly, does not cake or thicken in the container, and does not become granular or curdled. Settled pigment shall be a thoroughly wetted, soft, mushy mass permitting the complete and easy vertical penetration of a paddle. Settled pigment shall be easily redispersed, with minimum resistance to the sideways manual motion of the paddle across the bottom of the container, to form a smooth uniform product of the proper consistency.

Curing compounds shall remain sprayable at temperatures above 40° F and shall not be diluted or altered after manufacture.

The curing compound shall be packaged in clean 274-gallon totes, 55-gallon barrels, or 5-gallon pails, or shall be supplied from a suitable storage tank located at the jobsite. The containers shall comply with "Title 49, Code of Federal Regulations, Hazardous Materials Regulations." The 274-gallon totes, and the 55-gallon barrels shall have removable lids and airtight fasteners. The 5-gallon pails shall be round and have standard full open head and bail. Lids with bungholes shall not be permitted. Settling or separation of solids in containers, except tanks, must be completely redispersed with low speed mixing prior to use, in conformance with these specifications and the manufacturer's recommendations. Mixing shall be accomplished either manually by use of a paddle or by use of a mixing blade driven by a drill motor, at low speed. Mixing blades shall be the type used for mixing paint. On site storage tanks shall be kept clean and free of contaminants. Each tank shall have a permanent system designed to completely redispere settled material without introducing air or other foreign substances.

Steel containers and lids shall be lined with a coating that will prevent destructive action by the compound or chemical agents in the air space above the compound. The coating shall not come off the container or lid as skins. Containers shall be filled in a manner that will prevent skinning. Plastic containers shall not react with the compound.

Each container shall be labeled with the manufacturer's name, kind of curing compound, batch number, volume, date of manufacture, and volatile organic compound (VOC) content. The label shall also warn that the curing compound containing pigment shall be well stirred before use. Precautions concerning the handling and the application of curing compound shall be shown on the label of the curing compound containers in conformance with the Construction Safety Orders and General Industry Safety Orders of the State of California.

Containers of curing compound shall be labeled to indicate that the contents fully comply with the rules and regulations concerning air pollution control in the State of California.

When the curing compound is shipped in tanks or tank trucks, a shipping invoice shall accompany each load. The invoice shall contain the same information as that required herein for container labels.

Curing compound will be sampled by the Engineer at the source of supply or at the jobsite or at both locations.

Curing compound shall be formulated so as to maintain the specified properties for a minimum of one year. The Engineer may require additional testing before use to determine compliance with these specifications if the compound has not been used within one year or whenever the Engineer has reason to believe the compound is no longer satisfactory.

Tests will be conducted in conformance with the latest ASTM test methods and methods in use by the Transportation Laboratory.
90-7.01C Waterproof Membrane Method

- The exposed finished surfaces of concrete shall be sprayed with water, using a nozzle that so atomizes the flow that a mist and not a spray is formed, until the concrete has set, after which the curing membrane shall be placed. The curing membrane shall remain in place for a period of not less than 72 hours.
- Sheeting material for curing concrete shall conform to the requirements in AASHTO Designation: M 171 for white reflective materials.
- The sheeting material shall be fabricated into sheets of such width as to provide a complete cover for the entire concrete surface. Joints in the sheets shall be securely cemented together in such a manner as to provide a waterproof joint. The joint seams shall have a minimum lap of 0.33-foot.
- The sheets shall be securely weighted down by placing a bank of earth on the edges of the sheets or by other means satisfactory to the Engineer.
- Should any portion of the sheets be broken or damaged before the expiration of 72 hours after being placed, the broken or damaged portions shall be immediately repaired with new sheets properly cemented into place.
- Sections of membrane that have lost their waterproof qualities or have been damaged to such an extent as to render them unfit for curing the concrete shall not be used.

90-7.01D Forms-In-Place Method

- Formed surfaces of concrete may be cured by retaining the forms in place. The forms shall remain in place for a minimum period of 7 days after the concrete has been placed, except that for members over 20 inches in least dimension the forms shall remain in place for a minimum period of 5 days.
- Joints in the forms and the joints between the end of forms and concrete shall be kept moisture tight during the curing period. Cracks in the forms and cracks between the forms and the concrete shall be resealed by methods subject to the approval of the Engineer.

90-7.02 CURING PAVEMENT

- The entire exposed area of the pavement, including edges, shall be cured by the waterproof membrane method, or curing compound method using curing compound (A) or (B) as the Contractor may elect. Should the side forms be removed before the expiration of 72 hours following the start of curing, the exposed pavement edges shall also be cured. If the pavement is cured by means of the curing compound method, the sawcut and all portions of the curing compound that have been disturbed by sawing operations shall be restored by spraying with additional curing compound.
- Curing shall commence as soon as the finishing process provided in Section 40-1.10, "Final Finishing," has been completed. The method selected shall conform to the provisions in Section 90-7.01, "Methods of Curing."
- When the curing compound method is used, the compound shall be applied to the entire pavement surface by mechanical sprayers. Spraying equipment shall be of the fully atomizing type equipped with a tank agitator that provides for continual agitation of the curing compound during the time of application. The spray shall be adequately protected against wind, and the nozzles shall be so oriented or moved mechanically transversely as to result in the minimum specified rate of coverage being applied uniformly on exposed faces. Hand spraying of small and irregular areas, and areas inaccessible to mechanical spraying equipment, in the opinion of the Engineer, will be permitted. When the ambient air temperature is above 60° F, the Contractor shall fog the surface of the concrete with a fine spray of water as specified in Section 90-7.01A, "Water Method." The surface of the pavement shall be kept moist between the hours of 10:00 a.m. and 4:30 p.m. on the day the concrete is placed. However, the fogging done after the curing compound has been applied shall not begin until the compound has set sufficiently to prevent displacement. Fogging shall be discontinued if ordered in writing by the Engineer.

90-7.03 CURING STRUCTURES

- Newly placed concrete for cast-in-place structures, other than highway bridge decks, shall be cured by the water method, the forms-in-place method, or, as permitted herein, by the curing compound method, in conformance with the provisions in Section 90-7.01, "Methods of Curing."
- The curing compound method using a pigmented curing compound may be used on concrete surfaces of construction joints, surfaces that are to be buried underground, and surfaces where only ordinary surface finish is to be applied and on which a uniform color is not required and that will not be visible from a public traveled way. If the Contractor elects to use the curing compound method on the bottom slab of box girder spans, the curing compound shall be curing compound (A).
- The top surface of highway bridge decks shall be cured by both the curing compound method and the water method. The curing compound shall be curing compound (A).
Concrete surfaces of minor structures, as defined in Section 51-1.02, "Minor Structures," shall be cured by the water method, the forms-in-place method or the curing compound method. When deemed necessary by the Engineer during periods of hot weather, water shall be applied to concrete surfaces being cured by the curing compound method or by the forms-in-place method, until the Engineer determines that a cooling effect is no longer required. Application of water for this purpose will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

90-7.04 CURING PRECAST CONCRETE MEMBERS

Precast concrete members shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing." Curing shall be provided for the minimum time specified for each method or until the concrete reaches its design strength, whichever is less. Steam curing may also be used for precast members and shall conform to the following provisions:

A. After placement of the concrete, members shall be held for a minimum 4-hour presteaming period. If the ambient air temperature is below 50° F, steam shall be applied during the presteaming period to hold the air surrounding the member at a temperature between 50° F and 90° F.

B. To prevent moisture loss on exposed surfaces during the presteaming period, members shall be covered as soon as possible after casting or the exposed surfaces shall be kept wet by fog spray or wet blankets.

C. Enclosures for steam curing shall allow free circulation of steam about the member and shall be constructed to contain the live steam with a minimum moisture loss. The use of tarpaulins or similar flexible covers will be permitted, provided they are kept in good repair and secured in such a manner as to prevent the loss of steam and moisture.

D. Steam at the jets shall be at low pressure and in a saturated condition. Steam jets shall not impinge directly on the concrete, test cylinders, or forms. During application of the steam, the temperature rise within the enclosure shall not exceed 40° F per hour. The curing temperature throughout the enclosure shall not exceed 150° F and shall be maintained at a constant level for a sufficient time necessary to develop the required transfer strength. Control cylinders shall be covered to prevent moisture loss and shall be placed in a location where temperature is representative of the average temperature of the enclosure.

E. Temperature recording devices that will provide an accurate, continuous, permanent record of the curing temperature shall be provided. A minimum of one temperature recording device per 200 feet of continuous bed length will be required for checking temperature.

F. Members in pretension beds shall be detensioned immediately after the termination of steam curing while the concrete and forms are still warm, or the temperature under the enclosure shall be maintained above 60° F until the stress is transferred to the concrete.

G. Curing of precast concrete will be considered completed after termination of the steam curing cycle.

90-7.05 CURING PRECAST PRESTRESSED CONCRETE PILES

Newly placed concrete for precast prestressed concrete piles shall be cured in conformance with the provisions in Section 90-7.04, "Curing Precast Concrete Members," except that piles in a corrosive environment shall be cured as follows:

A. Piles shall be either steam cured or water cured. If water curing is used, the piles shall be kept continuously wet by the application of water in conformance with the provisions in Section 90-7.01A, "Water Method."

B. If steam curing is used, the steam curing provisions in Section 90-7.04, "Curing Precast Concrete Members," shall apply except that the piles shall be kept continuously wet for their entire length for a period of not less than 3 days, including the holding and steam curing periods.

90-7.06 CURING SLOPE PROTECTION

Concrete slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."

Concreted-rock slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing," or with a blanket of earth kept wet for 72 hours, or by sprinkling with a fine spray of water every 2 hours during the daytime for a period of 3 days.

90-7.07 CURING MISCELLANEOUS CONCRETE WORK

Exposed surfaces of curbs shall be cured by pigmented curing compounds as specified in Section 90-7.01B, "Curing Compound Method."
Concrete sidewalks, gutter depressions, island paving, curb ramps, driveways, and other miscellaneous concrete areas shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."

Shotcrete shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."

Mortar and grout shall be cured by keeping the surface damp for 3 days.

After placing, the exposed surfaces of sign structure foundations, including pedestal portions, if constructed, shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."

PROTECTING CONCRETE

GENERAL

In addition to the provisions in Section 7-1.16, "Contractor's Responsibility for the Work and Materials," the Contractor shall protect concrete as provided in this Section 90-8.

Concrete shall not be placed on frozen or ice-coated ground or subgrade nor on ice-coated forms, reinforcing steel, structural steel, conduits, precast members, or construction joints.

Under rainy conditions, placing of concrete shall be stopped before the quantity of surface water is sufficient to damage surface mortar or cause a flow or wash of the concrete surface, unless the Contractor provides adequate protection against damage.

Concrete that has been frozen or damaged by other causes, as determined by the Engineer, shall be removed and replaced by the Contractor at the Contractor's expense.

PROTECTING CONCRETE STRUCTURES

Structure concrete and shotcrete used as structure concrete shall be maintained at a temperature of not less than 45°F for 72 hours after placing and at not less than 40°F for an additional 4 days. When required by the Engineer, the Contractor shall submit a written outline of the proposed methods for protecting the concrete.

PROTECTING CONCRETE PAVEMENT

Pavement concrete shall be maintained at a temperature of not less than 40°F for 72 hours. When required by the Engineer, the Contractor shall submit a written outline of the proposed methods for protecting the concrete.

Except as provided in Section 7-1.08, "Public Convenience," the Contractor shall protect concrete pavement against construction and other activities that abrade, scar, discolor, reduce texture depth, lower coefficient of friction, or otherwise damage the surface. Stockpiling, drifting, or excessive spillage of soil, gravel, petroleum products, and concrete or asphalt mixes on the surface of concrete pavement is prohibited unless otherwise specified in these specifications, the special provisions or permitted by the Engineer.

When ordered by the Engineer or shown on the plans or specified in the special provisions, pavement crossings shall be constructed for the convenience of public traffic. The material and work necessary for the construction of the crossings, and their subsequent removal and disposal, will be paid for at the contract unit prices for the items of work involved and if there are no contract items for the work involved, payment for pavement crossings will be made by extra work as provided in Section 4-1.03D, "Extra Work." Where public traffic will be required to cross over the new pavement, Type III portland cement may be used in concrete, if permitted in writing by the Engineer. The pavement may be opened to traffic as soon as the concrete has developed a modulus of rupture of 550 psi. The modulus of rupture will be determined by California Test 523.

No traffic or Contractor's equipment, except as hereinafter provided, will be permitted on the pavement before a period of 10 days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of at least 550 psi. Concrete that fails to attain a modulus of rupture of 550 psi within 10 days shall not be opened to traffic until directed by the Engineer.

Equipment for sawing weakened plane joints will be permitted on the pavement as specified in Section 40-1.08B, "Weakened Plane Joints."

When requested in writing by the Contractor, the tracks on one side of paving equipment will be permitted on the pavement after a modulus of rupture of 350 psi has been attained, provided that:

A. Unit pressure exerted on the pavement by the paver shall not exceed 20 psi;
B. Tracks with cleats, grousers, or similar protuberances shall be modified or shall travel on planks or equivalent protective material, so that the pavement is not damaged; and
C. No part of the track shall be closer than one foot from the edge of pavement.
The State will furnish the molds and machines for testing the concrete for modulus of rupture, and the Contractor, at the Contractor's expense, shall furnish the material and whatever labor the Engineer may require.

90-9 COMpressive Strength

90-9.01 General

Concrete compressive strength requirements consist of a minimum strength that shall be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified in these specifications or the special provisions or are shown on the plans.

The compressive strength of concrete will be determined from test cylinders that have been fabricated from concrete sampled in conformance with the requirements of California Test 539. Test cylinders will be molded and initially field cured in conformance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in conformance with the requirements of California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in conformance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.

When concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall, at the Contractor's expense, make corrective changes, subject to approval of the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State $10 for each in-place cubic yard of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State $15 for each in-place cubic yard of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. Concrete represented by a single test that indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials."

If the test result indicates that the compressive strength at the maximum curing age specified or allowed is below the specified strength, but is 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor’s expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum curing age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor’s expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in conformance with the requirements in ASTM Designation: C 42.

No single compressive strength test shall represent more than 320 cubic yards.

When a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders that have been handled and stored in conformance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. When the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.
When concrete is specified by compressive strength, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use will be required prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

Certified test data, in order to be acceptable, shall indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of cure days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

Trial batch test reports, in order to be acceptable, shall indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 580 psi greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches that were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

Tests shall be performed in conformance with either the appropriate California Test methods or the comparable ASTM test methods. Equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

The certified test data and trial batch test reports shall include the following information:

A. Date of mixing.
B. Mixing equipment and procedures used.
C. The size of batch in cubic yards and the weight, type, and source of all ingredients used.
D. Penetration of the concrete.
E. The air content of the concrete if an air-entraining admixture is used.
F. The age at time of testing and strength of all concrete cylinders tested.

Certified test data and trial batch test reports shall be signed by an official of the firm that performed the tests.

When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type or class of concrete required at that location.

After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making changes that, in the judgment of the Engineer, could result in a strength of concrete below that specified.

The Contractor's attention is directed to the time required to test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

90-10 MINOR CONCRETE

90-10.01 GENERAL

Concrete for minor structures, slope paving, curbs, sidewalks and other concrete work, when designated as minor concrete on the plans, in the specifications, or in the contract item, shall conform to the provisions specified herein.

The Engineer, at the Engineer's discretion, will inspect and test the facilities, materials and methods for producing the concrete to ensure that minor concrete of the quality suitable for use in the work is obtained.

90-10.02 MATERIALS

Minor concrete shall conform to the following requirements:

90-10.02A Cementitious Material

Cementitious material shall conform to the provisions in Section 90-1.01, "Description."
90-10.02B Aggregate
. Aggregate shall be clean and free from deleterious coatings, clay balls, roots, and other extraneous materials.
. The Contractor shall submit to the Engineer for approval, a grading of the combined aggregate proposed for use in the minor concrete. After acceptance of the grading, aggregate furnished for minor concrete shall conform to that grading, unless a change is authorized in writing by the Engineer.
. The Engineer may require the Contractor to furnish periodic test reports of the aggregate grading furnished. The maximum size of aggregate used shall be at the option of the Contractor, but in no case shall the maximum size be larger than 1 1/2 inch or smaller than 3/4 inch.
. The Engineer may waive, in writing, the gradation requirements in this Section 90-10.02B if, in the Engineer's opinion, the furnishing of the gradation is not necessary for the type or amount of concrete work to be constructed.

90-10.02C Water
. Water used for washing, mixing, and curing shall be free from oil, salts, and other impurities that would discolor or etch the surface or have an adverse affect on the quality of the concrete.

90-10.02D Admixtures
. The use of admixtures shall conform to the provisions in Section 90-4, "Admixtures."

90-10.03 PRODUCTION
. Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice that will result in concrete that is thoroughly and uniformly mixed, that is suitable for the use intended, and that conforms to requirements specified herein. Recognized standards of good practice are outlined in various industry publications such as those issued by American Concrete Institute, AASHTO, or the Department.
. The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."
. The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6-06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer.
. Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 90° F will be considered conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.
. The required mixing time in stationary mixers shall be not less than 50 seconds or more than 5 minutes.
. The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.
. Each load of ready-mixed concrete shall be accompanied by a weighmaster certificate that shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The weighmaster certificate shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.
. A Certificate of Compliance conforming to the provisions in Section 6–1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets contract requirements, including minimum cementitious material content specified.

90-10.04 CURING MINOR CONCRETE
. Curing minor concrete shall conform to the provisions in Section 90-7, "Curing Concrete."

90-10.05 PROTECTING MINOR CONCRETE
. Protecting minor concrete shall conform to the provisions in Section 90-8, "Protecting Concrete," except the concrete shall be maintained at a temperature of not less than 40° F for 72 hours after placing.
90-10.06 MEASUREMENT AND PAYMENT
- Minor concrete will be measured and paid for in conformance with the provisions specified in the various sections of these specifications covering concrete construction when minor concrete is specified in the specifications, shown on the plans, or indicated by contract item in the Engineer's Estimate.

90-11 MEASUREMENT AND PAYMENT

90-11.01 MEASUREMENT
- Portland cement concrete will be measured in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.
- When it is provided that concrete will be measured at the mixer, the volume in cubic feet shall be computed as the total weight of the batch in pounds divided by the density of the concrete in pounds per cubic foot. The total weight of the batch shall be calculated as the sum of all materials, including water, entering the batch. The density of the concrete will be determined in conformance with the requirements in California Test 518.

90-11.02 PAYMENT
- Portland cement concrete will be paid for in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.
- Full compensation for furnishing and incorporating admixtures required by these specifications or the special provisions will be considered as included in the contract prices paid for the concrete involved and no additional compensation will be allowed therefor.
- Should the Engineer order the Contractor to incorporate any admixtures in the concrete when their use is not required by these specifications or the special provisions, furnishing the admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."
- Should the Contractor use admixtures in conformance with the provisions in Section 90-4.05, "Optional Use of Chemical Admixtures," or Section 90-4.07, "Optional Use of Air-entraining Admixtures," or should the Contractor request and obtain permission to use other admixtures for the Contractor's benefit, the Contractor shall furnish those admixtures and incorporate them into the concrete at the Contractor's expense and no additional compensation will be allowed therefor.